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Risk Culture in Multinational Companies: Engineering and Construction Multinational Case Study

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Résumé en français

Cette thèse représente quatre années de travail de recherche et de terrain. Ce cheminement se complète par ce récit qui a pour objectif de décrire, clarifier et aussi stimuler la réflexion sur la culture du risque dans des compagnies multinationales.

1. Contexte et Problématique

La gestion du risque fait partie du paysage depuis que le commerce existe mais son importance dans la gestion des organisations s'est accentuée entre la fin des années 90 et le début des années 2000 suite à de multiples scandales qui ont mis en lumière l'insuffisante gestion du risque par de nombreuses organisations ainsi que leur négligence envers la culture du risque (Chandra, 2003). Cette sous-estimation de la culture du risque s'est confirmée lors de la crise financière de 2008 qui a eu des retombés mondiaux. En cause, une culture du risque trop agressive et sans contrôle dans de nombreuses compagnies et plus particulièrement dans les compagnies financières. C'est ainsi que nous pouvons citer les exemples bien connus de Maxwell, Enron, OneTel, ces compagnies durement touchées suite à leur négligence ou sous-estimation de l'importance de la gestion des risques ainsi que de la culture du risque (Gupta & Leech, 2015; Power *et al.*, 2014, Ashby *et al.*, 2012). Ces entreprises mettent en lumière les prises de risques excessives qui peuvent résulter de l'absence de mesures de gestion appropriées.

Parce que la gestion des risques est devenue populaire et nécessaire, les compagnies souhaitent contrôler et mesurer les effets des risques ainsi que leurs impacts sur leurs activités.

A cet effet, la culture du risque devient plus en plus importante dans l'environnement social, économique aussi bien que dans le monde des affaires et devient un facteur critique de la gestion des risques. Quelques chercheurs se concentrent sur la question comme par exemple Palermo *et al.*, (2017); Roschman, 2016; Power *et al.*, (2014); Ashby *et al.*, (2012); Mikes (2011, 2009). Ils démontrent la profondeur du sujet et ont tendance à se concentrer sur

- le fonctionnement interne de la culture du risque,
- le rapport qu'entretiennent les entreprises avec leur culture du risque.

Cependant la culture du risque reste encore peu traitée comme un concept holistique et elle demeure essentiellement explorée par des professionnels (tels que les cabinets de conseil, associations et instituts spécialisés en gestion du risques) ou des institutions (comme par exemple le Financial Stability Board ou des comité et standards internationaux COSO et ISO).

Dû à cette réelle nécessité de connaitre davantage la culture du risque dans la gestion de l'organisation nous proposons un sujet de recherche qui vise à contribuer à une clarification de la culture du risque.

2. Encrage dans la culture de Risque

La première partie a pour but d'explorer la vision théorique de notre sujet. Notre thèse est dédiée à la gestion des risques et à la place de la culture du risque qui nous conduit à identifier le gap théorique et les questions de recherche.

Dans notre premier chapitre nous traitons de la culture du risque sous différents axes théoriques. Risque et culture organisationnelle sont au cœur du concept de culture du risque. En définissant séparément ces deux aspects phares, nous obtenons une meilleure perspective sur la connaissance de base de la culture du risque. Tout d'abord nous reviendrons sur les origines historiques du risque qui remontent au développement du monde marchand et du commerce en moyen âge, époque où les échanges de marchandises se faisaient par voix maritimes. Bien que cette technique ai permis d'échanger une grande quantité de biens, elle présentait de nombreux danger car les voyages sur les mers et océans s'avèrent imprévisibles. La notion de risque naquit donc dans les langues latines, grecques... (nombre d'écrits discutent des origines réelles du mot risque, voir par exemple Scholz & Siegrist, 2008, Luhmann, 1993). Ce que nous retenons essentiellement de cette première attention aux risques est une première brique qui rattache la notion à la probabilité de danger dans le monde du commerce et qui questionne sa gestion. Dans le monde moderne, le risque peut être classé en deux catégories. D'une part, l'approche réaliste, dit aussi objective, analyse le risque comme un événement dont l'impact et les potentiels revenus peuvent être mesurés et calculés. Cette approche est plutôt utilisée dans les disciplines mathématiques comment l'assurance, la finance et la comptabilité. D'autre part, nous postulons que le risque est une construction sociale dans la mesure où son appréciation dépend de l'interprétation, de la perception et de la culture des individus qui le

vive. Cette notion est ainsi appelée constructions ou interprétation. Elle va dans la logique des sciences dite molles, comme les sciences sociales.

Dans notre vision de la gestion de la culture du risque, nous nous tournons vers la vision du risque comme construction sociale car la culture organisationnelle s'inscrit dans cette lignée. En effet, la culture organisationnelle représente aussi bien des valeurs que langages, symboles, routines qui sont influencés par des décideurs. Dans son ensemble, elle se définit comme ce qui rend l'organisation unique (Cameron & Quinn, 2011). Autrement dit, la culture organisationnelle est construite et elle se caractérise par les assomptions partagées et enseignées au sein d'un groupe qui s'adapte à l'environnement externe et le transpose à l'intérieur (Schein, 2004).

En reliant les concepts de culture et de risque, Gephardt *et al.*, (2009) explique que les risques sont toujours ancrés dans la culture. La culture du risque est caractérisée comme étant un objet intangible (Power *et al.*, 2013), et représente les comportements et pratiques que l'organisation adopte envers les risques (Mikes, 2009).

À ce jour, la littérature sur la culture du risque se limite à quelques références clés (par exemple Palermo *et al.*, 2017; Zhivitskaya, 2015; Power *et al.*, 2013; Ashby *et al.*, 2012) qui tentent de la clarifier. Toutefois, ces références proviennent majoritairement du secteur financier et comptable ne se concentrent pas sur la gestion des organisations et sur les théories organisationnelles qui sont pourtant une partie majeure de la culture du risque. La culture du risque demeure limitée et essentiellement explorée par des professionnels qui la voit comme une source de profit et d'avantage concurrentiel potentiels. Nous souhaitons donc contribuer à éclaircir davantage ce qui se cache derrière la culture du risque.

Notre deuxième chapitre se penche sur une vision plus ciblée de la gestion du risque au sein des compagnies multinationales. La particularité de ces grandes structures organisationnelles est aussi bien définie par les caractéristiques de l'environnement externe que de l'environnement interne dans lequel elles opèrent. La gestion des risques des compagnies multinationales est en partie conditionnée par leur structure et l'ampleur avec laquelle elles approchent et intègrent les risques dans leurs gouvernances et leurs systèmes internes.

De multiples directives et lois font office de piliers indiquant aux entreprises multinationales la voie qu'elles doivent prendre en terme de gestion des risques afin d'être conformes sur divers marchés. Aussi, nous présentons les sources légales majeures qui donnent le ton à la gestion

des risques. Ces lois se traduisent en multiples supports qui sont mis à la disposition des compagnies qui se voient obligées d'adopter une gestion des risques proportionnelle à leur étendue mondiale. Divers modèles sont proposés par des Organisations internationales (comme par ex. COBIT, COSO, ISO ou NIST). Ces modèles et directives sont proposés à titre indicatif sans obligation d'adoption. Ils restent une aide aux entreprises qui souhaitent avoir une vision générale sur la gestion des risques. Nous arrivons donc au volet du fonctionnement interne de la gestion des risques. Les compagnies adaptent leur gestion des risques aux diverses pressions et obligations externes (e.g. risques opérationnels, risques éthiques, ...).

De ce fait, ce chapitre nous conduit à explorer les nombreuses facettes de la gestion des risques telles que l'appétit du risque, le contrôle organisationnel ainsi que la panoplie des risques auxquels une entreprise doit pouvoir faire face.

Enfin, la gestion des risques peut être répartie en de multiples catégories comme les risques opérationnels, les risques liés à la sécurité, les risques associés aux projets, les risques stratégiques etc. Il existe une vision plus intégrée de la gestion des risques qui couvre l'ensemble de la gestion des risques d'entreprise et qui rassemble des catégories existant en silos sous un parapluie¹ (Mikes, 2009; Power, 2007) appelé en anglais *Enterprise Risk Management* (Bromiley, 2015). Cette vision holistique nous semble la plus évoluée et appropriée à adopter pour analyser la culture des risques.

Enfin, le troisième chapitre se concentre sur la question de recherche et la développe en deux sous questions de recherche en suivant notre question majeure qui est le fil conducteur : **Quels sont les conditions pour établir la culture du risque au sein d'une organisation multinationale ?**

En se fondant sur les théories des organisations, plus particulièrement celles qui apportent une compréhension des aspects formels et informels au sein d'une organisation, nous souhaitons démontrer que les interactions sociales peuvent prendre de multiples formes informelles et aussi être influencées par des aspects formels. Pour commencer notre voyage dans les théories des organisations nous commençons par nous baser sur les travaux de Barnard qui donnent le départ aux travaux sur les aspects formels et informels dans la recherche organisationnelle, aussi bien que dans la prise de décisions (Simon), les comportements organisationnels (Cyert et

¹ Power propose le concept appelé « umbrella » qui signifie la couverture de la gestion de risque sur l'ensemble d'organisation.

March) ou structuration (Mintzberg) que dans les fondations des théories institutionnelles (Meyer et Rowan). Une autre lignée qui peut être explorée est celle sur l'acteur qui agit d'une façon formelle et informelle (Crozier et Friedberg). C'est ainsi que nous étendons notre réflexion sur les aspects formels et informels dans la culture du risque et nous définissons notre première question de recherche.

1.Question de Recherche : **Quels sont les aspects formels et informels de la culture du risque?**

Pour notre étude nous retenons les critères suivant que nous allons aborder sous l'angle formel et informel de la culture du risque :

- Nous allons regarder la structure organisationnelle et au sein de celle-ci la distribution des pouvoirs et la gouvernance des risques ;
- Nous allons également considérer la communication qui est une part indispensable de l'organisation ;
- Nous allons observer les acteurs et le capital humain qui s'interprète au travers des comportements.

Dans un deuxième temps nous nous intéressons aux processus de gestion de la culture du risque dans la pratique autrement dit sa *manageability* (Argyris, 1977). Nous présentons brièvement différents cadres d'études dans lesquelles la *manageabilité* est habituellement étudiée. Nous pouvons soit regarder la gestion au travers des systèmes d'information liés aux décisionnaires et au domaine de la stratégie soit au travers des systèmes de coordinations. C'est ce deuxième choix que nous retenons pour notre étude car le travail et la description des systèmes de coordinations par Mintzberg, complété par Romelaer, nous offre un outil clair et inspirant pour savoir ce que nous devons regarder et appliquer à la culture du risque si nous souhaitons voir sa *manageabilité* au travers de la coordination humaine. Nous expliquons que ce sujet est particulièrement pertinent pour étudier les lacunes dans la culture du risque car les organisations ont tendances à vouloir tout gérer et contrôler, tandis que la culture du risque requière un certain niveau de liberté et de flexibilité. C'est ce qui nous inspire pour notre deuxième question de recherche.

2.Question de Recherche : **Quelle ampleur la gestion de la culture du risque dit-elle prendre ?**

Nous retenons les facteurs suivants pour étudier et répondre à cette question :

- Nous allons voir l'influence de la gestion de la culture des risques sur les systèmes de coordinations qu'ils soient formels ou informels.
- Nous allons également considérer le travail des gestionnaires du risque qui sont supposés avoir le statut d'agents de liaisons et avoir certaines compétences pour établir un climat propice à la culture du risque.

Cette chapitre nous permet d'éclaircir et de se rapprocher de l'étude de la culture du risque.

3. Design de Recherche

Dans notre quatrième chapitre nous présentons le design de recherche qui nous a amené à choisir une étude de cas. L'épistémologie guide le chercheur dans sa compréhension du monde (Van de Ven, 2007). En nous basant sur le débat sur la construction épistémologique, débat qui soulève de multiples interrogations sur le choix d'un seul paradigme (positiviste, constructivisme ou interprétativiste), nous ne désirons pas nous limiter à un paradigme unique et suivions donc l'ouverture soulignée par Dumez (2011, 2010). Ce dernier incite à ne pas se limiter à la recherche d'un strict cadrage et suggère de construire le design le plus adapté à la recherche. Même si le chercheur ne suit pas le canevas d'un seul paradigme, il/elle peut tout de même garder la rigueur académique (Dumez, 2010) qui est nécessaire lors de la recherche. Comme témoignage du déroulement réussi de ce positionnement épistémologique, nous pouvons citer les thèses de Mayer (2017) et de Cusin (2007) qui produisent une recherche rigoureuse sans se plier aux canevas d'un seul courant traditionnel.

Notre étude est basée sur l'abduction et s'inscrit dans la recherche qualitative. Nous avons construit notre sujet de recherche grâce à des va et vient entre la littérature et notre terrain. Le résultat de cette interaction nous a permis de faire évoluer et affiner notre recherche tout au long de notre travail de thèse.

Pour faire notre étude terrain nous avons eu le choix entre deux approches différentes. L'approche basée sur le contenu qui est plus descriptive et aide à comprendre le phénomène étudié et l'approche basée sur le processus qui aide à étudier l'évolution d'un phénomène dans le temps. Utiliser les deux approches a été le plus approprié dans le cadre de notre recherche. Cette approche caractérisée de mixte dans la littérature (Grenier & Josserand, dans Thietart *et*

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al., 2007) nous permet d'étudier à la fois les aspects de la culture du risque et l'évolution de sa gestion et des pratiques sur deux points dans le temps.

Nous avons choisi d'étudier un cas unique afin de pouvoir démontrer la complexité organisationnelle. Le choix de notre étude de cas a été critique pour le succès de notre recherche. Nous devons trouver une organisation qui a traversé un événement extrême, une crise organisationnelle par exemple, pour pouvoir observer l'évolution dans sa culture du risque et sa construction de nouveaux systèmes organisationnels. Notre objectif a été de démontrer l'existence de changements au sein de l'organisation ainsi que les pratiques concrètes de gestion des risques qui conduisent à une culture du risque.

Nous décrivons les étapes du choix de notre étude par la construction de nos critères d'analyse et la recherche d'une compagnie appropriée. Nous avons fait le choix préliminaire d'une compagnie qui correspondait à nos critères de recherche (contexte de changement, multinationale, ...) mais nous avons souhaité valider notre choix. De ce fait, nous avons effectué trois entrevues exploratoires avec des personnes de la haute direction ou en lien avec la direction de la gestion des risques dans trois compagnies différentes qui auraient potentiellement pu nous ouvrir leurs portes dans le cadre de notre recherche. Nous avons également effectué une entrevue exploratoire dans la compagnie qui nous intéressait initialement dans l'optique de valider notre intuition. À l'issue de ces rencontres nous avons conclu que notre choix préliminaire correspondait au mieux à nos critères de présélections.

À l'issue de notre choix préliminaire nous avons pu intégrer la compagnie, que nous nommons EngineerCo dans un souci de confidentialité. Nous avons effectué 18 mois de terrain dont 14,5 mois au sein de la compagnie étudiée. Dans un premier temps nous avons participé au lancement d'un projet pilote en gestion des risques visant à mettre en place un programme de résilience des affaires dans la compagnie. Puis, nous avons intégré le département qui a été créé suite à la récente crise organisationnelle de la compagnie. Nous avons passé 10,5 mois dans ce département. Cette intégration dans la compagnie nous a permis d'étroitement observer l'évolution des pratiques internes liées à la gestion du risque. Nous avons commencé par travailler avec l'unité chargée de l'implémentation et du bon déroulement du programme de résilience. Suite à des changements internes au sein de notre département, nous avons changé de statut en cours d'année et nous sommes mis à reporter directement à la présidence de la compagnie ce qui nous a permis d'élargir notre perspective en terme d'horizon de gestion des risques. Nous avons participé à des groupes de travail et à des évaluations liées à la gestion des

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risques à l'échelle de toute la compagnie et de toutes les zones géographiques dans lesquelles elle opère.

Suite à cette étude longitudinale et à des analyses préliminaires, nous sommes retournée cinq mois plus tard au sein de la direction de gestion du risque de la compagnie. Intégrée au département chargé de la gestion des risques corporatifs, nous avons eu l'opportunité d'observer sur une période de quatre mois le processus préparatif d'évaluation des risques corporatifs et de projets majeurs.

La compagnie a traversé une importante crise interne qui l'a conduite à reconstruire ses systèmes liés à la gestion des risques et ce, de façon holistique et intégrée. Ce contexte fait de notre cas, un sujet d'étude unique pour analyser l'évolution de la gestion des risques dans le temps. En effet, suite à cette crise, l'environnement externe de la compagnie l'a contrainte à mettre en place divers mécanismes internes de gestion des risques tels que des programmes de sûreté et de sécurité. De plus, la compagnie a fondé un programme centré sur la résilience des affaires qui a été déployé sur une période de deux ans à compter de 2015. Notre présence dans la compagnie est donc arrivée à un moment propice à l'observation de transformations majeures en terme de gestion des risques.

Pour ce faire, nous avons établi une méthodologie de collecte et d'analyse de données basée sur notre opérationnalisation des concepts présentés dans le Chapitre 3.

Notre terrain nous a permis d'obtenir un accès ouvert à des données internes de notre entreprise. Le processus de construction de notre étude de cas consistait à assembler les données brutes comme par exemple divers matériaux internes, notre journal de bord et les enregistrements des entrevues que nous avons réalisées. Cette étape terminée, nous avons construit notre cas grâce à la sélection des données que nous comptons utiliser pour notre analyse et qui ont servi de base pour l'écriture des récits de notre cas. Nous avons combiné de multiples sources de données qualitatives primaire et secondaires. Nous avons réalisée des entrevues semi-directives centrées (selon la méthodologie de Romealer, 2005) avec des candidats qui correspondaient à notre niveau d'analyse, c'est-à-dire des décisionnaires au niveau exécutif ou des directeurs. Préalablement à chaque entrevue nous avons contacté les interviewés par email pour expliquer notre recherche et nous entendre sur une date et un lieu de rendez-vous. Nous débutons chaque entrevue en nous présentant, en résumant notre recherche et en demandant l'autorisation d'enregistrer. Un seul interviewé a refusé d'être enregistré ce qui nous a conduit à prendre des notes sur papier et à traiter ces données avec beaucoup de précautions. La durée des entrevues

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était variable mais avoisinaient la trentaine de minute pour les interviewés au niveau les plus haut de l'organisation. Pour les niveaux seniors ou directeur, nos entrevues duraient en moyenne 60 minutes. Dans cinq cas nous avons demandé une seconde entrevue car l'entretien a duré moins de 20 minutes et/ou nous avons eu besoin d'un complément d'information. Au total nous avons effectué 51 entrevues (en incluant celles effectuées à deux reprises). Nous avons également effectué des observations directes (voir le tableau ci-dessous) et visionné des archives dans la data base interne et des documents audio provenant de conférences annuelles des années 2015 et 2016 accessibles sur le site intranet de l'entreprise. Au total nous avons récolté les données primaires suivantes :

Calendrier du terrain de janvier à décembre 2016		
Description de l'activité	Quantité	Objectif pour notre analyse
Groupes de travail sur l'évaluation des risques corporatifs (entre 1,5 et 2,5 heures)	10 séances	Interactions informelles, mécanismes de coordinations au sein du groupe, processus formel
Groupes de travail sur l'évaluation des risques d'éthique et de conformité (en moyenne 3 heures chacun)	14 séances	Styles et modes de coordination et compétences des animateurs (experts en gestion des risques)
Entrevues avec des décisionnaires (directeurs, présidents, membres exécutifs, responsables de régions ou d'unités)	Exploratoire: 4 entrevues	Règles formelles et informelles, pratiques, procédures de gestion des risques, rôles et responsabilités
	Étape 1: 10 entrevues	
	Étape 2: 41 ² entrevues	
Rencontres avec la personne à laquelle nous reportons, rencontres de consultation avec des directeurs de département liés aux risques (éthique, conformité, sûreté, risques corporatifs)	+ 42 rencontres	Échanges informels
Comptes rendus et discussions avec le vice-président exécutif	1-2 rencontres par mois	Développement interactif de la connaissance, de pratiques et de modèles

² Dans la deuxième étape nous avons mené des entrevues avec 46 personnes, dont cinq ont été réalisées en deux fois.

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Assistance au programme de résilience des affaires	durée 1.5 mois	Application en pratique des conseils formels du programme, application puis pratiques formelles des procédures au jour le jour
Trois visites de site d'un projet	1 site	Gestion des risques au niveau des opérations et sur le projet
Observation de l'évolution du programme de résilience des affaires , exercice pilote	2 exercices d'une durée de 2 heures chacun	Comportements formels et informels dans la situation de « pratique de l'urgence », rôles formels et informels.
Notes sur les journées de travail, de quelques lignes à une demie page par jours approximativement	+250 pages de notes	Aller / retour entre les théories, les concepts et la pratique

Calendrier du terrain de recherche de mars à aout 2017		
Description d'activité	Quantité / fréquence	Objectif pour notre analyse
Rendez-vous et comptes rendus avec des responsables en gestion des risques	2-3 fois par mois	Valider les données précédentes, comparaison de l'évolution de la gestion des risques par rapport la visite initiale
Nouveau projet sur le groupe de travail de l'évaluation des risques	1 consultation	Observation du changement dans la façon d'évaluer les risques et dans le mode de coordination
Aide à la création d'une plateforme visant à développer une communauté de pratique, des réseaux et des connaissances en gestion des risques.	3 mois (de mai à juillet)	Mode de coordination informels, mode de contrôle des parties prenantes
Vérification de l'intégrité des clients	2 semaines en mai	
Revue des processus d'évaluation des risques de projet	3 mois	Processus formel d'évaluation de gestion des risques de projet

Formation interne en gestion des risques	1 exercice d'une durée de 4.5h	Pratique interactive et formelle
Groupes de travail sur l'évaluation des risques corporatifs, d'éthiques et de conformités	4 fois	Interactions informelles, mécanismes de coordinations au sein de groupes, processus formels et de communication

Dans la mesure où nous avons eu accès à des données internes et sensibles nous avons respecté les règles d'éthiques et de confidentialités pour nous assurer de ne pas révéler d'informations qui pourraient être compromettantes pour notre cas d'étude. Nous avons complété nos données primaires avec des sources secondaires, telles que des documents provenant de serveurs internes, politiques et procédures internes ainsi que des communications internes.

Nous avons analysé et codé les données selon le modèle que nous avons développé dans notre partie conceptuelle (Chapitre 3). Pour le codage nous avons utilisé le programme NVivo.

Afin d'assurer la validité de notre recherche, nous avons récolté nos données régulièrement (Guba and Lincoln, 1985). Nous étions fortement immergés dans le terrain (Einsehard, 1989) et nous avons fait des mises à jour régulières de nos données et des informations que nous récoltions. De plus, nous avons utilisé la méthode qualitative proposée par Langley (1999).

À l'issue de cette étape nous avons procédé à la rédaction des résultats.

4. Résultats et contribution

Nous troisième partie est dédié à nos résultats de recherche.

Nous commençons notre récit du chapitre six par un ancrage dans le contexte global qui explique l'institutionnalisation de la gestion et de la culture des risques. Nous pensons que la compréhension du contexte dans lequel notre étude de cas opère est cruciale pour cerner et comprendre ses particularités dans la gestion des risques. Pour ce faire, nous avons analysé des documents provenant de diverses sources institutionnelles, telles que le Forum Économique

Mondiale, l'institut des Risques en construction. Nous avons complété cette analyse par quarante-quatre³ entrevues internes pour arriver à une analyse du contexte dans lequel la compagnie EngineerCo. évolue. Le contexte dans lequel les compagnies du secteur de la construction et de l'ingénierie évoluent se différencie par l'existence d'un cadre régulateur important du a une exposition aux risques importante dans un contexte mondial.

Les compagnies multinationales sont conditionnées par des facteurs endogènes à leurs secteurs d'activités. Au Canada, il faut par exemple se conformer aux règles de divers ordres spécialisés (ingénieries, avocats, etc.) ou instituts spécialisés comme l'Institut des risques pour l'Ingénierie et la Construction. À ces spécialisations s'ajoute des conditions marquées par des marchés globaux qui donnent également un aperçu de l'évolution de l'industrie. Comme par exemple le Forum Économique Mondiales (2016) qui a déjà, à de multiples reprises, publié un rapport qui revoit les tendances commerciales à venir. Dans ce rapport ils postulent que les pratiques de la gestion des risques dans le secteur de la construction sont obsolètes car elles manquent de flexibilités. Transparence International et Trace International ont publié d'autres documents qui, dans la même veine, indiquent que le secteur de l'ingénierie est vulnérable à la corruption et aux crimes qui exposent les agents publics et privés à des risques majeurs. Enfin, les évaluateurs financiers, comme les autorités des marchés financiers ou les agences de notation, sont des agents important qui touchent également à la gestion des risques en régulant et en attribuant des notes aux compagnies. Les compagnies multinationales opérant dans le secteur de l'ingénierie ne sont pas insensibles à ces indicateurs. Leurs évaluations se reflètent dans l'attribution d'une note qui peut attirer ou dissuader de futurs investisseurs. Cette introduction au monde des compagnies multinationales nous permet de démontrer que les facteurs provenant de l'environnement externe affectent la gestion des risques internes à l'entreprise.

Dans le panorama de l'industrie de l'ingénierie et de la construction nous avons analysé vingt-sept compagnies toutes membres de l'institut spécialisé en risque. Nous avons accès à leur communication et à leurs méthodes de gestion des risques. À cette étape, notre recherche a confirmé que le socle commun en gestion des risques demeure formel et est similaire d'une compagnie à une autre. La matrice traditionnelle d'évaluation des risques demeure l'outil que nous avons analysé le plus utilisé par les compagnies. C'est ainsi que nous observons que les compagnies répondent aux changements de leur environnement externe en intégrant des aspects formels dans leur gestion des risques. Etant de nature plus mécanistique et structurelle,

³ Les entrevues auxquelles nous avons eu occasion de poser la question sur le contexte.

ils peuvent contraindre les pratiques internes déjà existantes. De ce fait notre premier constat concernant l'environnement externe est que ce dernier joue un rôle majeur dans la rapidité de changement des systèmes internes. En même temps nous observons que ces changements forcés, conditionnés par la crise majeure, peuvent avoir un impact sur la vitesse à laquelle la compagnie s'adapte à de nouvelles contraintes et accepte de mettre ces changements en place.

Ensuite, nous abordons une question qui nous a interpellé lors de nos lectures sur la culture des risques et l'avantage compétitif auquel la gestion des risques est supposée contribuer. Nous avons pu lire comme argument que la gestion des risques intégrée peut être source d'avantage pour une organisation (e.g. Baestley *et al.*, 2017; Bernstein *et al.*, 2011). Ce propos nous semblait partiel et nous avons souhaité le vérifier. Nous sommes alors arrivés aux résultats suivants :

- La culture et la gestion des risques ne conduit probablement pas à un avantage compétitif lorsqu'une organisation applique formellement ces éléments. En effet, la plupart de compagnies poursuivent une logique et des méthodes identiques ce qui ne leur permet donc pas de se diversifier de leurs concurrents ;
- Mais nous pouvons confirmer qu'il existe un potentiel unique de la culture et de la gestion des risques dès lors que les organisations se concentrent davantage sur l'exploration d'éléments informels. Ces aspects informels se projettent au travers de pratiques et d'apprentissages qui facilitent une meilleure intelligence, de meilleurs réflexes et une plus grande agilité dans la gestion des risques.

En deuxième point de chapitre 6 nous revenons sur la crise organisationnelle que compagnie EngineerCo., que nous étudions, a dû traverser. Nous avons été le témoin de la transformation directe de l'organisation, suite à la crise aussi bien en tant qu'observateur externe (membre de la société civile) qu'observateur interne (stagiaire). Nous présentons l'historique de la compagnie pour expliquer l'émergence de sa crise organisationnelle et les changements en termes de gestion des risques qui en ont résulté.

En nous basant sur notre travail de master et notre connaissance intime de la compagnie, nous pouvons dessiner sa courbe de vie marquée par cinq étapes majeures : (1) évolution et fonctionnement naturel de la compagnie (2) événements et actions internes conduisant à la crise (3) phase de survie à la crise qui permet à la compagnie de se stabiliser (4) réouverture et

retour à la normale (5) contrôle des activités qui permet un retour à la croissance. Les étapes qui suivent la phase 5 ne font pas partie de notre périmètre de recherche.

Du point de vue de la transformation interne, nous avons pu intégrer des équipes en charge des multiples changements touchant l'entreprise⁴ et ainsi observer de manière très détaillée le changement post crise qui s'annonçait impératif. La compagnie est passée d'une gestion des risques très minime et sporadique à une gestion assurée par des départements et des unités dédiées à la gestion des différentes formes de risques (corporatifs, éthique et conformité, sûreté, santé et sécurité, etc...).

De plus, la compagnie a suscité un intérêt en ce qui a trait à la culture des risques. Le modèle de culture des risques que l'organisation a désiré intégrer repose sur trois piliers : contrôle (Zhivitskaya, 2015; Power *et al.*, 2013), conformité (Palermo *et al.*, 2017) et cohérence dans les systèmes internes (Rittenberg & Matters, 2012; Mikes, 2011). Ces derniers la conduisent à s'intéresser à sa culture des risques ainsi qu'un quatrième pilier, l'objectif d'expansion, qui l'incite à comprendre sa propre culture dans le but de faire de meilleurs choix pour sa croissance externe et assurer une meilleure transition aux nouvelles unités qu'elle a acquise.

À l'issue du Chapitre 6 nous avons introduit le contexte au sein duquel la culture des risques s'est façonnée et pouvons donc présenter nos résultats, fruits de notre recherche terrain.

Les chapitres 7 et 8 sont dédiés à nos résultats en accord avec nos deux questions de recherche.

Tout d'abord nous répondons à notre première question qui a pour objectif de décrire les aspects formels et informels de la culture des risques enfin de répondre à la question suivante : **Quels sont les aspects formels et informels de la culture du risque ?**

Nous présentons la culture du risque à travers des caractéristiques identifiées au préalable mais aussi émergées par le terrain. Nous regroupons nos résultats sur les aspects formels et informels de la culture du risque en deux catégories : celle qui touche la structure organisationnelle et celle qui touche la partie comportementale. Ensuite nous essayons de connecter la partie formelle et informelle grâce aux caractéristiques collaboratives qui semblent connecter l'ensemble des caractéristiques de la culture de risque et créer une dynamique à l'interne.

⁴ Nous mentionnons dans nos écrits plus en détails comment nous approchons et définissons le changement, nous sommes conscients que ce terme est assez large et peut représenter de multiples formes de changement aussi bien que des initiatives qui peuvent mener vers un changement émergent que délibéré.

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La culture du risque qui émerge de la structure organisationnelle se reflète essentiellement dans le choix de centralisation ou décentralisation du pouvoir de décision. La décision est centralisée formellement par le biais d'instruments attribuant le pouvoir de décision à différents acteurs selon de multiples critères. Cependant, la responsabilité est limitée car elle se repose essentiellement sur des critères financiers et chiffrés. Par exemple, un président d'un secteur d'activité a le droit de prendre des décisions qui se limitent à x millions de dollars. Ces décisions touchent aussi bien les projets que les risques associés à des opérations. Le document intitulé niveau de délégation du pouvoir est un document majeur qui se réfère à de nombreux autres documents de nature complémentaire. En effet, la compagnie possède de nombreuses politiques, procédures et codes liés à la gestion du risque. De manière informelle, ça n'a rien d'étonnant que la compagnie possède de nombreux outils d'aide à la décision. De plus ces documents sont basés sur les canevas de standards mondialement acceptés, tels qu'ISO et COSO que nous avons également présenté dans notre étude.

Cependant, la compagnie est consciente que ces prescriptions formelles peuvent contraindre le champ décisionnel d'un individu en terme de ce qu'un individu a droit de décider. Ils ont donc délibérément choisi de ne pas formaliser certaines formes de contrôle des risques comme la délimitation de l'appétit au risque. Ce choix a été justifié par le Président de la compagnie comme émanant d'un désir de maintenir un champ de liberté dans la limitation des risques.

Ces espaces laissés pour des décisions qui ne sont pas formellement conditionnées ont parfois conduit à un changement délibéré au sein de l'organisation. Nous avons par exemple été le témoin du déménagement de certaines activités sur le même étage afin de faciliter les échanges entre les individus. Concrètement cette initiative est venue d'un niveau hiérarchique inférieur et a conduit à influencer le niveau supérieur qui a donc inclus ce rapprochement dans sa stratégie organisationnelle. La reconfiguration de certaines unités internes démontre que les initiatives en terme de création d'une culture des risques peuvent aussi venir d'un niveau différent que celui de la haute direction.

Dans notre analyse de la structure de la culture des risques nous confirmons que la haute direction donne le ton à la culture des risques qui se propage dans l'organisation mais nous retenons que des initiatives proviennent aussi d'autres échelons hiérarchiques. Nous confirmons également que les instruments formels centralisent les informations et demeurent une forme de contrôle de la culture des risques mais il ne faut pas oublier que la centralisation

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des décisions n'est qu'une forme de contrôle qui a aussi ses limites et ne signifie pas que la culture des risques est efficace.

Voici les éléments que nous identifions comme constituant le caractère comportemental de la culture des risques : la communication, le rôle des acteurs, les caractéristiques sociales ainsi que les processus et procédures.

Les organisations peuvent orienter leur communication sur certaines formes de risques. Dans notre recherche nous avons identifié les risques de sécurité d'éthique et de conformité comme étant des éléments clés dans la communication interne. En mettant l'accent sur ces sujets, la compagnie indique ses préférences en terme de gestion des risques. Chaque réunion ou rencontre d'équipe donnait lieu à une présentation obligatoire d'éléments liés à la sécurité visant à sensibiliser les participants aux risques. Pour conclure ces quelques minutes de meeting, il fallait tirer les leçons liées à l'apprentissage de la situation. L'initiative appelée « *des jours parfaits* », qui encourage des opérations visant à multiplier les jours sans accident, s'inscrit dans la même logique. C'est ainsi que tous les accidents qui se sont produits sur les sites de l'entreprise doivent être enregistrés.

En ce qui concerne la communication informelle, nous pouvons affirmer qu'elle complète la communication formelle.

Aux éléments comportementaux s'ajoutent le facteur social et le caractère humain. Dans la section sur le comportement nous n'abordons celui des gestionnaires que brièvement car nous y dédions une grande partie du Chapitre 8. Cependant nous avons choisi d'évoquer les comportements des différentes parties prenantes car ils font partie de la culture des risques dans son ensemble. Les rôles et responsabilités prescrites sont des indicateurs importants de ce que les personnes dédiées à la gestion de risques doivent accomplir dans leurs tâches. La littérature a précédemment attribué le rôle de gestionnaire des risques aux personnes dont l'emploi est formellement dédié à ce rôle. Toutefois, nous pouvons voir que par son comportement un acteur peut développer un rôle dans la gestion de la culture des risques au. Aussi, nous soulignons que le développement de la gestion des risques n'est pas la responsabilité unique des personnes qui y sont dédiés car d'autres acteurs peuvent y contribuer.

En troisième point de cette section nous évoquons les processus et procédures qui peuvent prendre une apparence formelle et informelle. Les processus formels que nous observons sont les mécanismes et communautés mises en place pour soutenir le développement de la culture

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des risques. Nous étions particulièrement impliquées dans le développement des programmes qui visaient à développer des réactions adéquates face aux risques. En complément de cela, des initiatives ont eu pour objectif de créer des communautés partageant les intérêts des gestionnaires des risques. Ces processus aident à créer des pratiques additionnelles qui contribuent à la culture de risque de façon plus informelle.

Dans la deuxième section de ce chapitre nous identifions quelques relations entre les aspects formels et informels par le biais de l'allocation des ressources organisationnelles, des interactions et activités collaboratives qui résultent de la création de la connaissance. Cela nous permet de pouvoir conclure sur la proportion nécessaire de formel et informel au sein d'une organisation. Nous identifions ces caractéristiques qui démontrent aussi le processus de changement dans la culture et la gestion des risques tout au long de notre terrain. Tout d'abord nous considérons que l'attention portée au risque est un élément important qui alimente les aspects formels et informels de la gestion et culture des risques. L'attention des décideurs conduit à l'allocation des ressources qui conduisent à une action et au déploiement de la culture des risques désirée. Toute attention provenant des hautes sphères de l'organisation procure une légitimité aux actions et leur offre des ressources tangibles. C'est cette allocation des ressources qui procure un pouvoir formel aux gestionnaires mais aussi une aide au développement d'aspects informels à contrario si cet aspect attentionnel est manquant le processus peine à être déployés sur le long terme.

Interactions et collaborations humaines sont des comportements qui peuvent provenir aussi bien d'incitations formelles qu'informelles. Nous avons observé de multiples exemples concrets qui prouvent l'importance de la collaboration qui s'est développées tout au long de notre étude. Les ateliers menés pour évaluer la gestion des risques se sont tenus séparément et sous diverses formes au sein de multiples unités organisationnelles. Toutefois, ces unités ont utilisé le même instrument d'évaluation et la même base de donnée pour présenter un modèle de gestion des risques. Les autres éléments que sont le processus, la forme et la durée ont été établis séparément. De ce fait, à la fin des processus, chaque unité a fait face à divers défis dans la consolidation des informations. Certains ont eu des informations incomplètes ou ont été influencées par l'animateur de l'atelier, d'autres ont eu des informations trop détaillées qui touchaient des aspects opérationnels plus que les risques globaux de l'entreprise. L'année suivante ces unités ont consolidé leurs efforts, commencé à collaborer et ont mené une seule forme d'atelier. Cela a eu impact sur l'efficacité et la formalisation des documents mais également de manière informelle sur le partage d'information.

De cet exemple nous avons conclu que les éléments interactifs ont une valeur ajoutée pour la création de la culture du risque et nous avons confirmé qu'ils ne sont pas encore suffisamment intégrés dans les modèles de gestion de la culture des risques.

Enfin, nous concluons ce chapitre en traitant de l'équilibre organisationnel entre les aspects formels et informels de la culture du risque. Si les aspects formels sont trop prédominant, ils peuvent avoir un effet opposé et créer des cercle pervers (comme mentionné par Crozier, 1964 aussi bien que Mintzberg, 1979). En effet, en laissant peu de place à l'informel, l'excès de formalisation fait perdre aux acteurs leur intérêt pour le sujet. L'organisation doit donc trouver un bon équilibre entre le formel et l'informel. De cette dernière réflexion dans la chapitre sept nous nous dirigeons dans le huitième chapitre sur la gestion de la culture du risque.

Nous avons pu analyser des pratiques et des aspects formels dans des documents prescrites mais nous avons souhaité comprendre également la pratique de la culture des risques dans le quotidien. De ce fait, notre huitième chapitre répond à notre deuxième question de recherche :

Quelle ampleur la gestion de la culture du risque dit-elle prendre ?

Ce chapitre représente le fruit de notre interaction avec de multiples niveau de management, essentiellement le niveau exécutif dit haut management et les cadres intermédiaires, lors de notre présence dans l'entreprise nous avons pu observer la façon dont les êtres humains communiquent, échangent des informations et interagissent et durant nos entretiens nous les avons aussi interrogés sur la façon dont ils collaborent avec les différents niveaux de l'organisation.

Nous répondons à notre question en deux sections. Tout d'abord nous discutons du rôle des gestionnaires dans la construction de la gouvernance de la culture des risques, puis nous nous interrogeons sur les systèmes de coordination informels.

Dans un premier temps, quand nous parlons de la gouvernance dans la culture de risque nous questionnons le modèle traditionnel de la délégation du pouvoir, puis nous élargissons à la responsabilité des cadres intermédiaires dits « *middle managers* » en anglais de créer une culture des risques. Lors de notre participation aux multiples groupes de travail sur l'évaluation et la gestion des risques nous avons regardé leur compétences et caractéristiques. Au total nous avons participé à vingt-sept groupes d'évaluation des risques menés par deux départements, celui de gestion des risques de l'entreprise et celui sur la conformité des affaires. Nous avons ainsi pu observer différents modes de coordination, dynamiques et compétences managériales

lors de ces activités. Nous avons été surpris de constater à quel point le rôle de l'animateur (toujours attribué à de cadres et des directeurs) peut influencer la dynamique mais aussi l'approche et les résultats de ces évaluations. Nous avons aussi été témoins des modifications et ajustements dans ces groupes de travaux lors de la deuxième partie de notre terrain. Nous avons pu démontrer que des comportements collaboratifs ont émergé et se sont développés entre les deux départements sur le long terme. Les groupes d'évaluation ont permis de faire émerger le rôle crucial des cadres intermédiaires car la négligence de ces derniers en terme de communication sur les risques peut avoir des conséquences importantes sur le niveau de risque de la compagnie.

Grace à ces groupes de pratiques nous avons pu rencontrer divers profils managériaux et avons pu les classer en deux groupes de compétences. Tout d'abord, ceux qui sont proactifs et font preuve de dynamisme dans leur management du risque. D'autre part nous soulignons les compétences des gestionnaires qui sont plus alignées avec la structure formelle et qui suivent les directions établies à l'interne. Aussi, nous soulignons les caractéristiques de ces deux types car les deux sont présentes dans l'organisation.

Suite à l'analyse menée au niveau des individus constituant la société, nous analysons dans la deuxième section l'impact des systèmes internes sur la gestion des risques. Il y a de multiples mécanismes et modes de coordination au sein d'une compagnie multinationale. La compagnie peut mobiliser ces mécanismes pour inciter les individus à collaborer. C'est surtout le cas pour les modes de coordination qui reposent sur des bases formelles, comme la standardisation. De ce fait nous proposons un modèle qui démontre que la coordination informelle peut avoir trois objectifs : la responsabilisation, la compréhension et la prévision.

Nous concluons ce chapitre en nous interrogeant sur la possibilité de gérer la culture des risques. Tout au long de notre recherche nous avons présenté neuf aspects qui font, selon nous et en accord avec la littérature, partie de la culture des risques et que nous avons regardé au travers des caractéristiques formelles et informelles. Dans la dernière section de ce chapitre nous avons évalué les quatre aspects majeurs selon la possibilité de les gérer : hiérarchie et contrôle, communication, rôle des acteurs et procédures. Nous avons évalué dans quelle mesure ces aspects peuvent être gérés d'une manière formelle et informelle. Cet exercice a eu pour but de démontrer les limites dans la possibilité de gérer la culture de risque.

Discussion et Conclusion

Notre discussion revient sur les points majeurs de notre analyse. Notre objectif dans le cadre de ce travail a été de clarifier et de faire évoluer le concept de la culture des risques qui a été jusqu'à maintenant plutôt connoté avec des notions financières et de contrôle. Toutefois, les théories organisationnelles permettent de dépasser la réflexion sur le rendement et c'est pour cela que nous avons étudiés ces deux questions avec des lunettes organisationnelles, pour démontrer les côtés formels et informels de la culture des risques et sa gestion en pratique.

Ainsi, nous faisons trois apports majeurs à la littérature sur la culture des risques : (1) par une étude sur le contexte de la gestion des risques dans le milieu des compagnies multinationales spécialisées en ingénierie et construction ; (2) en travaillant sur la distinction entre aspects formels et informels de la culture des risques ; (3) en complétant la culture des risques en regardant sa gestion et les pratiques managériales à l'intérieur d'une grande organisation.

Dans la catégorie contextuelle, nous nous avons essayé de vérifier certains propos qui postulent que la gestion des risques apporte un avantage compétitif à une organisation (Beasley *et al.*, 2017; Braumann, 2015). Nous n'avons confirmé ces propos que partiellement. Nous ne pouvons pas dire que l'ampleur et l'application de la gestion des risques donne un avantage à une organisation. Comme sa définition l'indique, un avantage doit apporter une plus-value à l'organisation, ce que la gestion formelle des risques ne permet pas car les modèles et canevas adoptés sont très similaire dans toute l'industrie. Ce qui peut néanmoins apporter un avantage ce sont les aspects informels de la gestion des risques, c'est-à-dire l'approche et les comportements humains.

Quatre éléments du contexte auquel est confronté la compagnie explique l'intérêt qu'elle porte à la culture du risque (1) par la nécessité du contrôle organisationnel (Zhivitskaya, 2015; Power *et al.*, 2013), ce qui veut dire qu'une unité dans la gestion des risques offre une meilleure visibilité à la gestion et au contrôle de l'organisation. (2) La pression réglementaire provenant de l'environnement externe (Palermo *et al.*, 2017) est le deuxième argument donnant un intérêt à la culture des risques. (3) Établir une unification des systèmes internes (Rittenberg & Matters, 2012; Mikes, 2011) qui place tout le monde sur le même pied d'égalité en terme de gestion de risque. (4) En complément, nous complétons ces trois points avec l'intérêt économique lié à un objectif d'expansion de l'entreprise où une bonne culture des risques peut jouer un rôle majeur dans la transition entre diverses cultures organisationnelles.

Notre deuxième catégorie répond à notre première question de recherche dans laquelle nous faisons une distinction entre les aspects formels et informels de la culture des risques. Nous concluons notre recherche par neuf groupes qui distinguent partie formelle et informelle : (1) La littérature dit que la culture est un objet provenant du haut de l'organisation et qui se déploie à tous les niveaux grâce aux systèmes organisationnels (Richter, 2014, Frigo & Anderson, 2011; Rittenberg & Martens, 2012; Richardons & Fenech, 2012; Farrell & Hoon, 2009). Nous confirmons ce propos mais nous ajoutons que d'autres influences informelles peuvent se générer à d'autres niveaux organisationnels que le haut. (2) La littérature dit que la culture des risques se contrôle à l'aide de systèmes centraux et d'une décision centralisée qui doit être audible (Palermo *et al.*, 2017; Pan *et al.*, 2017; Vakkur *et al.*, 2010). Nous confirmons partiellement ces propos. Nous soulignons dans notre recherche qu'il ne faut pas confondre contrôle et l'efficacité. Certains systèmes informels peuvent générer plus de rapidité et une meilleure efficacité lors de la gestion des risques que ces canaux formels. (3) La littérature dit que la communication sur le risque façonne la perception et donc l'attitude des individus face au risque (Palermo *et al.*, 2017; Pan *et al.*, 2017). Nous sommes en accord avec la littérature et nous ajoutons que la communication informelle augmente la rapidité de communication sur les risques et donc l'efficacité des décisions. (4) Il est vrai que les gestionnaires de risques sont des facilitateurs de la culture du risque (Power *et al.*, 2013) mais il y a aussi d'autres acteurs dans l'organisation, essentiellement les cadres intermédiaires qui peuvent cruciallement faciliter la transition vers une culture des risques. (5) Notamment, sur la partie formelle nous pouvons confirmer que les programmes et processus de changement initiés par l'organisation ont aidé à établir une culture du risque (Power *et al.*, 2013; Ashby *et al.*, 2012). Mais ceci doit être complété par les aspects informels et par un partage des connaissances qui ne nécessite pas forcément une structure formelle. (6) Comme complément au processus et procédures, nous préconisons que la culture des risques requière une innovation constante qui a lieu de manière exclusivement informelle. (7) Nous ajoutons que plus l'attention de la haute direction est portée sur la culture plus elle alloue des ressources pour son développement. (8) Nous sommes en accord avec les propos de Power *et al.* (2013) qui considèrent que la potion humaine et l'interaction humaine ne reçoivent pas suffisamment d'attention alors même qu'ils sont des piliers de la culture. (9) Enfin, le dernier propos peut sembler évident mais il est très significatif. La culture des risques nécessite que les aspects formels et informels soient représentés dans de bonnes proportions. Si la compagnie est marquée par un trop grand formalisme, cela peut nuire aux innovations et initiatives et être dommageable à l'activité de l'entreprise.

Résumé en français

Notre troisième catégorie répond à notre deuxième question de recherche qui porte sur la « *manageabilité* » de la culture des risques, c'est-à-dire à sa gestion et aux limites de sa gestion. Cette troisième catégorie élargie les propos de Power *et al.* (2013) qui mentionnent que la diffusion d'une bonne culture des risques nécessite des gestionnaires compétents. En effet nous parlons des compétences qui ont déjà été abordées dans de précédents récits (par ex. Mayer, 2017). Pour notre part nous divisons ces gestionnaires en deux groupes : ceux qui ont un caractère entrepreneurial que nous plaçons dans le groupe des proactifs (Santos & Eisenhardt, 2008) et ceux qui sont plus réactifs et qui suivent plus les instructions formelles. Nous soulignons aussi que les deux sont importants dans l'organisation mais qu'elle doit décider dans quelles proportions elle souhaite les avoir.

Nous considérons que la coordination est un pilier clé dans la gestion de la culture des risques. Dans nos écrits nous avons amplement développé et démontré le côté formel de la coordination et dans la partie sur sa gestion nous abordons d'avantage les formes de coordination plus informelles. C'est ainsi que nous présentons les trois buts majeurs de la coordination informelle : (1) responsabilisation - les routines permettent par exemple d'échanger et de se renseigner de façon régulière sur les situations et ainsi de détecter en amont de potentielles menaces (2) Lors de restructuration, faciliter l'émergence d'une compréhension partagée sur la posture de la compagnie par rapport au risque. (3) capacité à analyser les situations pour faciliter et accélérer les échanges d'informations et les prises de décision dès détection d'un potentiel accident.

Dans notre questionnement sur le contrôle de la gestion des risques et la culture des risques nous avons contribué à mettre l'accent sur les cadres intermédiaires et les pratiques plus collaboratives et informelles dans la création de la culture des risques. Certain niveau d'informalité demande également de l'espace et l'acceptation du fait que la culture des risques ne peut pas être entièrement gérée.

Dans notre recherche nous devons aussi souligner les limites de la gestion de la culture des risques. Même si nous avons adopté une méthodologie et avons effectué une recherche sérieuse, cette dernière se limite à l'étude d'une seule entreprise. Notre plus grand défi a été de faire face à la richesse des informations que nous avons pu récolter tout au long de notre terrain. De plus, nous n'avons pu enregistrer que certaines informations ce qui a pour conséquences probables que certaines informations ne fassent pas partie de l'analyse.

Résumé en français

Enfin, en termes de limitation dans la littérature académique nous n'avons pas trouvé d'études de cas extensifs sur un cas unique se focalisant sur la gestion de risques.

De ce fait, nous encourageons aussi les chercheurs à s'intéresser davantage à la gestion des risques de l'entreprise ainsi qu'à la culture des risques dans les grandes organisations. Également, nous entrons dans une ère de robotisations qui va amener des changements dans les systèmes internes et modifier les marchés. C'est ainsi que l'étude des acteurs et de leurs aspects cognitifs dans la construction de la gestion des risques va jouer un rôle important dans le futur.

Note for the reader: Our thesis is written using British English as the standard for the text. However, there are some American-English words and expressions related to our fieldwork that are included as our research was conducted in North-America.

INTRODUCTION TO THE CONTEXT OF RISK CULTURE

What happens inside the *strange world of organization*⁵ ten years after the world financial crisis? How does organizational risk management evolve within organizations? The current focus of attention is on risk culture that demonstrates the internal capacity to handle organizational risks. The aim of our introduction is to create an understanding of the importance of risk culture in the global context as well as show recent trends in managerial literature that emphasize the importance of the subject of risk culture.

Context of Risk Culture

Historically, multiple financial, economic, social or political events and crises have shed light on the omnipresence and unpredictability of risk in our societies. Therefore, risk management is more and more important in our social, economic and business environment that represents the increasing uncertainty in today's world. Among the many reasons for this increasing importance is the will to enable shareholders to better measure the value of their investment, and a succession of major failures affecting companies like Maxwell, Enron or OneTel. Consequently, risk management practices and methods developed rapidly, but failures in these practices and methods continued, as identified by Lim *et al.* (2017); Power *et al.* (2013); Mikes (2011); Beasley *et al.* (2017).

The critical factor of risk management is risk culture. Multiple publications tackling risk management and risk culture have noted a correlation between increases in research interest regarding risk culture and a context of financial crisis (for instance Gupta & Leech, 2015; Power *et al.*, 2013; Ashby *et al.*, 2012). Also, the Financial Stability Board (2014) emphasized that under-evaluated risk culture ability is considered as one of the root causes that contributed to the onset of the world financial and economic crisis of 2007-2008. Alternatively, overestimated risk-taking goes hand in hand with risk taking aspiration (Shinkle, 2012; Miller

⁵ Inspired by Mintzberg's (1989) book: *Mintzberg on Management: Inside Our Strange World of Organizations*.

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& Chen, 2004; March & Shapira, 1992; March, 1988) when increasing organizational performance also leads to increased risk taking.

This logic justifies that, when financial markets record high revenues, managers were going outside of the normal limits by increasing their risk aspiration in parallel with rising profits. Similar behavioural logic was also recorded in non-financial companies, especially as it pertains to multinational companies where their crises have both economic and community impact.

For companies, it is not easy to determine the right level of competitive capacities and relate it to appropriate risk behaviour and also outline risk culture. That is why risk culture plays a major role in risk management. Some relevant examples of multinational companies show that different industries can fail in their risk management with significant consequences if risk culture is not taken seriously enough. We can name for instance:

- Siemens energy and technology producer - Bribery scandal in 2008
- BP oil and gas company - Deepwater oil spill in 2010
- Unaoil Engineering company - Corruption scandal in 2016

These examples prove that an organizational crisis within a multinational world goes beyond any internal problems and has an impact on a political and social level worldwide. None of these companies have disappeared but following these events they suffered significant financial losses and were forced to implement substantial changes. These changes were not only on the corporate level, but throughout the organization. As an example, following BP's Deepwater Horizon incident, the company was plagued by claims and losses, and continues to be to the present day (The Guardian, 2016),⁶ and, in the case of Siemens, the company was forced to cut 15000 jobs (Quartz, 2016)⁷ and also received the highest penalties imposed on any multinational by the U.S. Department of Justice (FCPA blog, 2018).⁸

⁶ The Guardian, (2016), BP makes record loss and axes 7 000 jobs, online: <https://www.theguardian.com/business/2016/feb/02/bp-annual-loss-biggest-for-20-years-axes-thousands-of-jobs-deepwater>. Last consultation 28/05/2018.

⁷ Quartz, (2016) Siemens lays off 15,000-this is what happens when you put a CFO in charge, (online). <http://qz.com/129628/siemens-lays-off-15000-this-is-what-happens-when-you-put-a-cfo-in-charge/>. Last consultation 23/05/2018.

⁸ Cassin, (2008) (online): <http://www.fcpablog.com/blog/2008/12/16/final-settlements-for-siemens.html>. Last consultation 23/05/2018.

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Indeed, the internal functioning of multinational companies is very complicated. They are faced with multiple complexities and uncertainties and may miscalculate their approach towards risk and overrate their capacities and develop an overly aggressive risk culture (Chandra, 2003), which can be the cause of internal organizational dysfunction. In order to emphasize the fact that culture and risk management are vital for internal coordination, we give examples from two different industries below.

In September 2015, the Environmental Protection Agency announced that the German automobile company Volkswagen cheated in the CO₂ emission tests. Following the announcement, Volkswagen's share value declined by more than 30% (Fortune, 2015, online)⁹ within one week, and the company as a whole was damaged by the scandal. In March 2016, the International Corporate Governance Network director published an article: "Volkswagen: Poor culture meets high business risk"¹⁰, in which the author highlighted that organizational culture is one of the fundamental elements that determines the risk profile and the organizational behaviour in regard to risk and the responsibility standards. Taking into account the impact on the company, both internally and externally, Volkswagen's is considered to be the biggest corporate scandal in 2015 (Fortune, 2017).¹¹

Another case, this time from spring 2017, looking at the airline industry and specifically United Airlines. United Airlines¹² applies a very common sector practice of overbooking seats, however an event in April 2017, when a passenger was removed from the aircraft, became a scandal. The incident, which was a result of the standard overbooking practice, was filmed and circulated, and the negative reaction resulting from how the customer was treated was instant and overwhelming. Following this event, a cascade of complaints against the company began, and the number of cases increased by 70% within the first month (U.S. Department of Transportation, 2017)¹³ and United Airlines' stock price fell by 4% after the video began

⁹ Fortune: <http://fortune.com/2015/09/23/volkswagen-stock-drop/>, last consultation 23/05/2018.

¹⁰ Dallas, G. (2016), *Volkswagen: Poor culture meets high business risk*, March 1, 2016 (online) <http://ethicalboardroom.com/leadership/corporate-governance/volkswagen-poor-culture-meets-high-business-risk/> last consultation 23/05/2018.

¹¹ Fortune: <http://fortune.com/2015/12/27/biggest-corporate-scandals-2015/>, last consultation 23/05/2018.

¹² American flight company based in U.S of America.

¹³ Source: Air travel Consumer Report:

https://cms.dot.gov/sites/dot.gov/files/docs/resources/individuals/aviation-consumer-protection/282456/2017juneatcr_0.pdf, accessed June 20, 2017.

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circulating (Lerner, 2017).¹⁴ Following that situation, a leak to the media of the company's internal information and declaration of inappropriate decisions and practices demonstrated shortfalls in their integrity and gaps in their risk management and risk culture practices.

A review of those two examples demonstrates a disconnection between strategy, risk management and risk culture. In the case of Volkswagen, the corporate strategy and organizational culture led the company into operational, reputational and financial difficulty. In the case that risk management is inappropriate or underestimated and the organizational culture is disconnected from the top, whatever the organizational profile, it can just as easily fall into disarray as an unstable system. As demonstrated above, risk culture can harbour damaging and dangerous aspects for an organization and create a chain reaction if it is not managed in symbiosis with organizational alignment.

Setting aside the potential danger of not properly accounting for risk, there are other reasons and incentives to build a functional risk culture. Risk culture represents an integrative aspect (Beck, 2004)¹⁵ and sets the tone for risk attitude (Chandra, 2003) that is the precedent for successful risk management (Ashby *et al.*, 2012). Justification for that attitude comes from the important attributes that risk culture has for high risk industries that are able to operate under high pressure and face unexpected situations with high rated risks. High risk sectors have experienced, and learned from, failures in traditional risk management. These industries have learned from the past, and even industries where human life is on the line have grown and evolved. Errors and mistakes in technological, monitoring and control systems are part of the origin of multiple catastrophes already pointed out by some authors, as in the case of NASA and the Challenger failure (Mittelstaedt, 2005; Vaughan, 1997), Bauphal and Tchernobyl (Mitroff, 1994). A more societal reason for risk culture is risk proliferation (Shivastrava, 1995). From the perspective of Shivastrava (1995) and Beck (2004), today's societies are industrialized, and the risks do not result exclusively from under-controlling situations, but from a lack of the consciousness and knowledge of developing societies. As human societies, we are losing the capacity to manage risk and we are relying exclusively on the assessment without taking into account the human aspect. However, it is exclusively the evaluation of

¹⁴ Source: Risk management monitor, <http://www.riskmanagementmonitor.com/tag/united-airlines/>, accessed June 20, 2017.

¹⁵ 5th ed., first translated edition 1992, first edition in German language 1986.

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details and controls that will improve and advance risk culture, since the human attitude towards risk is not seriously considered and needs to be studied.

Overview of existing models and guidance of risk culture

This section is going to allow us to present an overview of risk culture models that came from professional, institutional and consultancy agencies. These bodies often call for risk culture standardisation. This type of literature has a particular relevance for our research because it is a concrete testimony of how risk culture proliferates inside of organizations. So even if its academic value may be refutable due to its lack of a theoretical analysis, it is an important source of inspiration for our research propositions and their verification. In fact, academic research surrounding risk culture does not provide much reliable data for our propositions. Indeed, we were looking for a foundation of risk culture and we noticed that practitioners propose more elaborate discussions about risk culture than researchers. Thus, professional literature, despite its shortcomings, is a very helpful tool that, of course, we will use with caution. Thus, we present perspectives from practitioners' literature including consultation companies, institutions as regulators, institutes or evaluators as well as associations with focus on risk management.

Literature about Risk Culture relies on finance-oriented studies

The professional literature has an important place in the understanding of the concept of risk culture and we noticed that almost every publication touching on risk culture refers to some kind of professional literature. Thus, our review would be incomplete if we did not consider existing publications from specialized companies, advisory services, institutes or international agencies.

Some research literature about risk culture also involves managerial and professional publications that inevitably become part of the analysis of the concept. For instance, Röschmann (2016) undertakes an analysis of professional literature in the insurance sector, including institutional evaluations. These evaluations are in the same vein as those performed

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by rating agencies such as Standard and Poor's, regulators such as Federal Financial and Supervisory or Insurers such as the Zurich insurance group. Analyses provide insights into risk culture and imply that most advanced companies integrate not only risk assessment and risk formalization but also its organizational actors, however they all conclude that most of the companies from the insurance sector are not there yet. Because the additional layer for risk culture is based on common experience and the actions of individuals that are part of the organization. According to Röschmann's (2016) work, this upper level is characterized by organizationally espoused values that have emerged through communication, as well as formal and informal elements. In the case of Palermo *et al.* (2017); Power *et al.* (2013); Ashby *et al.* (2012), their studies of the financial sector include banks such as Barclays, JP Morgan or USB for an analysis on risk culture monitoring. In addition, the consulting industry promotes a number of risk culture frameworks, process and assessment as parts of their model where risk culture becomes a business product for changing management programmes, as emphasized in Power *et al.* (2013).

Definitions from professional and institutional literature

Professionals propose an integrated view on risk culture through risk management that can be projected into the organization and be defined as « *the system of values and behaviors present throughout an organization that shape risk decisions* » (KPMG, 2009, p.1). (See Appendix 1P)¹⁶

The following table (Table 1) highlights the wide range of definitions of risk culture.

Table 1: Risk culture definitions in the advisory industry

Risk culture definitions in the advisory industry

¹⁶ As we explain in Fifth Chapter (V.2.1.c Ethical & Confidentiality considerations) we have Appendix with public content (P) and Appendices with a confidential content (C).

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PriceWaterhouseCoopers, 2016, p.2	Risk culture is a collective set of values and behaviors, also called “collective ambition” that lead to robust understanding, identification and management of risks.
Ernst & Young, 2015, p.2	Risk culture can be defined as the financial institution’s norms and the collective attitudes and behaviors of its people that influence risks and impact outcomes. Risk culture provides a specific lens allowing general concerns about culture to focus on risk-taking and risk control activities.
PriceWaterhouseCoopers, 2014, p.6	Risk culture is a multidimensional issue that needs to be supported by a combination of people skills, policies, and tools.
Deloitte, 2012, p.4	<p>Risk culture encompasses the general awareness, attitudes, and behaviors of employees towards risk and how risk is managed. Risk culture is a key indicator of how widely risk management policies and practices have been adopted (...)</p> <p>Having a Risk Intelligent Culture means that everyone understands the organization’s approach to risk, takes personal responsibility to manage risk in everything that they do, and encourages others to follow their example. Codes, management systems, and behavioral norms should be aligned to encourage people to make the right risk-related decisions and exhibit appropriate risk management behaviors.</p>
Farrell & Hoon, 2009, p.1	It can be defined as the system of values and behaviors present throughout an organization that shape risk decisions.
Levy, Lamarre, Twining, 2012, p.3	The norms of behavior for individuals and groups within an organization that determine the collective ability to identify and understand, openly discuss and act on the organization’s current and future risk.

Author: Marketa Janickova, from diverse sources

Characteristics in the table above give the impression that risk culture is naturally learned in organizational life, however, there is in fact a formally set outline: McKinsey (Farrell & Hoon, 2009) leans towards tailored systems and is oriented towards decision-making, but they consider most of the elements of risk culture as formal sets and as part of control systems and suggest that risk culture needs to be set in « *the right structural and organizational choices, the description of roles and responsibilities, as well as the appropriate definitions of*

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organizational units and reporting lines, are critical to ensuring robust and effective enterprise-risk management » McKinsey (2017, online).¹⁷ More briefly, but in the same line, is EY: « *Risk culture provides a specific lens allowing general concerns about culture to focus on risk-taking and risk control activities* » (EY, 2015, p.2).¹⁸ Whereas Deloitte's includes some flexibility, but the characteristics still have formal definitions (such as risk appetite, for instance): « *There is no 'one size fits all' solution to risk management – how an organization manages risk should align with, and support, its strategy, business model, business practices, and risk appetite and tolerance.* » (Deloitte, 2012, p.1).

In addition to those definitions and characteristics, Power *et al.* (2013) propose a list of factors that summarize risk culture by professionals (Figure 1).

Figure 1: Summary of risk culture factors by organization

Factor Categories	Deloitte	Ernst & Young	IRM	KPMG	McKinsey	PWC	Towers Watson
Acknowledgment of risk (potential for over confidence, level of challenge)			✓		✓		
Communication (regular risk reporting and escalation of risk issues)			✓		✓	✓	✓
Compensation and performance management	✓	✓	✓			✓	
IT systems							✓
Leadership (tone from the top)		✓	✓	✓		✓	✓
Relationships (between employees)	✓						
Respect for risk (potential for gaming the system)					✓		

¹⁷ Source online: <http://www.mckinsey.com/business-functions/risk/how-we-help-clients/enterprise-risk-management-and-risk-culture>. Accessed July 3, 2017.

¹⁸ Source online: [http://www.ey.com/Publication/vwLUAssets/Risk_culture_-_How_can_you_create_a_sound_risk_culture/\\$FILE/EY-risk-culture-model-brochure.pdf](http://www.ey.com/Publication/vwLUAssets/Risk_culture_-_How_can_you_create_a_sound_risk_culture/$FILE/EY-risk-culture-model-brochure.pdf). Accessed July 3, 2017.

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Responsiveness to risk (ability to react to risk issues)					✓		
Risk competencies (of employees)	✓		✓			✓	
Risk facilitation (status of risk function and ability to support business)			✓	✓			
Risk management processes and procedures						✓	✓
Risk ownership (clear accountability)			✓	✓		✓	
Structure of organization and governance	✓	✓	✓				✓

Source: Power *et al.*, 2013, p. 94

The professional definition of risk culture also comes from institutional and regulatory bodies. These indicators are especially relevant for multinational organizations. For instance, multinational companies may be publicly rated organizations; they are subject to multiple external stakeholders and regulators. Thus, some levels of risk culture oversight are mandatory -or highly recommended- characteristics, by international and national bodies such as regulators that evaluate the companies' risk management quality. For example, Standard & Poor's risk management culture is the base that supports the pillars of risk control, emerging risk management, and risk and economic capital, based on Standard & Poor's Rating Service (2015, p.5).¹⁹ On a different scale, there are some world institutions that refer to risk culture, such as the Organization for Economic Cooperation and Development (OECD, 2015)²⁰ and World Bank (2015).²¹ Both OECD and World Bank refer to risk culture in relation to risk governance. Risk governance is the concept developed by the Basel Committee as the Three Defence Lines model that allocates risk responsibility in three organizational levels. In the first line, there are functions related directly to the operational level that control and monitor bottom lines; the second line of defence represents specialised bodies that cover any function related to risk expertise (*e.g.* Quality, Ethics and Compliance, Risk Management, etc...), finally, the third line is the function of internal control called Internal Audit (Arndorfer & Minto, 2015).

¹⁹ <http://www.ultirisk.com/pdf/ultimate-risk-may-2015-sridahr-presentation.pdf>

²⁰ Source online: <https://www.oecd.org/daf/ca/Corporate-Governance-Principles-ENG.pdf>. Accessed July 3, 2017.

²¹ Source online: <http://documents.worldbank.org/curated/en/690631481600528687/pdf/110901-WP-IFC-Risk-Culture-Governance-Incentives-report-PUBLIC.pdf>. Accessed March 28, 2018.

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In that regard, every level has its risk responsibility that also demonstrates the commitment to risk management and proliferates risk culture within the organization.

In addition to that, the World Bank emphasizes that risk culture « *is usually a mix between the formal and informal practices and processes, which characterize organisational strategy and decisions* » (International Finance Corporation, 2015, p.8). The emphasis on the formal and informal part seems to be particularly relevant, because there are no such distinctions made in risk culture. Even the World Bank does not make any further distinction between formal and informal practices that represent risk culture. Indeed, we propose to do further research into this matter.

To summarize the wide range of risk culture references, the following table (Table 2) proposes a brief outline of some definitions and recommendations from different institutions that we find relevant.

Table 2: Risk Culture Definitions by business professionals and Institutions

Risk culture definitions by business professionals and institutions

Enterprise Risk Management Initiative (2017, online)	Risk culture is the system of values and behaviours present in an organization that shapes risk decisions of management and employees. One element of risk culture is a common understanding of an organization and its business purpose.
Bloomberg (2016, ²² online)	Risk culture is not about what you do, it is about how you do it and what you are thinking when you do it (...)The key pillars of a good risk culture can be summed up in four words: transparency, challenge, humility, and curiosity.
International Finance Corporation – World Bank Group, Ard (2015, p.3)	[Risk culture] encompasses the general awareness, attitudes, and behaviours of the bank’s Board of Directors, senior management, and employees towards risk. In its journey towards effective risk management, a bank should first understand its existing risk culture and measure how well it supports the organization’s risk strategy and risk management approach.
Richardson & Fenech (2012, p.7)	Risk culture is a term describing the values, beliefs, knowledge and understanding about risk shared by a group of people with a common purpose, in particular the employees of an organization or of teams or groups within an organization.
Hirth & Chelsey, COSO (2017, p.10)	Desired behaviours define desired culture.

²² Source: <https://www.bloomberg.com/professional/blog/four-pillars-risk-culture/>.

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Rittenberg & Martens, COSO (2012, p.20)	Many organizations are effective at creating a risk-aware culture: a culture that emanates from senior management, cascades through the organization, and is supported by the board. In an effective culture, each member of the organization has a clear idea of what is acceptable, whether in relation to behaving ethically, pursuing the wrong objectives, or encountering too much risk in pursuing the right objectives.
Frigo and Anderson, COSO, (2011, pp.1,4)	Risk culture is a key element of Enterprise Risk Management. Risk culture has to include « <i>how to best communicate a desire for more effective risk management</i> » (p.4).

Author: Marketa Janickova, from different sources

Risk culture as seen through organization process and assessment

It has been proven that faulty risk culture can cause a conflict of interest (U.S. Securities and Exchange Commission, 2017)²³ or can have a harmful effect on the organization, as well as being one of the root causes that contributes to the origin of a crisis (Financial Stability Board, 2014). In reaction to that, managerial and professional publications have greatly increased their interest in programmes, frameworks and models that focus on the promotion of risk culture. Risk culture is often described through models that structure its characteristics and thus allow organizations to develop and complete an assessment of the risk culture setting. Those kinds of models were developed essentially for organizations with large structures that must be able to assess their risk culture of their complex systems. As opposed to a quantitative rating, which is normally used as risk management practice due to the origins the concept of risk in financial and accounting (see for instance Lundqvist, 2014 or Hoyt & Liebenberg, 2011), risk culture assessment methods are qualitatively based with a less concrete objective (you can find most relevant examples of models from the consultancy industry in Appendix 1P). For instance, Deloitte (2012, online) describes risk management application as: « *Enabling risk management ways of working, enabling a risk transformation programme, improving management compliance, assessing the impact of enhancements to risk management capabilities.* » Risk culture processes (Appendix 1P) traditionally follow the pattern of identifying, analysing, evaluating and reviewing, as we noticed in standardized processes on risk management defined

²³ Source online: <https://www.sec.gov/news/speech/2012-spch103112cvdhtm>. Accessed July 3, 2017.

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by ISO 31000, as demonstrated by Ernst & Young's (2015) process that is about risk culture, assessing and improving, change and monitoring. To propose a qualitative assessment of risk culture, the Institute of Risk Management (IRM) set questions that organizations should ask when they decide to move their culture to a more risk-oriented practice (Richardson & Fenech, 2012). Indeed, IRM is intended to provide guidance advocating risk culture which « *arises from the repeated behavior of its members* » (Richardson & Fenech, 2012, p.7). The Institute of Risk Management (IRM) proposes guidelines for risk culture under four criteria (with eight other sub-criteria) such as Tone at the Top: risk leadership, dealing with bad news; Decisions/informed decisions, reward; Governance: accountability, Transparency; Competency: Risk resource, Risk skills. The document serves as a guide for the board and in order to think about risk culture implementation it asks ten (10) questions to be asked by the board about risk culture and proposes steps that allow to change companies' current RC (for that information see IRM, 2012, pp.15-16). Therefore, the culture is decided at the top and is implemented as cyclic and repetitive behaviour in order to embed it and have it take root in the members' minds. Itself, IRM could be useful guidance for organizations if it were taken as a guide to improve the understanding of risk culture, which was also mentioned by Power *et al.* (2013). In comparison to documents from the consultancy industry (such as EY, Deloitte or McKinsey) the IRM proposes guidelines that can be applied systematically by companies. These guidelines can bring additional value to frameworks such as COSO or ISO (presented in the second chapter of our thesis) because they help organizations create concrete models that can be used to evaluate their systems.

Other assessment methods, such as the questionnaire technique, are also presented by the Association of Chartered Certified Accountants (ACCA, 2012). The questionnaire aims to gauge managerial perceptions on risk culture and assess risk culture perceptions between accountant managers and evaluate organizational practices. According to ACCA (2012), all managers are in charge of some kind of risk management in their everyday work practices. The survey demonstrates the imbalance between what risk culture represents as an abstract definition and its formal representation translated by control, budgeting, evaluation, forecasting and reporting of activities. On the other hand, more finance-oriented organizations, such as the Financial Stability Board (FSB, 2014) have guidelines oriented towards effectiveness of risk culture control that are reflected in risk culture criteria as calculative models or risk appetite. Indeed, risk culture is established officially *per se* as an object of supervision while the human

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part represents the awareness of risk. FSB proposes a 14-page guide that is fully focused on risk culture with 95 references to culture, and a total of 65 thereof to risk culture. The report proposes foundational elements of risk culture, its indicators, and guidance based on RC characteristics. FSB documents, especially, have become an inspiration for some further publications. For example, Gupta & Leech (2015) refer to its guidelines as an outline to follow and establish risk culture from the top as a result of strong regulation after multiple financial breakdowns. Also, other institutional publications may serve as important reference points. The Canadian Financial Market Authority mentions culture five times in 10 pages in their Integrated Risk Management Guidelines (Autorité des Marchés Financiers, 2015)²⁴ as a result of an integrated risk management process: « *...risk management at a financial institution should not be considered a project, but rather should form an integral part of its corporate risk culture, a way of doing business* » (AMF, 2015, p.4). In that regard, companies should approach risk management by « *promoting a risk culture by taking into account and incorporating risks in the institution's strategic decisions* » (AMF, 2015, p.7). These indications are leaving leeway for the interpretation of risk culture inside of companies. Therefore, risk culture should be promoted by corporate direction, senior level and risk management in the first place and put in practice by the operational level.

Risk culture methodologies give an impression of structured management of risk culture. However, even though professionals and institutions are proposing whole methodologies on risk culture, (Appendix 1P) we are not convinced that a higher level of risk culture formalization will ensure its quality. In fact, it is a concept that needs human involvement, or in other words a more informal aspect, wherein human beings are a key part of risk culture – either to reflect it or to make it happen.

²⁴ Source online: https://lautorite.qc.ca/fileadmin/lautorite/reglementation/lignes-directrices-toutes-institutions/g_risk_management_final.pdf.

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Discussion of the managerial literature that led us to our research subject

We consider professional publications to be important sources; however, the literature is missing academic value and deeper insight, as we can see in its outline, definition and risk culture assessment.

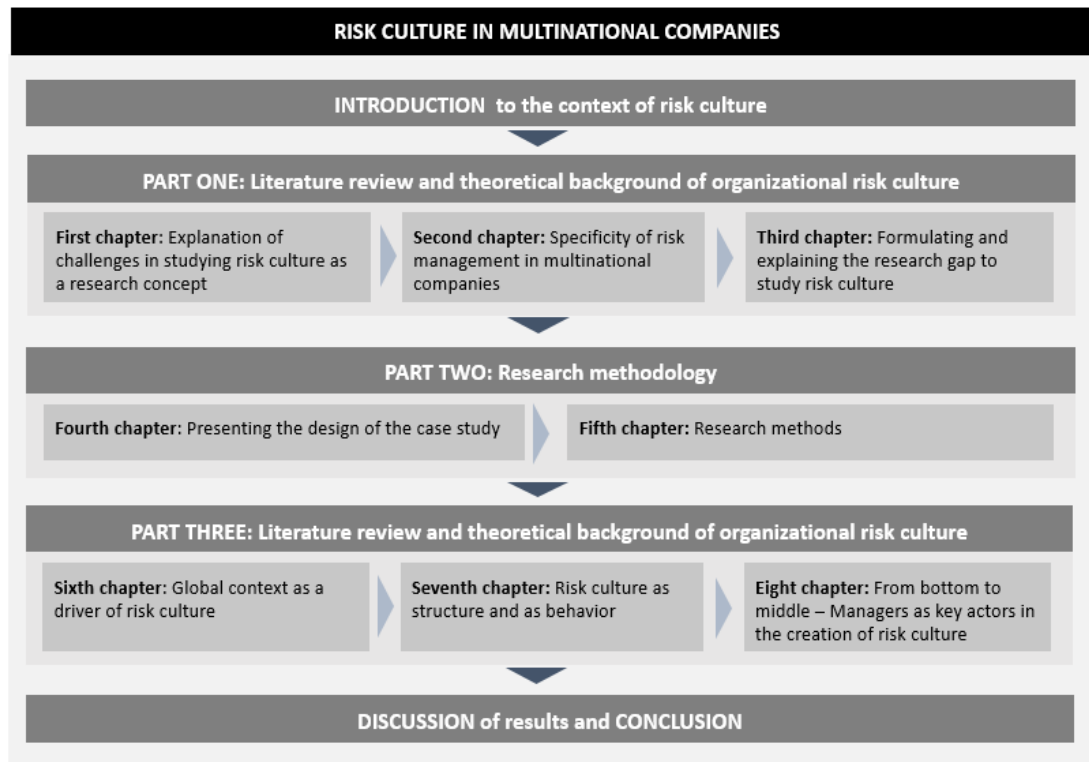
In summary, we observe that risk culture in practice is characterized by a wide range of views and approaches that are a source of inspiration for our research. Professional references that we have explored in this introduction, such as PriceWaterhouse Coopers, 2016; KMPG 2015, 2009; Ernst & Young, 2012; The Institute of Risk Management, 2012; Deloitte, 2012 and McKinsey, 2010, give us useful ideas and concepts to be combined in our research model and to be explored in the empirical part of our research, to help to create a fuller picture of risk culture.

However, we do not forget the drawbacks of that kind of literature. For instance, professional literature gives an impression that risk culture is a clear and predictable concept that can be easily managed and controlled. In that regard, multiple sources refer to risk culture as a source of competitive advantage (*e.g.* Banks, 2012; McKinsey, 2012), which means that risk culture formalization helps achieve some sort of additional benefit for the organization. We are not fully convinced by this specific point because we did not see any proof that risk culture has valorising, rare, non-imitable, non-substitutable (VRIS) resources.

On the other hand, there are some aspects that are worth developing further and worth being better understood, such as behaviour and human aspects, as well as the context that surrounds risk culture. In that respect the World Bank Report is a helpful reference that emphasizes organizational practices that support risk management and may develop risk culture.

Structure of the thesis:

INTRODUCTION TO THE CONTEXT OF RISK CULTURE



PART ONE: LITERATURE REVIEW and THEORETICAL BACKGROUND of ORGANIZATIONAL RISK CULTURE

In the first part of our thesis, we review and analyse the literature surrounding risk culture to help identify gaps for our research.

In the First chapter, we explore the roots and different views of risk culture that represent the object of our study. In the first section, we present the concept of risk culture, we outline its existing characteristics and definitions and we show its place inside of an organization. In the literature review we reflect on the place of risk culture in current research and also present existing literature from diverse disciplines, especially from the financial and accounting background. Another aspect is the discussion of risk culture that involves the managerial publications and practical presentations issued by different organizational bodies, such as consulting companies and industry publications. In the second section, the conceptual roots of risk culture lead us to mobilise theories on risk management using additional concepts from Cultural Theories and internal coordination systems.

The Second chapter explores risk management in multinational companies. In the first section we explain the complexity of risk management within the structures of multinational companies. We emphasize the existence of multiple systems and sub-cultures that influence a company's functionality. In addition to that, we focus on the external context that these structures operate within. Furthermore, we identify formal measures that are created by institutional bodies, and international guidelines that propose different qualitative and quantitative variables to risk culture evaluation. These measures include items such as Risk Management Standards (ISO), technology control COBIT models, or enterprise risk COSO models. These are translated into different forms of internal risk management, such as enterprise risk management with its forms of control corresponding to risk appetite framework, or more traditional risk management, such as Information Technology Security or operational and project risk management. From this point of view, risk culture represents the tool of behavioural control and decision-making that is formally prescribed by a set of rules and procedures. All of these forms represent mostly formal constructions of risk management.

Finally, the third chapter relies on literature from organization studies that we have chosen to demonstrate gaps in -and potential improvements for- risk culture. In addition to our review,

we describe and show risk culture limitations and ambiguity, especially those between formal and informal aspects of risk culture. Therefore, we propose a classification of these two concepts based on different organizational perspectives. The formal and informal description are the basis that guides our empirical research. Next, we explain the paradox of risk culture with regard to its manageability. We argue that the formal aspects are not necessarily manageable and that informal aspects do not mean ‘out of control’. Finally, we outline a model that helps guide our research.

In addition to identifying the gaps in existing research, we conceptualize our thoughts and we propose the following research questions:

Under what conditions can risk culture be established in a multinational organization?

Question 1: How do the formal and informal dimensions contribute to building risk culture?

Question 2: To what extent can we manage risk culture?

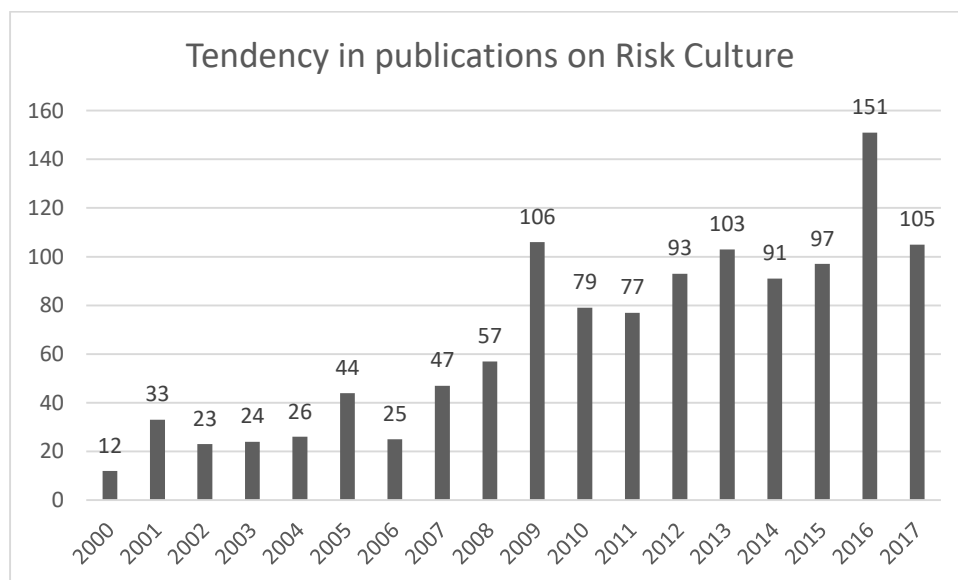
First Chapter: Explanation of challenges in studying Risk Culture as a research concept

« Both culture and risk are complex multidimensional concepts. » (Power *et al.*, 2013)

This first chapter introduces the concept of risk culture in relation to risk management and multinational companies. Risk culture research in organizational studies is in a very nascent stage. Especially since the economic crisis in 2008, risk culture is taken more and more seriously and is widely applied. This is especially true in the domains of accountancy, insurance and finance (*cf.* for example Palermo *et al.*, 2017; Zhivitskaya, 2015; Richter, 2014; Power *et al.*, 2013). For this reason, we clarify basic notions separately; in (I.1.1) we first describe the historical evolution of risk, or the concept of ‘risk’, and then, in (I.1.2), we introduce studies on organizational culture. In the second section we analyse risk culture in relation to risk theories and its link to organizational theories that present risk and organizational culture as two separate concepts (see Appendix 2P).

As shown in the following figure, there has been a significant increase in the general interest in risk culture publications since the American crisis in 2000 and the financial crisis in 2008. This can be confirmed by looking at the increase in the number of total publications on « risk culture » over the past twenty years.

Figure 2: Risk culture in all publications between 2000 - 2017



Source: Adapted from Proquest databasis, ABI Inform Complete, research on « risk culture », all sources

See Appendix 3P: Screenshot EBSCO and ABI INFROM COMPLETE. Until very recently, risk culture was barely studied in the financial and accounting sectors, it was rooted in social studies and anthropology and almost neglected by organizational theorists. However, it is a very attractive subject that provides equal benefit to managerial and academic research, as we have demonstrated in Appendix 2P.

We conclude the first chapter by identifying common points of risk culture from different types of publications and by pointing out some potential gaps.

I.1 Clarification of basic notions

Before exploring the concept of risk culture itself, we think it is important to define this subject of study with two separate definitions in order to make the reader understand how they are interconnected. Thus, in this section we would like to get closer to the conceptual basis and describe the origins of the notion that we are using for our research. We are going to start by describing the concept of risk and the different approaches that exist. Then, we are going to explore the context of the research on culture, more particularly focusing on organizational culture.

I.1.1. Outlining the notion of risk

Scholz and Siegrist (2008) highlight that the historical development of risk puts particular emphasis on events or situations with negative impacts that cause losses. While the historical notion of « risk », according to the encyclopaedia, is etymologically related to the « *exposure to danger* » (Oxford dictionaries, 2017, online),²⁵ and more specifically related to the practice of navigation and exchange of merchandise through the sea. Sailors were exposed to danger and potential loss of the transported products, which had to be avoided at all costs. Thus, risk was related to the notion of danger and became a form of calculation, insurance and protection against losses (Luhmann, 1993). The etymological origin of the word dates from the 15th century and is attributed to the Latin word *ricare*, which is of Greek origin and which translates as *rischio* in Italian (Scholz & Siegrist, 2008) or, in German, is called *Risiko* (Luhmann, 1993).

Once the notion of risk became a part of progress, there has been an increasing interest in conceptualizing risk through diverse lenses from the 1970s onwards (Zinn, 2009). Therefore, the notion of risk presents multiple facets that are related to multiple areas of study. The heterogeneity of disciplines that are interested in risk results in numerous perspectives on this subject. Some authors classify risk categories by disciplines in a more or less detailed way. For instance, Renn (1992a) tends to propose multiple divisions according to disciplines that study risk, such as toxicology, epidemiology, engineering, economy, social science, cultural and

²⁵ Source: <https://en.oxforddictionaries.com/definition/risk>.

psychological approaches. Others regroup risk by its nature and the disciplines of the study. More recently, Roeser *et al.* (2012) have proposed three categories based on engineering (including hard sciences like chemistry or toxicology, as well as calculations that combine safety and risk); a psychological approach (based on human perception) and a cultural approach based on social and cultural theories. Zinn (2009) conceptualizes risk as six subjects based on diverse subjective or objective roots. (See Figure 3)

Figure 3: Risk Epistemology according to the literature

Risk Epistemology in Different Disciplines and Approaches		
Risk as...	Perspective...	Approaches
real and objective	Objective calculation of events	Technical risk assessment, insurance, epidemiology, toxicology
subjectively biased	Objective risks are subjectively perceived and calculated	Psychometric paradigm, rational choice: objective / subjective utility
socially mediated	The subjective experience of real risk is socially mediated	Edgework
real and socially constructed	Reality and talk about risks mutually influence	Risk society
socially transformed	Real threats are transformed into risks for sociocultural boundaries	Cultural theory
socially constructed	Events are risks insofar as they are part of a calculative technology	Governmentality
	Risk are socially ascribed decisions	System theory

Source: Zinn, 2009, p.8

As a third and most recent example, Mayer (2017) proposes a view on risk from three angles, in relation to decision-making, organizational catastrophes and social constructs.

On the other hand, risk becomes attractive due to its duality of both opportunity and danger as argued by Verbano & Venturini (2011) and Scholz & Siegrist (2008). Indeed, in recent times, there are not only downsides to risk and organizations are also considering risk as an opportunity. In fact, there would not be any societal or organizational change without taking risks (Zinn, 2009).

However, we have noticed that the risk literature still tends to equate risk with danger and potential hazards. Our summarizing outline of risk literature demonstrates the large quantity of existing research into risk studies. In this presentation on risk, we do not create any innovative categorizations of risk, but we do propose two groups that are relevant to our future study. We have decided to divide approaches on risk by level of analysis. Those that treat risk from the

micro perspective in relation to individual human characteristics and those that are organizationally and more macro-oriented.

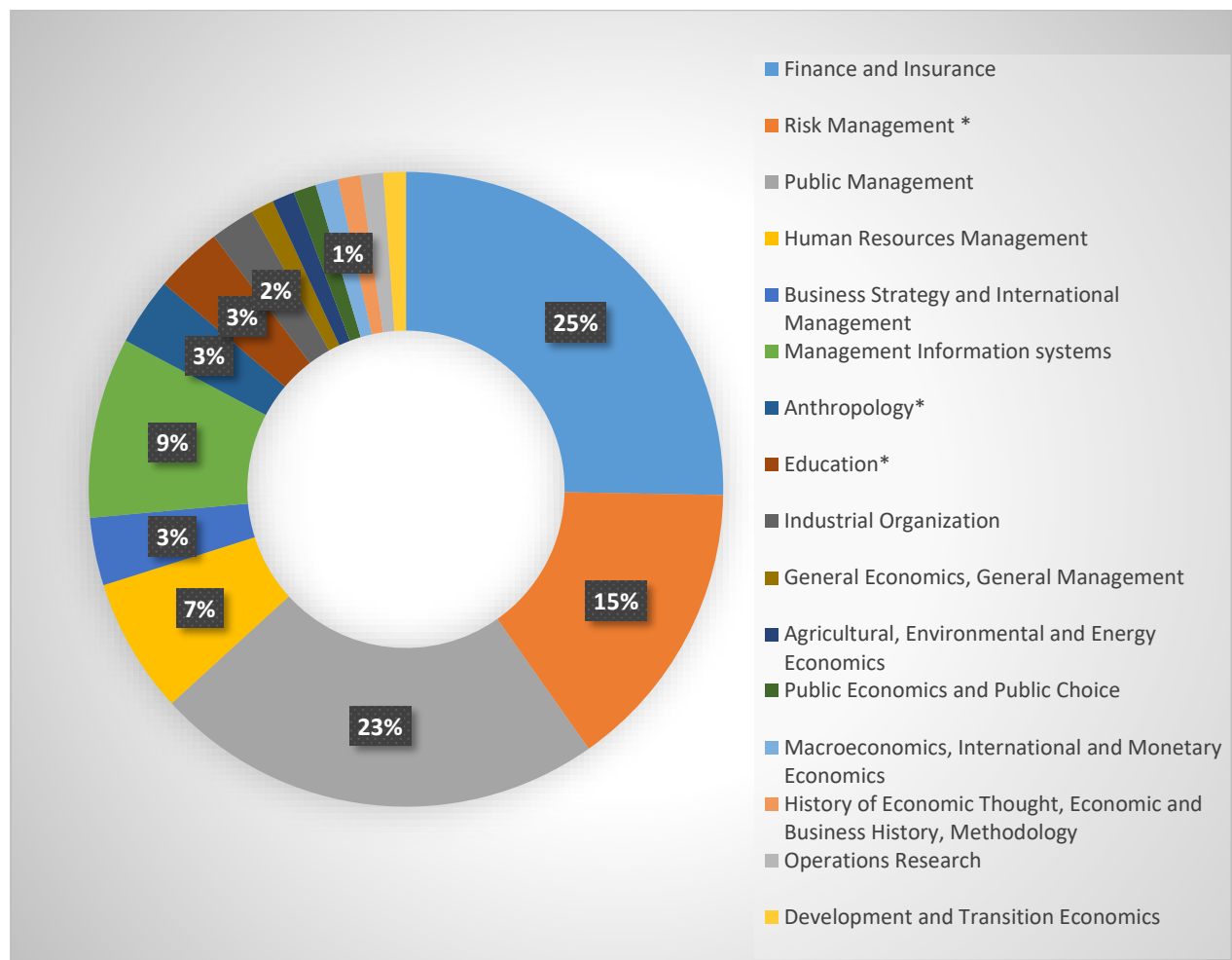
In our thesis we look at risk in its general form, that means we consider it as a holistic concept viewed through multiple lenses, disciplines and levels of analysis. Even though we are going to explore risk as it relates to culture and consider its origins in management, we aim to demonstrate its multifaceted nature. In the following figure (Figure 4) we analysed 372 academic publications since 1981 within Proquest Databasis and we classified them according to the CNRS review ranking²⁶ and divided the publications by discipline.²⁷ We observe a strong dominance in publications from finance and insurance, risk management and public management. As we will develop in section I.2, it is not surprising to see the discrepancy in the numbers of publications due to the origins of risk culture, even though public management having such a strong risk culture exposure may be the most unexpected.

²⁶ We used CNSR reference 2017. Source:

https://www.gate.cnrs.fr/IMG/pdf/categorisation37_juin2017-2.pdf.

²⁷ The table goes from most publications to least. In our table three sorts of publication, marked by *, were not classed in CNRS ranking: Risk management, Anthropology and Education, but we include them because we think that those publications are interesting to understand the panoply of risk culture publications.

Figure 4: Publication of academic articles with “risk culture” as key word classified in different disciplines



Even if the information above shows the multi-disciplinary approach in risk literature, according to Zinn (2009)²⁸ we can make two main distinctions in how to approach risk studies, by realistic and by social-constructivist studies.

The first, realistic perspective refers to the technical vision of risk based on the definition of risk as the following calculation: Risk = probability_{event} X damage_{event} (Zinn, 2009, p.5). This perspective sees risk as a hazardous or dangerous event that is approached through risk modelisation and estimations that help to determine the probabilistic future of the risk. This approach is related to the notion of loss, by its origins and by purely calculative approaches,

²⁸ Zinn makes a more detailed description of risk approaches that can be placed in two groups, but in addition to that we propose a more detailed distinction of the constructivist approach based on our analysis. Also, he specifies that there are some publications that are more ambiguous and harder to rely on because they use a mix of both approaches.

First Chapter: Explanation of challenges in studying Risk Culture as a research concept

because risk management has long been associated with the hard sciences, such as finance, accountancy or physics (Zinn, 2009).

On the other hand, Zinn (2009) outlines a socially oriented approach, called psychometric (Slovic, 2000) or sociological, that relies on the social construct of risk and is based on human nature and usually refers to soft sciences, such as anthropology, history and humanities. This approach examines risk understanding, socio-cultural and historical factors as well as risk cognition.

For the purposes of our research, we suggest that the second view of risk seems to be more accurate for our study of risk culture.

Risk perception, according to Slovic *et al.* (1977) and Tversky and Kahneman (1986), is a rational decision based on intuition and human judgement which also relies on the cultural aspects that influence the social reality of risk. While intuition is related to the complexity of the information that is available and creates an image of the feeling that leans towards the predictions that are the result of rational thoughts and processes that normalise the reasoning and justification used to arrive at a conclusion (Roeser *et al.*, 2012). Indeed, human judgement regarding risk is not an objective science and results in multiple ways to react, because it relies on human aspects that can tie risk to culture, cultural cognition and cultural theory of risk (Slovic, 2000; Douglas & Wildavsky, 1983).

In addition to views on risk, we have also integrated the concept of risk construction. This will help us at a later stage of our research, when we look at the multiple organizational levels where we see that the perception of risk and culture could emerge from an organizational, as well as from a managerial level. In fact, risk based on the constructivist approach and from the point of view of culture (a point that we are going to discuss in the next part of this section), can be understood through social factors that can be interpreted by individuals or by groups and collectives. For instance, if you were to ask a manager: « *What is risk?* », the person would most likely describe his or her perception of risk in relation to his or her responsibility, industry, sector of activity *etc...* People usually describe risk as something to do with opportunity or danger. Indeed, risk can be seen as a duality in business. In fact, it is an event or a situation that may bring about a change in business activity that can have as its root cause either a positive or negative event. Therefore, risk « *cannot be left up to games of chance* » (Interview 18). Risk based on collectives and groups raises new questions through the diversity of actors that can

be involved in the construction based risk. Indeed, in recent years a collective vision of risk, which also relies on risk governance, has appeared (Van Asselt & Renn, 2011) and that includes heterogeneous actors (Hermans *et al.*, 2012).²⁹ Risk governance is the concept that can represent the complexity of risk culture in our research and involves a multitude of actors that can have some power over the organizational systems and risk management.

After this brief introduction to risk we can move on to the presentation of organizational culture that brings us closer to the understanding of the concept of risk culture.

I.1.2 Organizational culture

The nature of organizational culture comes from anthropological studies, where researchers explain human behaviours and actions (Moore, 2012). Cultural concepts are legitimate and accepted, but their definition is not agreed among all organizational researchers, anthropologists or social scientists. Thus, the definition itself is loose and approached from multiple perspectives. Specifically, in our field related to management and organizational studies, we have found some cultural definitions. For instance, « *A culture is a constellation of basic views and assumptions, expressed as beliefs and values, that is shared by the key members of an organization. A culture gives an organization its identity, both to its members and to outsiders* » (Miller, 1993, p.122). Still, from an organizational view, Cameron and Quinn (2011, p.22) define an organization's culture as « *reflected by what is valued, the dominant leadership styles, the language and symbols, the procedures and routines, and the definitions of success that make an organization unique* ». For Schein (2004), culture is characterised as a construct by a group defined as « *a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems* » (Schein, 2004, p.17). In theory, « (...) *culture is viewed as an organizational mechanism for the normative coercion of the individual worker* » (Bacharach, 1989, p.499).

²⁹ In Roeser *et al.* (2012), pp.1094 – 1112.

The definitions above prove that culture fits into organizational theories in multiple ways. Indeed, the following points demonstrate the variety of organizational approaches that may incorporate risk culture into its structure.

1.1.2.a Organizational culture as part of a strategic approach

In strategy, culture can be related to an intangible organizational resource that contributes to the organizational quality and the building of competitive advantage. From the perspective of strategy, culture is part of the intangible resources of a firm (Hall, 1992) that may help to create an appropriate fit with organizational objectives and strategies and has a substantial relation to organizational culture. Indeed, culture indicates an organizational approach to risk, as well as the level of risk that organization is able to absorb (Schein, 2010).

Culture « incorporates the habits, attitudes, beliefs and values, which permeate the individuals and groups which comprise the organization. When the organization's culture results in, for example: a perception of high quality standards, an ability to react to challenges, an ability to change, an ability to put the costumers first, etc.; then that culture is a contributor of competitive advantage » (Hall, 1992, p.136).

From a strategic perspective, formally set risk culture guides risk attitude. For Camerer & Vepsalainen (1988), the efficiency of corporate culture lies in control, hierarchy, structure and the human element. *« If employees and firms can't anticipate all contingencies in their contract, an adequate substitute may be broad cultural rules, created by the firm, to decide on appropriate action when unanticipated contingencies happen » (Camerer & Vepsalainen, 1988, p.124).*

Also, Schein (2004)³⁰ contributes to the strategic definition of culture, but his definition incorporates the more intangible concept of social appearance. He assumes that organizational culture can be a visible manifestation of (1) organizational artefacts such as processes, routines, lists of values, rituals, guides and other displays of organizational meaning related to the official structure; (2) espoused beliefs and values displayed in thought, action and reactions in specific situations; (3) underlying assumptions are enrooted visions of specific details and what

³⁰ 1st edition 1985.

we are focused on, thus leading to action, behaviours and to the search for solutions by cognitive reasoning. In this case, it is manifested through consistency and « *the power of culture comes about through the fact that the assumptions are shared and, therefore, mutually reinforced* » (Schein, 2004, p.35). Even though the characteristics are discernible, cultural advantage is difficult to prove because it can only be evaluated on the basis of skills and learning which depend on people as independent assets (Hall, 1992). In both cases, organizational culture is part of « *the structure [that] indicates how formal and informal aspects interact and shows that grasping risk culture requires an understanding of basic assumptions* » (Zeier Röschmann, 2016, p.16). Thus, risk culture is considered to be a formal construct, but it is represented through people.

1.2.1.b Organizational culture as a coordination system

« *Organizations are assemblages of interactions of human beings and they are the largest assemblages in our society that have anything resembling a central coordinative system* » (March & Simon, 1958, p.4).

Culture is also classified amongst organizational systems. Coordination systems are deliberate or intentional creations that are informally or formally established to be involved in organizational mechanisms. As a coordination system « *a culture consists of language elements, behaviours, common references, and number of references and values. Common references can include habits or past events which are shared by the culture members* »³¹ (Romelaer, 2011, p.27).

If we consider the original place of organizational culture, it is directly linked to the integrated organization as an abstract element and the risk portion has a significant role for organizational risk management and capability because, « *risks are always embedded in cultures...* » (Gephart *et al.*, 2009, p.144). Risk culture as a system of coordination would mean that it enables risk integration and interconnection between different parts of an organization. In this regard, risk culture could enhance the 12 other systems determined by Romelaer (2011) as an extension of

³¹ Translated from Romelaer (2011, p.27): « *Une culture est composée d'éléments de langage, de comportements, de références communes et d'un certain nombre de normes et de valeurs. Les références peuvent inclure des habitudes de vie ou des événements du passé qui sont partagés par les membres de la même culture.* »

Mintzberg's five vital system, which did not include culture, values and identities in the original five systems from 1979.

However, literature and models about risk culture are largely omitting the roots of organizational theory and do not propose any great insights into risk culture as a part of coordination systems.

1.2.1.c Organizational culture in the behavioural approach

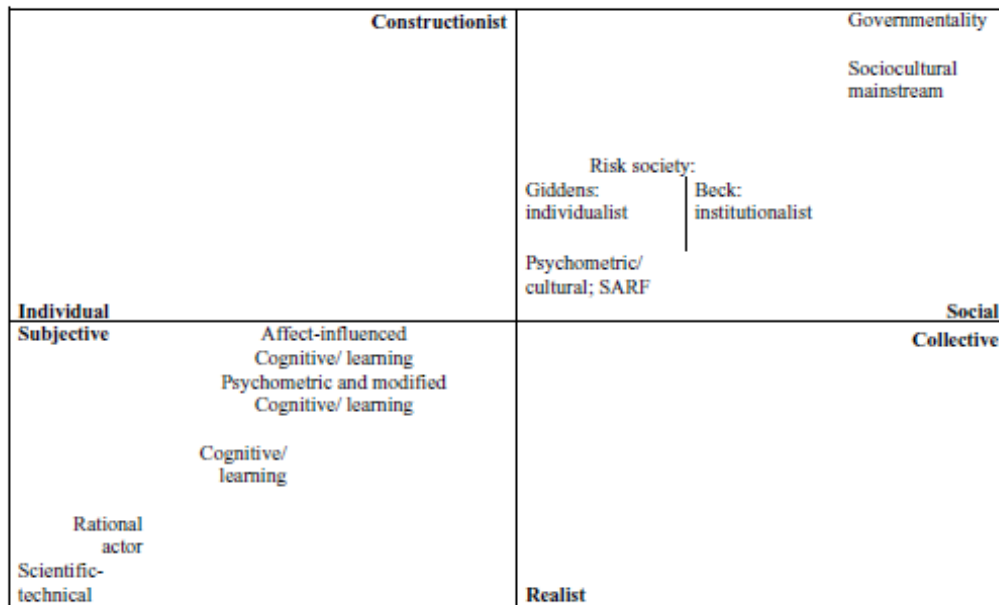
Organizational culture and behaviour are inevitably related through multiple intersections, such as those that refer to organizations as social entities and culture as a part of its construction (Smircich, 1983). Organizational culture helps to promote organizational values and attitudes that can impact the behaviour of individuals, groups and whole organizations (Schein, 2010).

The behavioural approach brings a concrete projection on how individuals, groups and organizations behave to the discussion on culture (Hall, 1992). Therefore, organizational culture can help to shape the behaviour and attitude that organizations adopt towards risks. The tone given by an organization is usually also a sign of how the company expects that their employees will behave in a risk situation. In most cases, the formal establishing of the procedure and communication are tools that reflect the tone of the view on risk (Power *et al.*, 2013). Therefore, organizational behaviour also demonstrates the relationship to risk and the resulting risk culture, and both elements should be considered in a study on that subject.

1.1.3 Relating Risk Culture to theoretical approaches

In previous sections we presented risk and culture separately. In order to advance the development of the concept of risk culture, we will now bring the ideas together. This will establish the basis on which we will establish our future development of risk, culture and risk culture. The following figure (Figure 5) demonstrates research tendencies in the sociological approaches that reveal the richness of concepts within social risk research.

Figure 5: Directions in Risk Research



Source: Taylor-Gooby & Zinn (2006, p.407)

Risk and culture are two notions that raise the question of social construction. Douglas & Wildavsky introduced cultural theory to the concept of risk in 1982, and in this case culture as a social construction plays the determining role in risk perception. Indeed, in the extension of the study, Thompson, Ellis & Wildavsky (1992) relate risk to historical and cultural conditions that influence human attitudes to risk. In order to understand the construction of risk culture we distinguish risk construction on the individual level from the collective level.

(1) Individuals have a central role in risk evaluation. The way people behave, perceive, interpret and assess risk is also part of risk theories. Human cognition plays a role in risk construction that is related to human judgement, that can sometimes lead to the under- or over-estimation of risk situations (Slovic *et al.*, 1977). Human intuition and feelings vary, and this is reflected in the way humans respond to risks (Slovic *et al.*, 2002). Therefore, human cognition is also a driver of action and has an impact on decision-making. The way humans decide on actions and respond to risk situations are driven by their perception of risk. Slovic explains that risk decisions depend on how people perceive the seriousness of the events. People will judge some activities as more or less risky, or be more or less tolerant, depending on their perception. He gives an example of driving a car, that can be perceived as a low risk activity because people do not perceive it as dangerous even if it can cause more deadly accidents than a catastrophic

event. The perception of risk in the automobile industry will only occur after observing that the data shows a relevant number of accidents.

(2) Risk culture also encompasses collective elements that create order within groups and societies (Weick, 1995). With this logic, culture would be a motor for collective action and fast decision-making. This is demonstrated by Quinn & Worline (2008) in a study on how strong culture leads to faster and more committed decisions. They analysed behaviour in the extreme situation of the crew of Flight 93 during the September 2001 terrorist attack. The flight crashed in an open field because its passengers and crew mobilised collectively in order to crash in an unoccupied area instead of an institutional building in Washington. Here, the members' cultural identity and feeling to act for their nation was stronger than the individual opportunistic reaction. This empirical analysis is positively correlated to an article by Weick & Roberts (1993) about collective mind and social systems of related actions driving to positive performance results, where risk culture would be a mind set for organizational risk management practices.

We see these concepts applied to global organizations through the promotion of social interaction, and the building of a common basis between the organization and employees. This in turn creates organizational flexibility, and organizational culture authors note that, « *greater social interactions emerged as crucial for transferring cultural values* » (Arena *et al.*, 2010, p.673). In those terms, risk culture would be important to the organizational balance and to the consistency between an organization and its social element.

In the following table (Table 3) we present risk associated with human sensibilities.

Table 3: Risk from social perspective

Approach to risk	Risk related to the human aspects	Theoretical origins
Risk and Perception (Sjöberg, 2002; Slovic, 1992)	Risks have a cognitive stance and its perceived influence its meaning and understanding. <ul style="list-style-type: none"> • Risks are evaluated through individual judgement and feelings • There may be variation in the individual perception of risk • Rational side of risks 	<ul style="list-style-type: none"> • Behavioural theory (Cyert & March, 1963) • Cognitive approach (McNamara & Bromiley, 1997, March & Shapira, 1992) • Cultural theory (Douglas & Wildavsky, 1983) • Sensemaking (Weick, 1995) • Collective mind (Weick & Roberts, 1993)
Risk and Society (Beck, 1992)	Societal representations that encode and classify human abstraction about: <ul style="list-style-type: none"> • Normative thinking • Collective and societal perception of risks 	

	<ul style="list-style-type: none"> • Holistic vision of risk 	
<p>Risk and Decision Theory (Bromiley & Harris, 2014; Bromiley, 1991)</p>	<p>Risk decision is made based on individuals' knowledge about the risk. Agent is making decision based on his/her rationality and process to the probabilistic choice. Decision makers have tendency to undertake the risk control.</p>	<p>Origins:</p> <ul style="list-style-type: none"> • Games Theory (Von Neumann & Morgenstern) • Prospect Theory (Kahneman & Tversky, 1979) • Behavioural Decision Theory (Slovic <i>et al.</i>, 1977)

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For our study, we retain the notion of balance that can occur as a result of collective action. When considering this type of action, we see the differences that can result with more formal incentives versus the power of individuals in risk culture construction.

I.2 Risk culture through different research lenses

Increasing interest in risk culture as a pillar of risk management has intensified after the financial crisis of 2008 (Financial Stability Board, 2014; Power *at al.*, 2013). However, risk culture is still in the process of being accepted and deployed in the research community as a legitimate and holistic concept. Proposing an analysis of risk culture in research represents a certain level of challenge because it is a nascent concept and empirical literature to validate it has only recently become available. Currently, risk culture is in the early stages of development and its definitions are wide and, in some cases, vague. We attempted to gather literature from different disciplines in order to propose an overview of existing literature.

In this part about risk culture, we analysed 860³² articles in the Business Source Complete databases about risk management and organization. In the period from 2006 to 2017,³³ we found 280 articles³⁴ that included risk culture in the summaries shown in Proquest databasis - ABI Inform Complete, and peer reviewed articles with similar research. The search parameter was « *culture* » as a key word, and then reading the results in summary. The article was saved if risk culture was considerably represented or was relevant to our research. In order to avoid omitting any other related denomination (for instance « *culture of risks* ») we also researched on EBSCO about « *risk* » and « *culture* » in abstract (AB) as indicated in Appendix 1. In addition to that, we followed the evolution in publications of risk culture or management as the main theme, such as with work on risk management and risk culture by Power *et al.*, 2013.

I.2.1 Defining Risk Culture

Our major hurdle in tackling multiple references mentioning risk culture was to not get lost in the wide range of (we dare say partial) characterizations. We did not want to omit those publications that talk about risk culture in a specific way and manner, instead, we divided the definition of risk culture in three groups. (I.2.1.a) We start by outlining literature that mentions risk culture in some of its designations that also shows the inconsistencies of the concepts. (I.2.1.b) Then, we talk about risk culture in general and question its tangible and intangible nature. (I.2.1.c) Finally, we define risk culture and its characteristics that we identify in the literature.

I.2.1.a Multiple designations of risk culture

When we started to study risk culture, we discovered that the concept of risk culture is interpreted through multiple designations. There are also other branches of similar thought, for

³² The number indicated is the total from EBSCO Research, In AB « risk management » and « organization » in A (abstract).

³³ After this period, we continued tracking new publications, especially from leading authors such as Mikes or Power.

³⁴ We focus on recent articles in the period between 2006-2017 that we had under « risk management » and « organization » - all different sources.

instance Eleftheriadis & Vytas (2016) refer to « *culture of risk* » instead of using risk culture. Other authors also employ close appellations that are by definition very close or identical to the concept of risk culture. Instead of risk culture, Mikes (2009, 2011) uses « *calculative cultures* ». She identifies two different approaches towards risk management, one as holistic risk management and the second based more on risk quantification. However, she finds that both approaches have a driver that is based on organizational control. In that definition, there are managerial practices that determine the type of the approach towards organizational risk management. Parker *et al.* (2006) use the denomination of « *security culture* », which by its definition is a derivative of risk culture. They focus on organizational Health & Safety and Security and, for the cultural component, they study attitudes and relations between organizations and individuals. In the same vein, Hudson (2007) develops « *advanced safety culture* » based on individuals' motivations to adopt Health & Safety and Environmental behaviour. Therefore, Maazouni (2008) cautions against security & safety culture, or any other type of culture that may have a reactive character. This kind of culture may create passive and reactive systems which wait for an accident and react afterwards. Along the same lines, he states that culture based on numbers omits a large portion of elements that are not quantifiable. He calls for a proactive culture in favour of « *problems anticipation that encourage innovative and original ideas* » (Maazouni, 2008, p. 153).³⁵ Also, Zhao *et al.* (2014, 2015) empirically examine another denomination called « *risk aware culture* » within the construction sector. They define risk aware culture as « *corporate risk philosophy* » (Zhao *et al.*, 2015, p.224) that has to be implemented through all organizational levels. Thus, the finality of risk culture is risk management acceptance, and having a risk-oriented mindset on a continuous basis. Another comparable concept close to risk culture is « *resilient culture* » (Limnios *et al.*, 2012). By definition, resiliency is a dynamic and proactive concept within the risk management process. Resiliency is not only a plan or a procedural application but a holistic system that incorporates consistent organizational management. As with risk culture, it is also a holistic process involving all organizational parts, systems and stakeholders but resilient culture is designed to be more robust, flexible and to go beyond risk management. Definitely, however, the concept is even less outlined than risk culture.

³⁵ Translated from French: « *l'anticipation des problèmes en encourageant les idées innovantes et originales* ».

The panorama of different « risk cultures » outlined above demonstrated that literature approaches the concept through multiple varied approaches. For us, the most important is understanding it through its characteristics (I.2.1.c).

I.2.1.b What is culture - tangible or intangible object?

In the absence of a tangible outline, risk culture may be a less attractive subject for certain organizations (Gupta & Leech, 2015). It means that the tangible and intangible nature of risk culture can attract different levels of attention. In fact, Röschmann (2016, 2014) points out the paradox of risk culture relying on organizational components such as decision-making, people behaviour and strategy. « *The most visible layer of risk culture consists of artefacts, the formal processes and structures prescribing the ways in which members of the organization are to manage risk* » (Röschmann, 2014, p. 13) but behind those visible and formal components can be non-prescribed practices and behaviours.

Publications from public policy and public administration are promoting a more integrated value-oriented risk culture. For instance, Chen & Bozeman (2012) find that in the public sector it is managerial trust and the constraints of formalized rules that are the main differences between good and poor performers. It means that lack of trust, and more formalization reduces performance in an organization compared to a trustful organization with less formalized rules. However, the type (public, non-profit, profit organization) and its structure plays a major role in the approach to risk and risk aversion. For instance, in the public sector formal risk culture is often the result of « *lacking trust or confidence in an organization* » or using « *excessive rules by official* » compared to « *... a higher level of trust and confidence in the capacity and effectiveness of the organization [which] may lead to more autonomy and flexibility in operations* » (Chen & Williams, 2007, p.421). Chen & Bozeman (2012) go into detail on a previous publication from Bozeman & Kingsley (1998), where the authors use data from the National Administrative Studies Project (NASP) survey focusing on the private and public sectors in New York. They found that « *a riskier culture is related to the willingness of top managers to trust employees and to the clarity of organizations' missions* » (Bozeman & Kingsley, 1998, p.109). Again, in studies from the public sector we can also recognize this confusion between formal aspects that are represented by official rules and the absence of clarity to communicate organizational objectives and values and actors' characteristics and

space for power that may be consider in their autonomy and flexibility and can also be reflected informally.

In showing that risk culture can be approached by both tangible and intangible aspects we show that risk culture includes a behavioural component that can be reflected more informally as well as aspects that are based on a formal of reality such as prescriptions, procedures and organizational structure. We are considering this distinction as one of the pieces that shows the gap in the literature.

1.2.1.c Elements of risk culture

As previously mentioned, various articles provide multiple perspectives promoting risk culture. At this point, we will develop risk culture in more detail and show the characteristics that we would like to consider for further study.

We identified that most of the recent publications come from the fields of accounting and finance. Palermo, Power & Ashby (2017) identify a theme in the publications as post crisis reaction, resulting in institutional pressure to the business where external actors expect that business practices should be improved and be embedded in day to day practices. Those same authors are closely working with the financial industry. They are researchers from the London School of Economics who have dedicated an entire research report to risk culture. In the 104-page publication, Power, Ashby & Palermo (2013) examine risk culture as the concept that is being integrated while the financial industry moves to the change era. They define risk culture as an « *intangible object* » (Palermo, Power & Ashby, 2017, p.21) that can be related to habits and routines (Ashby, Palermo & Power, 2012) that tend to define risk culture through risk-taking, control, risk appetite, corporate governance, structure, strategic decision-making and communication (Power, Ashby & Palermo, 2013).

Risk culture is included in the organizational mindset of companies' capabilities related to risk management and inherent in meeting its strategic and competitive direction (Braumann, 2016). Risk culture comes from the top, as « *effective processes and structure, including culture, are to be ensured by good corporate governance* » (Röschmann, 2014, p.5). Gupta & Leech (2015) and Gualandri *et al.* (2011) attribute the success or the failure of risk culture to the leadership team, and the influence of the external environment. It is the responsibility of the lower levels

of the hierarchy to outline the formal steps of risk culture tone. We see that internally, risk culture is translated to control, procedures, norms, and systems under the top managers' responsibility, and then « *effective board oversight of risk culture is now considered a key to achieving this goal* » (Gupta & Leech, 2015, p.10), while externally it is up to the regulators to request adequate risk culture norms. We think that the noted elements are part of organizational systems and functioning that are ultimately related to risk culture. What we see most often is that risk culture is related to organizational control, risk management structure and internal responsibility.

Risk culture as a part of control patterns has to be aligned with formal organizational practices. In Mikes (2009) case study of two financial companies she demonstrates that risk management practices are most likely consistent with organizational tone and structure. In those terms, the risk culture of managers would correspond to an intraorganizational context that is formally set. She identifies that a majority of risk management practices are considered to be controlling and evaluating which has led to a calculative culture. Mikes (2009) study is an important contribution to risk culture practice and at the same time it demonstrates an organizational interest in risk culture that is more control-oriented, even if that is what Lim *et al.* (2017) caution against. Indeed, the Lim *et al.* (2017) study looks at risk culture dualities and calculation effectiveness or how a risk culture retains its practice. For their study, they chose financial institutions based in Singapore and they look at risk culture based on a study of « *structure, management controls and incentive systems* » (Lim *et al.*, 2017, p.76). While their studies look at risk management related to internal control functions and the relationship to generating revenue, they argue that risk management represents an existential paradox for organizations. The existence of risk management can be used as a tool for legitimacy and decision-making at the top of an organization, in reality the structure and practice are damaged. In their results, they show risk management and culture as tools for legitimizing organizational decision-making that is fully standardized and may be disconnected to the organizational practices. They conclude that recognizing the behavioural dimension of risk culture that reflects the differences between individual, organizational and departmental cultures is a fundamental step to a better understanding of risk management. These examples demonstrate the emphasis of financial and accounting backgrounds on more soft skills and practices that represent social constructions of risk culture.

Other studies support risk culture as a part of the risk management structure (e.g. Zhao *et al.*, 2014; Schiller & Prpich, 2014; Richter, 2014; Heath & Sitkin, 2001) and that helps to understand the holistic risk management approach across the whole organization. Culture and risk are inevitably related to Enterprise Risk Management (ERM) that is « *a company- wide approach to be taken in identifying, assessing, and managing risk* » (Bromiley *et al.*, 2015, p.266). Arena *et al.* (2010) studies three firms from different sectors in Italy, and they show how the ERM approach to risk management, especially by control implementation and centralization of procedures, relates risk to performance. Among the three firms studied, each organization managed its Enterprise Risk implementation differently. We can see, especially in the firm that encountered a potential failure, that the attitude was more holistic. In this case, Enterprise Risk Management played the role of a central pivot that centralizes organizational heterogeneity.

Authors describe it as an event with ethical character that has « *a potential role in regaining trust with stakeholders. Engendered awareness...and understanding of risk ... (that) had been incomplete* » (Arena *et al.*, p.671). Suggested solutions include risk budgeting and the creation of official documents, and in fact they created an interactive and « *reciprocal learning* » approach between risk management function and other managers (*ibid.*, p.672). In terms of culture, this company also had the « *deepest level of 'embeddedness' risk* » (*ibid.*, p.672) of risk management and budgeting risk practices. Braumann (2016) then examined informal risk management practices within 121 Austrian companies that were not in the financial sector. She found that ERM practices and risk aware culture contribute to the companies' better performance.

In addition to new publications that discuss control and structural elements, we also find that they are increasingly looking at the study of risk culture from a managerial angle. Mikes and Kaplan (2014) have identified a focus on studying managers as important to properly understanding risk culture. By identifying that gap, they promote the idea that at the end of the day, risk culture is built by those who are in charge of deploying risk management. Hall *et al.* (2015) identify a global division between « experts » and « managers », in which experts have a direct relation to risk management or are risk managers themselves that usually gain their status through experience or specific knowledge of risk. Experts are those who have to point the focus at the issues and to show how risk management is directly related to strategic thinking. Experts are described by Hall *et al.* (2015) as managers who have adequate knowledge of their

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field, while at the same time being able to bring attention to a subject by using their interrelational skills as well as respecting established formal communication systems.

They have to be effective guides that communicate between internal teams and external actors. They need to be able to influence and convince as well as being able to make connections to multiple players and convincingly sell risk issues, and to transfer their knowledge. Some authors, including Mayer (2017) and Mikes *et al.* (2013) describe competencies in more detail. Mayer (2017) identifies four managerial roles (that we mention and consider in our discussion) and Mikes *et al.* (2013) outlines four competencies that risk management can actively cultivate, such as the search for and development of new tools, opportunities and relations.

We agree that management must be a considerable part of risk culture and we need to know more about managers themselves to further the development of risk management and culture.

The examples above demonstrate that even if risk culture as a concept is not rooted in the research literature, there are existing components of culture that show a macro picture of how risk culture can be represented. (In Table 4 you can find key components of risk culture in different articles.)

Table 4: Components of risk culture in the research literature

Components of risk culture in the research literature

	Discipline or/and Journal	Components of risk culture	Definition / key message/comment
Ashby, Palermo, Power (2012)	Accounting, finance	Oversight structure, informational flows First and second line of defence Role of CRO for organizational footprint Role of documentation	Risk culture represents the footprint of corporate risk management
Bozeman & Kingsley (1998)	Public Administration	Bozeman & Kingsley (1998) They consider concept of risk culture as risk taking where the level of risk is set by managerial perception in the organization leading to acceptable organizational behaviour.	The concept of risk culture pertains to managers' perceptions that their co-workers and superiors take risks and promote risk-taking...(...) a riskier culture is positively related to the willingness of top managers to trust employees and to the clarity of organizations' missions. Organizations with more red tape, weak links between promotion and performance, and high involvement with elected officials tend to have a less risky culture. (p.109) Authors are using data from National Administrative Studies Project (NASP)

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			survey focusing of private and public sector in New York.
Braumann (2016)	Strategy & Innovation	Risk culture is about awareness + Employees awareness (added by Schiller & Prpich, 2014) Incentives, escalating information, tone form the top	Risk culture is defined as the informal driver of risk management. On a micro level risk culture is the way that employees understand risk boundaries and what is acceptable risk taking within their organization.
Chen & Bozeman (2012)	Public Administration	In public sector Managerial trust and constraints of formalized rules are main difference between good and poor performers. Managers feeling (of insecurity) and structure or rewarding are main to the risk aversion.	No definition of risk culture, they only use same variables as Bozeman & Kingsley (1998).
Chen & Williams (2007)	Policy & Public (public sector)	Antecedents for developmental culture: « Lacking trust or confidence in an organization, elected officials may use excessive rules to ensure that public organizations are « accountable »; in doing so, they create red tape. Conversely, a higher level of trust and confidence in the capacity and effectiveness of the organization may lead to more autonomy and flexibility in operations » (p.421)	Their term of « developmental culture » is associate to the organizational learning, adaptation and innovation that are adopted in relation to risks. In relation to risk culture, this type of culture encourages organizational stakeholders to be actively involved in risk management, more specifically in recognising high risks.
Gendron, Brivot, Guénin – Paracini (2016)	Management	Relation to internal performance, perfection RC is associated with top corporate management, thus risk culture is interpreted through CEO and top. Key belief from lower levels is learning from mistakes	Risk culture gives meaning to the risk.
Gephart <i>et al.</i> (2009)	Organization Studies	Risk understanding by people Control Moral Legitimacy	Risk is founded on cultural notions of purity and pollution, and the human body is a model for risk interpretation (p.104)
Gupta & Leech (2015)	Audit and Control	Criteria using from financial stability board (FSB)	They are presenting as a tool for companies' effectiveness as well as one of causes of financial crisis

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		<p>Tone from the top</p> <p>Accountability</p> <p>Effective communication & challenge (open communication and acceptance or risk related goals)</p> <p>Incentives</p>	
Eleftheriadis & Vytas (2016)	International Business & economics, public administration	Behavioural characteristic (encourage or discourage risk taking)	<p>Risk culture is a part of organizational risk management; all levels must understand its importance otherwise there will be difficulties to make culture perform.</p> <p>Behavioural</p>
Lim, Woods, Humprey, Seow (2017)	Accountancy, finance sector	<p>Risk culture is represented by interactive – behavioural dimensions such as performance incentive systems and personal risk actor profiles, common understanding</p> <p>Risk culture is reflected by structure, management control and incentive systems</p>	Risk culture is a result of multiple paradoxes <i>e.g.</i> from passive to proactive behaviour.
McConnell (2012)	Risk and Governance	Risk culture is not only rules and regulations but also shared assumptions, and creating of awareness	It is integral part of almost every business decision represented by supposed risk assumptions that can sometimes be in conflict with organizational values, that means « Do as I say, not as I do! » (p.23)
Mikes (2009)	Management accounting research	Managerial practices fit between risk control systems and organizational contexts. Interactive controls leading to actor awareness and high-level strategic decisions	Managerial predilection toward risk practices
Palermo <i>et al.</i> (2017)	Accounting, economics	<p>Capturing organizational process</p> <p>Interactions</p> <p>Survey Instruments</p> <p>Accountability through concrete documents / prescriptions</p> <p>Management Style & Decision-making</p>	Risk culture as an accounting instrument and profitable to the management
Parker <i>et al.</i> (2006)	<p>Department of Psychology</p> <p>Safety science (in oil and gas industry)</p>	<p>Safety culture is behaviour- based approach on how organizational members act. It is about informational systems (and information process).</p> <p>Reporting culture</p> <p>Encouraging and rewarding trust</p>	Safety culture is the sum of contingencies between perception (of risks) and of behaviours (toward that risk).

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		Organizational structure being able respond to dynamic and challenging environment Willingness and competence	
Power <i>et al.</i> , (2013)	Accounting, economics	Management activities related to risk Role of centralization and of control Lines of Defence	Risk culture creates fluidity in activities instead of if desired behaviour is set just by metrics.
Hudson (2007)	Department of Psychology Safety science	Top management support Bottom up « pull » The standard implementation A tool providing clear direction Managerial control dispersion Communication (of successes and failures) Reporting Performance indicators driven	« Attitudes and beliefs, to promote an increased feeling of control when solving (Health Safety and Environment) specific problems » (p.697)
Richter, (2014)	Informatics & management (in financial sector)	Leadership as a contribution to the social order Leadership commitment (strongest commitment, wider RC) Organizational Proactivity and awareness	RC « differentiate between a more proactive, sound, and risk aware culture in contrast to an inadequate risk culture characterized by reactivity or too risky and selfish behaviour » (p.100)
Röschmann, (2016; 2014)	Insurance, economics Thesis risk culture	formal defines processes and limitations that must be used and informal is more about awareness. RC is related to operational risk and corporate governance	It is a balance between formal and informal elements. RC results in organizational learning.
Schiller & Prpich, (2014)	Sociology	Institutional guidance Risk management implementation	As part of an ERM process, RC is driven though risk management implementation
Zhao, Hwang, Low (2015)	Engineering and Technology (construction sector)	Risk aware culture as corporate philosophy and corporate culture	Risk awareness tend to generate risk culture
Zhao, Hwang, Low, (2014)	Engineering and Technology (construction sector)	Hindrance in the risk management is unsupportive organizational culture Groups norms and culture influence RM behaviours & mindset. Accountability and risk awareness help create risk aware culture	Risk culture is developed by organizational commitment through individuals' involvement and collaboration in opposite to unsupportive culture based on norms and lacking involvement into the ERM that creates organizational inertia.

Zhivitskaya (2015)	Economics and political science thesis	It is object of governance Repartition Responsibility Structure Informational flow	of RC is the major tool for ERM
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Author: Marketa Janickova

Because the definition of the concept of risk culture is inconsistent, we decided that instead of using a fixed definition for our study we would retain different characteristics that we have identified as the most important in research literature. With the help of publications from Power *et al.* (2013) we present the main notions that outline risk culture. Risk culture is defined by general components and characteristics that arise from empirical literature that facilitates the understanding of the whole picture, for instance:

- the tone at the top and leadership, (Power *et al.*, 2013; McConnell, 2012);
- risk culture awareness (Braumann, 2016);
- escalation of information and communication (Zhivitskaya, 2015; Power *et al.*, 2013);
- part of organizational process and change management (Zhao *et al.*, 2014, 2015; Ashby *et al.*, 2012) (see I.2.2.).

I.2.2 Risk culture in the organizational process

Our review would not be complete if we did not talk about risk culture evolving into the organizational process.

I.2.2.a Risk Culture can be part of organizational change

In this point, we would like to reflect on risk culture in relation organizational change, and how it is internally approached. We would like to inform the reader that we are addressing the theoretical view on culture change in the Third Chapter (III.1).

Cultural change is the result of the organizational process related to risk assessment (Taylor-Gooby & Zinn, 2006). The dynamics of the process has a fundamental impact on how an organization approaches and understands risk culture. The change process is usually

undertaken through different internal instruments, tools and procedures (e.g. training, programmes, prescriptions, models etc...).

Risk culture is not static, and Ashby *et al.* (2012) note in their study of financial organizations that risk culture is often considered as a sort of change programme and its success depends on companies' priorities. « *Risk culture is not a static thing but a continuous process, or processes, which repeats and renews itself but may be subject to shocks....[It] will be a mixture of formal and informal processes* » (Ashby *et al.*, 2012, p.9). In addition to that, Röschmann (2014) argues that risk culture is not static; there is a continuous interaction between cultural characteristics as artefacts, values and assumptions that force it to continuously evolve. As the culture can change over time, there are some existing initiatives to increase the pace of its change and at the same time try to establish the control aspects over the culture. Changing risk culture also means reshaping the « organisational footprint » surrounding risks (Power *et al.*, 2013, p. 4). In those terms, risk culture becomes an element of risk training or change programmes in which the organization is going to target its current stage for change. However, introducing change programmes can give a « *false* » impression of improvement, but they often represent a very small portion of organizational coverage, and it may be forgotten under the amount of ongoing initiatives in internal systems. In other words, Miller in 1993 explained that existing managerial models have different forms but very similar outputs, and in that case « *ultimately, these developments will result in companies' reflecting the winds of change not with the responsiveness of sandy terrain but with the inertia of a field of boulders* » (Miller, 1993, p.118). Miller does not specifically mention risk culture or risk management, but his quote can apply by thinking about risk culture as reflecting organizational life and not only being approached as a generic and mechanistic part of risk management and official perceptions. We believe that risk culture will not be reflected the same way in every organization, but there can be some conditions to make risk culture happen and to help build, maintain and evolve it.

1.2.2.b Issues with the risk culture assessment method

Finally, we would like to raise questions on the risk culture assessment process. The first question can be: *Where should an organization start?* Since the most developed models also come from professional literature, we included them in this analysis and we reflect on -and

criticize- them. This part is presented as a thought process between professional and academic literature. Since professional literature presents a wide and important instrument to involve risk assessment we wanted to include it in this point.

Professionals agree on the approach based on four (4) steps of the COSO (2017) process: « *identification, assessment, response & control* » (see in our Introduction). The advisory industry and professionals are not lacking frameworks or assessment models, but since their risk culture definitions may be incomplete, they also propose only partial processes. Existing professional literature starts risk culture assessment by looking at individuals' perceptions, while most of the managerial models start the process with an assessment questionnaire. These assessments are assigned to individuals, and, to save time, these questionnaires are released in company surveys even if this evaluation method is considered as inappropriate. Schein (2010)³⁶ indicates that questionnaires based on individuals' feedback give a limited outline on an organizational situation on risk culture and are as such inappropriate. The majority of people in an organization have limited access to information, and also interpret what they do have access to subjectively, because they « *are products of our environments* » (Schein, 2010, p.81). Also, Schein (2010) describes how it is difficult for people to describe their own culture and answer the question of «what is your culture », because they are limited to their own perception and they are also missing hindsight. According to Schein, questionnaires are not the most appropriate methods to have an objective understanding on culture. He suggests developing working groups, or workshops where there is real contact with people. We agree that questionnaires do not demonstrate real dynamic and practices. Well-defined and interactive workshops could be partial solutions to achieving an overview on specific cultures. For instance, the criteria of the choice of public will also result in a specific analysis of what the culture aspects are, according to the group of participants. That assessment method remains partial, and for a subject as complex as risk culture, companies are continually searching for accessible ways to look for cultural evidence. Additionally, according to Richter (2014), individuals have a more egocentric and ignorant position on risk assessment in terms of their views on the situation. Thus, if the companies assess their culture based on the perception of individuals they are going to be missing pieces in the holistic view. In fact, people on any organizational level have a limited access to information and are not aware of everything that is happening. Additionally, they may explain and express human characteristics about culture

³⁶ First edition from 1999.

and that usually makes people turn to bureaucratic solutions rather than thinking about risk culture. This is proven in accountancy reports, where differences in risk culture perception are clearly visible. The ACCA (Leitch, 2012) report which examines 2121 responses for the worldwide survey related to the accountants' practices and risk management, as well as risk culture, shows evidence of how risk perception is embedded within different subcultures and how perception varies according to the limits of the available information about risk.

Existing literature about risk culture leaves us with the impression that there are still numerous improvements to achieve in order to accept risk culture as a whole concept. With some exceptions (*e.g.* Power *et al.*, 2013; Mikes, 2009) that we present in our literature review, there is very little scientific data that could be tested or reproduced in research. Therefore, we would like to focus -and base- our research on the importance of the clarification of the concept and more empirical evidence.

Unfortunately, risk culture research is not very well supported in organizational theories. Even if risk culture concepts are inspired by organizational culture, theories of organization are silent about the risk culture concept itself. In this vein, organizational theories could help to explain risk culture, for instance formal and informal clarification of risk culture and its management. In addition to that, organizational theories could help to better describe risk culture in an organizational structure in relation to human aspects. Consequently, we will develop organizational theories in the Third Chapter.

The understanding of risk culture is important to organizations that are large and are operating in complex environments such as multinational corporations. Even if multinational companies have existing standards, operating procedures, rules and other formal settings they have to take international exposure into account that can create differences in the systems and human interdependency that we develop in the next chapter (Second Chapter).

Second Chapter: Specificity of Risk Management in Multinational Companies

« *The larger the organization, the greater the probability that coordination failures occur.* »
(Meyer *et al.*, 2011, p.244)

In this chapter, we are going to explore risk culture as a part of risk management in relation to the context of multinational companies. Researchers study multinational corporations through different phenomena and levels of analysis, as cross units (Santos & Eisenhardt, 2009), relation between country and global level (Verbeke & Asmussen, 2016), global and local context (Meyer *et al.*, 2011), corporate level (Oh & Oetzel, 2016), subsidiaries (Oh & Oetzel, 2011) and other angles. Taken as a whole, multinational companies are large complexities incorporating diversities that can be studied as a context (Roth & Kostova, 2003; Gooderham *et al.*, 2011). Studying multinational companies by looking at the context helps us to examine whole organizational phenomena focused on risk culture, and at the same time to understand the different systems and mechanisms.

We would like to explain and justify the choice of the multinational context. Thus, this chapter helps us to do so. This chapter has two sections. The first section (II.1) analyses the structure and form of multinational companies. It shows the complexity of the systems and subsystems that an organization has to deal with. In addition, we specifically focus on public companies that, by definition, are trading their shares on the stock exchange market. These types of corporations must respond to specific requests with legal and compliance responsibility to the multiple stakeholders and shareholders. Therefore, the corporate governance has a permanent impact on risk culture design. In the second section (II.2) we look at the relationship between institutional obligations and international codes for good governance practices, standards and risk management frameworks, and the different forms that risk management can be translated internally into the companies.

II.1 Risk Culture in Multinational Companies

Multinational companies and worldwide corporations are operating in a challenging environment (Cyert & March, 1992; Burgelman, 1983; Chandler, 1962) and their business cannot remain merely reactive to the external environment. These types of organizations face environmental, organizational and process complexities (Kostova & Zaheer, 1999) and are related to multiple different stakeholders, communities and investors as described in the World Bank Report (2014). Indeed, risk management in multinational companies also reflects multiple critical factors of external context, such as responding to differences in cultural environments, attaining institutional compliance and attracting quality stakeholders.

They are large entities where risk management has a particular place, especially after corporate scandals and multiple crises that occurred in the 2000's (Andersen & Roggi, 2012). Furthermore, risk management and culture in multinational companies arise from institutional ratings that address the large corporation and evaluate its solvency (from rating companies such as Moody's, Standard and Poor's or Fitch). In addition, risk culture in a multinational system enables companies to react more proactively to potential threats presented inside and outside of the organization (Power *et al.*, 2013).

The first step to understanding multinational companies is to understand their complexity of structure. The organizational structure is the result of organizational settings; division of organizational activities, types of coordination systems and mechanisms that allow the pursuit of organizational strategy (Romelaer, 2011). Multinational companies are most often divisional structures: « *All divisional structures are not large companies, but almost all very large companies are divisional structures, among other things when they have several different sectors of activity and several international markets* » (Romelaer, 2011, p.29).³⁷ Thus structure, known as divisional, allows multinational companies to have some level of flexibility in different markets despite their size and cultural differences: « *Each unit division is decoupled from the others and given the power necessary to make all those decisions that affect its own*

³⁷ Translated from French: « *Toutes les structures divisionnalisées ne sont pas grandes entreprises, mais presque toutes les très grandes entreprises sont des structures divisionnalisées, entre autres quand elles ont plusieurs domaines d'activités distincts et plusieurs marchés internationaux.* » (Romelaer, 2011, p.29).

products, services, or geographical areas...» (Mintzberg, 1983, p.191). At the same time, those types of companies must find the right balance between allocation of authority, power centralization and decentralization. There are different levels of autonomy according to world tendencies: « *Structures change over time and organizations go through cycles of centralizing control and then decentralizing it again* » (Power *et al.*, 2013, p.27).

Therefore, the structure of multinational companies can also influence the level of risk management formalization and distribution of risk culture over internal systems.

II.1.1 Structure of Risk Management

« *Risk is managed in every part of the organization's structure.* »

(ISO 31000, 2018, p.5)

Risk management is a legitimate part of organizational structure. It refers to « *coordinated activities to direct and control an organization with regard to risk* » (ISO31000, 2018, p.1). Dickinson (2001) states that risk management became a formal part of companies' management in the early 1950s with a focus mainly on finance and insurance. From that point of view, businesses were not managing the risk by themselves, it was mainly transferred to the insurers, or eventually avoided. However, in the 1990s continuity planning and internal control of risk increased in prominence in private businesses (COSO, 2013;³⁸ Dickinson, 2001). Despite this increased interest in risk management, internal integration in the company was still uncommon (Bromiley *et al.*, 2015). Business continuity planning has as an objective to ensure that businesses can maintain their activity, even if some unexpected events occur (see empirical examples in *e.g.* Lindstrom *et al.*, 2010; Low *et al.*, 2010; Momani, 2010). In this case, some parts of the activities related to the potential risk have to be considered and companies begin to create plans for risk management.

As the name indicates, multinational companies are operating in multiple nations and they have to adapt their strategic approach to different markets, and their decisions will correspond to various organizational characteristics and configurations (Bartellet & Goshal, 1991). As ISO31000 (2018) explains, effective risk management needs to be holistically integrated within

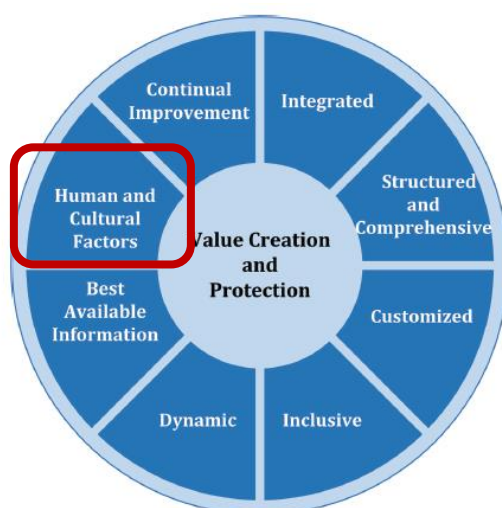
³⁸ First publication of COSO dates 1992.

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the organizational structure through its systems, governance and decision-making. Therefore, integrating risk management holistically represents some level of challenges. For instance, people have to have a similar understanding of what organizations mean by managing risk and what level of risk they are aiming to take on its behalf. In that case, risk culture seems to be an attractive concept that helps to create solutions in regard to behaviour toward risks.

Publications on risk management, e.g. ISO 2018, have only recently included culture and behaviour as part of the structure that should be adopted in mitigating risk. As the extract from ISO 2018 demonstrates, culture and risk become one of the eight principles to be considered to improve the effectiveness of risk management: « *human behaviour and culture significantly influence all aspects of risk management at each level and stage* » (ISO31000, 2018, p.4).

Figure 6: ISO 31000 Guidance on the characteristics of effective and efficient risk management



Source: ISO 31000, 2018, p.2

At the same time, ISO 2018 does not provide more details on how culture and behaviour should be specifically demonstrated in terms of risk behaviour and on its inclusion in the multinational structure. In this instance research literature gives more indications. Organizational structure encompasses roles and responsibilities that individuals have in risk management (Fraser & Henry, 2007); therefore, risk management is divided between supervisory roles and operational practice, which means that the supervision comes from the top and cascades down to the bottom levels (Zhivitskaya, 2015). Therefore, risk culture would represent human structure.

In more detail, risk culture literature has already started to consider roles and responsibilities in the organizational models. We have noticed that most of the literature refers to the « *three line defence* » framework. Indeed « ... *'Three Lines of Defense' models were a significant aspect of [the] conversations about risk culture ...* » (Power *et al.*, 2013, p.27). Three Lines of Defence models refer to different lines of the organizational structuration of risk management and distributing responsibility in terms of risk management (Lim *et al.*, 2017). The Reference Model is issued by the Basel Committee; thus, some minor variations exist, but the core of the model in the literature is similar. In general, the first line refers to the control represented by top management – the Board and CEO. Then, the second line is the risk management, compliance and other related reporting systems. Finally, the third line is about operational activities (PwC, 2015). Similar models of the defence line are also promoted by institutions such as the World Bank Group (Ard, 2015). Their lines contain (1) Business Line, (2) Control functions – risk management, compliance, financial control/operations, (3) Internal audit functions. According to the World Bank Group, it is up to the first line of defence to correctly reflect the risk culture « *through activity* » (Ard, 2015, p. 18), that means that they have to demonstrate it in practice in their day-to-day business role. Indeed, lines of defence are engineered to create a direct link between the top level and the control and audit functions (The Institute of Risk Management, IRM 2012). From an empirical view, research focusing on financial institutions refers to the question of risk cultural complexities and considers that organizational structure and risk culture are also inspired and interpreted by three lines of defence (see Lim *et al.*, 2017; Zhivitskaya, 2015; Power *et al.*, 2013; Ashby *et al.*, 2012). By definition, « *The first line is the business itself with its own supervisory capacity to manage risks. The second line is broadly the central risk management function in a policy setting and advisory role, and the third line is the internal audit* ». Authors specify this traditional three lines and extend them over that « *although the board, external auditor and regulator might well be fourth, fifth and sixth lines of defence* » (Power *et al.*, 2013, p.28).

Therefore, the perception of risk factors can differ according to the level and area of responsibility. For instance, Gendron *et al.* (2016) empirically demonstrate that divergences on risk management perspectives from the top have created frictions on lower levels. Authors find that top decision makers do not question gaps in traditional risk management and its assessment and they focus on causes instead of deficiency in its implementation. Also, the Financial Stability Board (2014, p.3) goes in the same direction: « *Tone from the top: The board and senior management are the starting point for setting the financial institution's core values and*

expectations for the risk culture of the institution, and their behaviour must reflect the values being espoused. »... and then other levels are supposed to adopt the organizational idea through formal deployment of risk culture: « *Relevant employees at all levels understand the core values of the institution and its approach to risk, are capable of performing their prescribed roles, and are aware that they are held accountable for their actions in relation to the institution's risk-taking behaviour* » (Gupta & Leech, 2015, p.4).

For our study, the Three Lines of Defence model lead us to reflect on roles and responsibilities within the organization. Each of the lines plays a specific role that can influence risk culture. Therefore, we consider three lines of defence in relation to the role of the organizational governance and leading levels that shape and control risk culture practice. However, we believe that prescribing roles and responsibilities represents only the formal way to outline risk culture; some research has shown that companies with less formal constraints are higher performing (Crilly & Sloan, 2014). In our study, we will consider behavioural indicators including roles and responsibilities in order to understand how risk culture is structured, both formally and informally. We will explain governance and manageability in the Third Chapter, which is on conceptualization.

II.1.2 Emergence of Subculture on Different Levels and Environments

As previously mentioned, multinational companies are exposed to a global environment where they face internal and external diversities. By their definition, these types of organizations are social and human entities deployed worldwide in a variety of contexts that may trigger new risks that overlap current risk management on a day-to-day basis. Both external and internal environment must be taken into account when companies are managing their risks. This is especially true when it comes to risk culture. In fact, multinational companies are culturally very diverse, and they must consider the varieties of their internal and external cultures.

Firstly, if we consider the impact of external environments on risk culture, we need to explain that multinational companies operate in different nations that can have their own cultural characteristics (see Hofstede *et al.*, 2010). This means that individuals coming from one country may not perceive risk and risk culture in the same way as people from another country or another continent. This can create a conflict between behaviour, perception and the normative approach to risk-taking. For instance, individuals coming from countries in conflict

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are more inclined to take risks than those individuals who are raised in safe and stable environments (Hofstede *et al.*, 2010). At the same time, global trends lead populations to adopt unified views and try to establish one way of thinking that may result in a loss of local traditions and habits (Romelaer, 2016). Indeed, it is a challenge for multinational companies to manage a multitude of influences from external backgrounds and at the same time to promote consistent risk culture without losing cultural identity, and to respect normative and legal specificities.

The existence of subcultures within organizations is an important fact that must be considered as well. There are cultures based on national identities, but also different cultures can emerge from the affiliation to a specialization (such as the level of responsibility, function, departments, units or industry...). In his latest edition, Schein (2010) has added a new chapter focusing on macro cultures, subcultures and micro cultures because « *much of what goes on inside an organization that has existed for some time can best be understood as a set of interactions of subcultures operating within the larger context of the organizational culture* » (Schein, 2010, p.55). He identifies three generic subcultures within organizational levels based on the system of the hierarchy:

- Operators – are those who are close to the operational level and bottom line;
- Designers – are middle lines that are supposed to assume the internal fit;
- Executives – represent the top level, set tone at the top and make connections with the external environment.

In discussing risk culture on different organizational levels, we must also mention that Power *et al.* (2013, p.23) « *would prefer to speak of « risk cultures » which may be unevenly distributed within organizations* » instead of only one risk culture. The idea of « *risk cultures* » from Power *et al.* (2013) is similar to that of Schein's cultural differences in organizational levels (2010). Both publications want to demonstrate that an organization that has multiple hierarchical levels, business units, functions or geographical locations, can also have more than one cultural predominant. Indeed, the organization could build a fundamental risk culture by setting the tone from the top and it will be translated differently across the organization (into the business units, levels, and functions) by defining specific responsibilities. Instead of talking only about what the organizational culture should be, the conversation should include references to multiple levels of cultures and responsibilities (Schein, 2010). (Roles and responsibilities were already discussed previously in relation to the structure).

II.2 Influence of the Legal Context

Now that we have outlined the structure of a multinational company, we also have to consider its environment and its impact on risk management and possible risk culture interpretations. Indeed, the external environment must not be neglected (Romelaer & De Rozario, 2016) in studying multinational companies. In this section, we demonstrate the causality between institutional vehicles related to risk management and how they are reflected internally in an organization. Thus, we begin with a description of existing risk management standards and frameworks, linking them to different forms of risk management inside of companies (II.2.1). Then we consider the formal and existing practices that have an impact on the risk culture in companies (II.2.2).

II.2.1 Risk Management Standards and Frameworks

According to Lim *et al.* (2017) the historical context of risk management helps to better understand how it is projected in internal systems. In accordance with that statement, this part shows where the necessity for organizational risk management comes from and how it translates internally in an organization. Companies must put appropriate systems and mechanisms in place to manage a variety of different risks that will allow the business to continue to operate under sustainable conditions in the event that the unexpected happens. In an environment where publicly exposed companies are required to follow the rules of good governance practices, risk management principles have become a common necessity and are translated to organizational culture through behaviour toward risk. The embeddedness of risk management will dictate the risk culture of a company. Also, global institutions such as OECD, World Bank and standards such as ISO and COSO consider risk culture to be part of the auditable and control aspects.

Further to corporate failures and multiple financial affairs, legislative regulations were introduced for publicly quoted companies in order to monitor business practices and compliance (Chandra, 2003). The introduction of regulations changed the nature of the control of risk, as well as risk implementation. Companies then began to address their risk management in relation to appropriate legislations and standards. The fact that risk management became prescribed also means that its practice became formalized and documented.

II.2.1.a Legal Sources

In terms of risk culture, legal sources are an external influence that mandate or suggest how to apply risk management practices. These codes and acts influence risk management by referencing systems and legal agreements surrounding that subject.

Cadbury Code³⁹

The Cadbury Report (1992) as a Code remains a global reference point for anti-corruption and risk management practices in the Anglosphere world. The origin of this report comes from the idea of impartiality and sets out good governance practices. Even if the Cadbury Code is not translated into law and remains as a recommendation for corporate governance, it is pivotal in the risk management process. In a more recent version, the report was an inspiration for the Anti-bribery policy in Great Britain (2010). The Cadbury Report itself covers a wider range of risk management and does not focus only on corruption. It highlights the responsibility of corporate governance and the way risk management should be approached from the top of the organization and throughout the whole structure. Recommendations in that report inspired further legislation in other countries (*e.g.* the United States as indicated in the following section). The report proposes practices that should be incorporated as a base for good corporate practices and governance.

Sarbanes - Oxley Act

Further to the Enron scandal, which was the first -and one of the biggest- multinational scandals of the 21st century in America, the government called for a review of governance duties and responsibilities. It was discovered that Enron had a clear conflict of interest in their business dealings, had falsified documents, suppressed information and submitted false financial declarations. This led to the American senate imposing corporate responsibility on companies' governance. From then on, any written statement had to be signed and the signature represented the executives' assurance under the risk of prosecution and imprisonment (Soxlaw, 2018,

³⁹ Source: <http://cadbury.cjbs.archios.info/report>.

online).⁴⁰ Since then, the Corporate Governance has become a mandatory obligation to apply rules of transparency and of control (Wagner & Dittmar, 2006).

Dodd Frank Wall Street Reform and Consumer Protection Act

The Dodd Frank Act was originally an extension of companies' governance duties and responsibilities, proposed in order to protect consumers through market transparency and recovery plans after the crisis in 2008 (U.S. Commodity Futures Trading Commission, 2018, online).⁴¹ Signed in 2010, Dodd Frank is also closely aligned with the Department of American Justice and the Foreign Corrupt Practices Act that calls for prosecution of any illegal action not only on American soil, but also internationally. Thus, companies' responsibilities do not stop at state borders. It gives wider space to control and prosecute illegal companies' behaviour. Legislative requests are translated into different forms of risk management such as standards or frameworks that we list in the following section.

Even if this bill was originally made to protect consumers and prevent other unexpected crises, due to the widespread criticism that the law does not favour economic growth and is too strict, it is under review since 2017. Indeed, in May 2018, The New Yorker queried whether U.S. society does not go toward another financial crisis by undoing Dodd Frank (Lemann, 2018, online).⁴²

II.2.1.b Frameworks

In the following, we are going to briefly introduce different risk management frameworks that serve as the model for risk management integration. We have decided to do so because it helps to understand different tools that organizations possess in order to develop their risk management in a continuous manner over time.

COBIT

⁴⁰ Source: <http://www.soxlaw.com>. Online, accessed April 30, 2018.

⁴¹ Source: <http://www.cftc.gov/LawRegulation/DoddFrankAct/index.htm>. Online, accessed Mai 30, 2018.

⁴² Source: <https://www.newyorker.com/magazine/2018/05/07/the-dangers-of-undoing-dodd-frank>. Online, accessed May 30, 2018.

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COBIT is the Information Technologies Framework guide that focuses on IT governance. The framework has as an objective to optimize a company's resources with the focus on industrial standards covering integrated organizational systems such as strategic systems, value on project creation, and resource allocation value on risk. Its objective on risk management is « *risk awareness by senior corporate officers; a clear understanding of the enterprise's appetite for risk, transparency about the significant risks to the enterprise and embedding of risk management responsibilities into the organization* » (ISACA, unknown, p.4).

In relation to standards, COBIT suggests tools to fulfil the legal obligations of the Sarbanes-Oxley act. It also takes into account the ISO 17799 standard on information technologies and security techniques and other IT compliance, such as ITIL, CMMI⁴³ (ISACA, unknown).

COSO

It is important to note that most traditional and known risk management guidelines were initiated by The Committee of Sponsoring Organizations of the Treadway Commission (COSO) and they describe risk management holistically as « *as a Rubik's Cube* » (Tekathen & Dechow, 2013, p.102).

The first COSO enterprise risk management framework was released in 1992 and it was still strongly related to a regulatory background with a focus on finance, but this framework has improved greatly over time. This first model, which helped to monitor enterprise risk, was not enough to avoid gaps in corporate control that led to the multiple crises and increasing regulatory background between 2001 and 2004. Further to that, the COSO model was officially accepted as the Enterprise Risk Management principles for the Integrated risk management framework beginning in 2004 (COSO, 2004). However, the real implementation and functioning of Enterprise Risk Management (ERM) only became a serious part of the discussion as a result of the financial crisis of 2007 to 2009, when the financial sector was not able to control or manage its own transactions, and banks had strongly under-effective risk mechanisms that harmed multiple industries worldwide (Mikes, 2009; Mikes, 2011).

⁴³ Information Technology Infrastructure Library and Capability Maturity Model Integration. Those are programmes and business practices.

ISO

The objective of the International Organization for Standardisation (ISO) is to provide guidance that covers different organizational processes and procedures. As a result of its application, the organization proposed to certify its deployment within companies. In terms of risk management, the organization edited ISO 31000 on risk management to the last available version date in 2009. However, recently those standards were reviewed and this year, in 2018, the ISO proposed a new re-edited version. Due to the restricted access to the most recent version⁴⁴ we propose to undertake only a partial review of the 2018 standards. Based on accessible information, the biggest change between 2009 and 2018 is in the dynamic of the risk management model. The 2009 version proposes the model that serves as a helpful introduction of risk management within companies. The 2009 Guidelines lists Principles that composes a risk management framework which can lead to the internal application of risk management processes. As far as relations between Principles – Framework and Process can create risk management dynamic, there are deeper connections missing between each element. Therefore, ISO dated 2009 is not sufficient in today's world based on fast changes and innovation because it does not propose proactive managerial measures. Thus, ISO 31000 version 2018 seems to propose a more causal model inside every element, even if components of Principles-Process-Framework remain unchanged. Still, ISO standards remain key reference points for risk management.

National Institute of Standards and Technology Guide⁴⁵

Less well-known -but still relevant- is the guide from the National Institute of Standards and Technology (NIST, 2010). We have chosen to mention this framework because it is related to the information control system and control monitoring of new technologies that we consider to be important in today's cyber world. Fundamental to these guidelines is « *organization wide risk management* » based on three layers of risk management including (1) organizational, represented by governance; (2) business process corresponding to information flows; (3) information systems that are in the environment of operations. These three layers address risk

⁴⁴ The document is available for a fee and, on their website, ISO give only a short preview of the introduction. See <https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-2:v1:en>.

⁴⁵ Source: <http://csrc.nist.gov/publications/nistpubs/800-37-rev1/sp800-37-rev1-final.pdf>.

from multiple organizational perspectives that allows for development of an organizational lifecycle model for risk management.

II.2.2 Control of Risk Culture through Delimitation of Risks

Further to the presentation of external factors that influence risk management, in this section we would like to discuss in more detail how risk management and risk culture can reflect internally within an organization.

II. 2.2.a Formulation of Risk Management inside of organizations

Regulations and standards that we introduced in the two previous points (II.2.1.a, II.2.1.b) may be reflected inside an organization through different forms of risk management. These external factors influence the way that risk management projects inside companies. By definition, « *Risk management is a central part of the strategic management of any organization. It is the process whereby organizations methodically address the risks attached to their activities* » (The Institute of Risk Management, 2010, p.6).⁴⁶

Here we will present some of the main forms of risk management that are deployed inside the corporate world.

Risk management refers to the methods and practices of managing an organization in term of risks and how it is embedded in the organizational structure and linked to corporate strategy. Another point that must be considered is how this is translated into different forms of internal risk management such as a focus on information technologies, projects, or enterprise. Risk management can be interpreted differently inside of organizations.

Risk management may represent the traditional form of managing risk in silos by risk aspects. We can list the main form of traditional risk management that is projected inside an organization as Security and Safety (Roeser *et al.*, 2012); Operation, Projects and Technologies (Van Est *et al.*, 2012).⁴⁷ In addition, the Oh & Oethzel (2011) study focuses on different forms

⁴⁶ Source: The Institute of Risk management:
https://www.theirm.org/media/886062/ISO3100_doc.pdf.

⁴⁷ In Roeser *et al.*, 2012, pp. 1067-1093.

of security of risk, and Meidell & Kaarboe (2017) focus on market-risk technology. In the same vein, Aven (2012) argues that organizations support risk in terms of Investment, Operations, Market regularities, Technologies, Environment, Safety and Externalities.

From a different viewpoint and in its ideal definition, risk management is a holistic (Bromiley *et al.*, 2015; ISO, 2009), integrated method of organizational systems, mechanisms, procedures and behaviours that lead to a proactive enterprise structure. Enterprise risk management (Bromiley *et al.*, 2015) is sometimes compared to an umbrella concept⁴⁸ that connects entire organizational systems with holistic risk management (Mikes & Kaplan, 2014; Power, 2007).

Our opinion is that risk management must be considered as a whole entity in order to arrive at comprehensive, integrated and holistic management. For this reason, we will develop in more detail our choice of Enterprise Risk Management (see Table 5).

Table 5: Aspect that differentiates the traditional approach to RM and the ERM approach

Traditional risk management	Enterprise risk management
<ul style="list-style-type: none"> • Fragmented • Reactive • Discontinuous and not frequent • Cost-based • Functional 	<ul style="list-style-type: none"> • Integrated • Proactive • Continuous and frequent • Value-based • Carried out with a process logic
Source: Adapted from Loach, 2000	

Enterprise Risk Management (ERM)

By its definition, Enterprise Risk Management (ERM) is « *the integrated management of all the risks an organization faces, which inherently requires alignment of risk management with corporate governance and strategy* » (Bromiley *et al.*, 2015, p.265). Bromiley *et al.* (2015) propose an exhaustive review of enterprise risk management concepts including academics, managerial and institutional literature. They emphasize that, as with most newly emerging subjects, there is still a lack of consensus on Enterprise Risk Management definitions, even if

⁴⁸ Power (2007) refers to an ‘umbrella concept’ in relation to Enterprise Risk Management and organizations that should consequently cover risk management globally within their organization.

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there has been a noticeable rise in interest in ERM in the last few years. Since its publication, the article by Bromiley *et al.* (2015) was cited 165 times in Google Scholar Research.⁴⁹

ERM represents an integrated approach for multinational companies in terms of risk management, control, and performance indicators as well as being attached to value creation. ERM is primarily driven by formal procedures; internal policies based on world standards such as COSO or ISO 31000 or models proposed by professionals such as Deloitte, E&Y, McKinsey or PwC. For instance, Tekathen & Dechow (2013) explore Enterprise Risk Management concepts as tools related to accounting practices. On this basis, they demonstrate that ERM conceptualizations come from institutional guidelines and direction such as the Committee of Sponsoring Organizations of the Treadway Commission (COSO) or the Security Exchange act for company accountability called the Sarbanes Oxley Act. Enterprise Risk Management translates institutional expectations into the form of guidelines that are designed to align entire companies onto the same form of risk management.

Table 6: Concept of Enterprise Risk Management

Concepts from Risk Management	Definition	Main References
Enterprise Risk Management	ERM is « the integrated management of all the risks an organization faces, which inherently requires alignment of risk management with corporate governance and strategy » (Bromiley <i>et al.</i> , 2015, p. 265).	Palermo <i>et al.</i> , 2017; Braumann, 2016; Bromiley <i>et al.</i> , 2015; Zhao <i>et al.</i> , 2015; Zhivitskaya, 2015; Richter, 2014; Gephart, 2009; Power <i>et al.</i> , 2009.

The reason that Enterprise Risk Management becomes such a crucial component is due to the uncontrollability of a risk portfolio separately, and the inability to challenge certain risks by silo approaches. The most challenging group of risks are called (1) « *black swans* » for they are very rare and are always an unexpected event with a strong -or even catastrophic- impact (Enterprise Risk Management initiative, 2013;⁵⁰ Ernst & Young LLP, 2011;⁵¹ Taleb, 2007).

⁴⁹ Consulted on July 19, 2018.

⁵⁰ <https://erm.ncsu.edu/library/article/risk-planning-blackswan>.

⁵¹ [http://www.ey.com/Publication/vwLUAssets/Responding_to_a_Black_Swan/\\$FILE/Responding_to_a_Black_Swan-5_Insights.pdf](http://www.ey.com/Publication/vwLUAssets/Responding_to_a_Black_Swan/$FILE/Responding_to_a_Black_Swan-5_Insights.pdf).

(2) The other groups are « *myriads* » that represent signal carrying risk but constitute small risk characteristics as well as being composed of multiple circumstances that are grouped together. These signals have an almost unpredictable impact because they seem to be so insignificant that it is very difficult to make any real justification *ex-ante* and place them on the risk list. In fact, they are events usually explainable only after the catastrophic event has occurred (Portal & Roux-Dufort, 2013).

II. 2.2.b Control of risk culture through risk measurement

We have noticed that control activities play an important role in risk culture matter. As Ashby *et al.* (2012) mention, risk culture is often formally associated with control functions as an internal audit, quality control and other elements. The reason for that is that it incorporates risk culture into the internal control activities (COSO, 2009).

In fact, external and internal stakeholders are looking to capture risk culture in a concrete measure or in the form of numbers. For instance, rating agencies (S&P, Moody's, Fitch Rating) have developed financial measures as a basis for being able to estimate corporate health through risk culture evolution. Also, EYGM Limited report (2015)⁵² propose the model for Risk Governance 2020; EY emphasizes that efficient risk culture is one that is assessed and controlled by internal systems.

The major form of risk control that directly influences risk culture is risk appetite. Risk appetite is a form of control that provides financial limits and boundaries in organizational risk-taking (Power *et al.*, 2013) and reflects the acceptance and willingness that the organization will display in terms of risks (COSO, 2004). By definition, risk appetite is considered as a quantifiable model of risk culture (Mikes, 2009). For instance, the Financial Stability Board (FSB, 2014) and Gupta & Leech (2015) consider risk appetite as a component that turns risk culture and risk-taking into a tangible alignment with organizational goals. Also, Gupta & Leech (2015) underline that risk culture should be embedded in the company according to the financial limits that the organization is able to allow for risk management, and they suggest setting risk culture based on organization results and objectives. However, Power (2009) warns

⁵² Source: [http://www.ey.com/Publication/vwLUAssets/EY-risk-governance-2020-risk-culture-the-role-of-internal-audit/\\$FILE/EY-risk-governance-2020-risk-culture-the-role-of-internal-audit.pdf](http://www.ey.com/Publication/vwLUAssets/EY-risk-governance-2020-risk-culture-the-role-of-internal-audit/$FILE/EY-risk-governance-2020-risk-culture-the-role-of-internal-audit.pdf).

that risk appetite measures risk culture, which can give an impression of safety and of control of risk practices which may not always be true. For instance, Fjeldstad *et al.* (2012) argue that actor- oriented organizations and structures cannot really be fully « *coordinated and controlled* » because that is not human nature. Instead of being brought about by using control, efficiency is introduced by autonomous and responsible interaction that shapes the culture by its « *shared value, norms of reciprocity and trust* » (Fjeldstad *et al.*, 2012, p.739). In the same vein, Gulati & Puranam (2009) note that informal organization brings effectiveness to the structure by allowing progressive human adjustment over time.

Although the recognition of risk culture has become a real issue for multinational companies, and risk-taking a subject of discussion in establishing the limits of risk practices, more discussion is required. Today, multinational companies assimilate risk culture into the model that helps to absorb better capacity of risk and so potentially enlarge their risk appetite (Röschmann, 2016), but we would still argue that risk culture remains an intangible asset that is difficult to measure.

In this chapter we focus on risk management and risk culture in relation to multinational companies. Risk management is influenced by the global context that is also setting multiple rules and regulations that have to be considered for multinational operations. We have noticed that external environments seem to have a large influence on internal risk management, which gives the impression that risk management has mostly mandatory aspirations. External influences, such as institutions, external stakeholders, regulation, industry, competitions, resource availabilities and other environmental aspects influence organizational attitude towards risk and risk management. Also, Bromiley & Harris (2014) indicate that organizations have a tendency to compare themselves with their industry and are more influenced by external conditions instead of their own internal environment. Indeed, external pressure often takes over internal quality. Considering the organizational external environment is important, but at the same time Meyer *et al.* (2011) demonstrate that multinational companies embedded in multiple environments may be very complex to define. Also, the place of risk culture depends mostly on internal risk structure, systems and how much importance it is given within the company. Formal frameworks and models are the moulds that shape risk management and may impact risk culture.

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We want to demonstrate through the introduction of existing frameworks that companies have a wide choice of models that apply to risk management. However, we would exercise caution when applying these frameworks. We are convinced that companies operating in today's challenging globalized world, and worldwide markets, need to change their internal systems as well as lead people to think and reflect on risks.

For our study, we have chosen to work on Enterprise Risk Management which supervises the entire organization, and that we found to be most appropriate to propose some insights into risk culture. We maintain that the desired risk culture needs to be supported by the organizational structure (explained by three lines of defence), which in the case of multinational companies may be complex.

In recent years, there has been increased interest in understanding risk management practices from the social perspective. We would like to focus in more detail on the studies dealing with informal parts of risk management and culture in companies (*e.g.* Palemo *et al.*, 2017; Power *et al.*, 2013; Mikes, 2009).

Third Chapter: Formulating and explaining the research gap to study risk culture

In the previous chapters, we have described the concepts of risk management and of risk culture. The first and second chapters outlined the notion of risk and risk culture which in the end appeared as an informal concept, but which companies try to approach through formal organizational control. However, we are not convinced of the clarity of the concept of risk culture. We would like to display risk culture more clearly in formal and informal aspects. Therefore, the objective of the third chapter is to describe this gap in the literature. We outline formal and informal aspects in general, and also address questions on manageability that lead our research on risk culture.

In the first section (III.1), we introduce formal and informal organizational aspects that are not new in the organizational literature. We present existing origins and different definitions of formal and informal aspects, and then we outline and justify our first research question. In the second section (III.2), we present our thoughts on the perception of manageability of risk culture. First, we introduce the concept of manageability, then we apply it to risk culture in order to define and present our second research question. Finally, in our third section (III.3), we summarize criteria that we retain for our research and present them in our conceptual model.

III.1 Choice of formal and informal aspects to study Risk Culture

« The problem of risk culture may be as much about recovering clarity and enforcement capacity over organizational activities and information sharing as it is about changing mindsets. Risk information infrastructure, diffusion and use are a core feature of perceived 'good' risk culture by organizations. » (Palermo et al., 2017, p.13)

In our research, we found that there are contradictions in the way people involved in the practice or in the research on risk culture understand the definition of what is formal and what is informal. We noticed that formal aspects related to organizational performance and public expectations (as mentioned by Bromiley & Harris, 2014; Andersen, 2008) have an important place for organizational risk management. However, it appears that, even if risk culture is more related to human aspects, it is often considered as a formal part of organizational systems. Even if the human factor is the natural part of the definition of an organization, there is very little development of this factor in the research and practice of risk culture. For instance, Braumann (2016, p.2) characterized risk culture using informal aspects such as risk awareness: for her, information and the understanding of risk-taking in different parts of the organization play a crucial role in organizational risk culture. In addition, she adds that risk management practices may represent risk if they are aligned only to the companies' official prescriptions concerning risk management. Strategies and goals may be significant for risk culture only if an organization has an appropriate managerial and human setting, although the majority of academic, managerial or professional literature consider risk culture through lenses that only see formal aspects, as a clear and manageable model, and for them informal aspects are intangible and difficult to capture. If we continue further, we see that risk culture when described as a concrete practice is missing in most of empirical research.

The fact that formal and informal aspects are not sufficiently taken into account can represent a gap in the research of risk culture and we would like to demonstrate this in this section.

III.1.1 Theoretical origins of formal and informal aspects in organization studies

The literature offers multiple ways of looking at risk culture. For our study, we choose to look at organization theories and introduce its view on formal and informal aspects. Subsequently, we will show how we apply this in our research. In the literature analysis we did in the previous

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chapters (First and Second Chapter) we saw that the majority of research and institutional publications on risk culture mention both formal and informal aspects in their organizational analysis, but we also noticed that in most cases they have an incomplete and partial diagnosis of formal and informal aspects of organizational structure (similar gaps are also mentioned by Romelaer, 2013), because researchers do not directly consider the distinction between these two aspects. In order to avoid that ambiguity, in this section we will discuss existing meanings and define the formal and informal organizational aspects. We focus specifically on the content of formal and informal aspects as the source to building the concept of risk culture.

In 1938, Chester Barnard showed that studying organizations is challenging because of the informal (human) and formal (technical) aspects. While the formal organizational signifies deliberate and consciously created structure, the informal organization is represented by humans and their characteristics, which can be different from one individual to another and which represent informal society (Grabor & Mahoney, 2010). His work sets key directives for future trends in organization studies such as approaches on decision-making, behavioural theories, and organizational structure, and from this the development of institutional theory.

Barnard influenced the development of the first decisional models that inspired another organizational theory founder, Herbert Simon. In his book *Administrative Behaviour* (1947), he raised the question of firms' behaviour and the structure that influences organizational strategy. He mentioned the official and structured application, as well as the non-prescribed, more informal aspect of behaviour based on human cognition. His insight indirectly defined organizations as dual entities, based on formal and informal aspects that are part of their structure. Therefore, Simon's publication sets the groundwork for behavioural studies.

Internal organizations are living organisms that are made of members, there are relationships between individuals and between groups in which structure refers to formal design (March & Simon, 1958). This work is continued in March's later publication, *A Behavioral theory of the firm* (Cyert & March, 1963). It says that organizations are structured around its goals. The organizational structure is the effect of internal decision-making that comes from different groups and coalitions. Each group tries to forward its own goals. In the end, organizations are grounded on different aspects of decision-making to attain goals called aspiration levels. The executive management has the role of the regulator to balance different groups' interests as well as coordinate organizational activities and appoint organizational priorities based on aspiration levels. Organizational slack represents resources in the organization that

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complement other resources that are available informally. Therefore, risk culture would be the result of the internal negotiation including criteria of aspiration levels as well as the result of the strongest group that is able to argue and advance its interest. This view contributes an important reflection on the fact that formal organization has to be questioned, and not taken as the ultimate structure of the organization. As Simon wrote: « *In fact, even in human organizations, the formal hierarchy exists only on paper; the real flesh-and-blood organization has many inter-part relations other than the lines of formal authority* » (1962, p.468). In addition to that, the organizational structure is a complex architecture of systems, mechanisms and actors « *made up of a large number of parts that interact in a not simple way. In such a system, the whole is more than the sum of the parts...* » (Simon, 1962, p.468). Continuing with this theme, Mintzberg proposes a structural perspective where he says: « *formalization of behavior is the design parameter by which the work processes of the organization are standardized* » (1979, p.81). He proposes three forms by which the behaviour can be formalized. The first outlines the description of roles and responsibility of the specific work (job description). The second relies on the description of the task that Mintzberg calls work flow. The third instance is formalization by rules (as mentioned by Meyer and Rowan later in this chapter). Rules are supposed to indicate what is allowed and what is prohibited, and influence people's behaviours; but « *rules and central authority cannot regulate everything; a few areas of uncertainty must remain, and it is around these that informal power relationships develop* » (Mintzberg, 1979, p.91).

From the perspective of decision-making, March and Simon (1958) are also developing a writing style with references to institutional theory. Pfeffer & Salancik (1974) explain that social systems (which can be defined as an informal part of the organization) are dependent on the power and resource allocation that is given for their functioning. In order to define the vision of formal and informal, Meyer and Rowan say that elements that are part of the organizational structure and support the organization in its activities and in attaining its purpose are those that are classified as formal. They argue that those elements reflect a « *blueprint of organizational activities* » (1977, p.341) which also allow for control and coordination of activities and for making them more efficient. « *Formal organizations are generally understood to be systems of coordinated and controlled activities that arise when work is embedded in complex networks of technical relations and boundary-spanning exchanges* » Meyer & Rowan (1977, p.340). Therefore, social behavior and networks are considered to be informal because they are more unpredictable. This is why behaviours need to be formally

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controlled and centralized in order to maintain the monitoring. They also admit that human activities cannot be only handled through rules because the coordination extends beyond formal rules. The informal also includes human characteristics such as confidence and good faith. Therefore, there can be diversity of other human activities and technical adjustments. Meyer and Rowan call the formal and informal display an organizational *decoupling* of structural activities.

Authors agree that formalization leads to formal behaviour that aims to coordinate activities and lead to organizational control. On the other hand, formalization should also include parameters to avoid confusion in case there is any risk situation. It is important to decide on some official and commonly agreed rules. At the same time, according to Mintzberg (1979), it helps with the consistency and equal distribution of responsibilities. The difficulty is that informal aspects are not always easy to acknowledge, and this can create a level of uncertainty, and sometimes informal relations can change the course of events (Mintzberg, 1983). We agree that informal is more difficult to study and also to prove. It is difficult to say and demonstrate to economic entities -such as multinational companies- how efficient informal aspects may be. That is why it is even more interesting to study informal organization. It is challenging, and at the same time it is still not a very well-developed subject.

After talking about formal and informal organization and influence, we would like to mention the third important point that focuses on systems. This third view is related to social action, where the power is among actors. Crozier (1964) tries to demonstrate that organization is not only a bureaucratic entity, but also the result of collective action. The objective of formalization is to prescribe behaviours in order to establish order; but in the eyes of Crozier it might become a vicious cycle of formal rules and prescriptions. (Also, Mintzberg talks about consequences of excessive formalization that can also lead to vicious cycles (term coined by Crozier). In addition to that, Friedberg (1993) mentions that formal order (here called « *local order* »), often gives the impression that organizations are well managed, even if they are internally dysfunctional. An organization is designed by individuals and collective power.⁵³ If we focus more on action and power that is generated by actors, Crozier & Friedberg (1982) and Friedberg (1993) propose a view based on individual capacities. Actors' intentions and attitudes can be interpreted as political actions which in turn influence social actions. Actors are creating their opportunities within the environment of their action. Their actions emerge

⁵³ According to Crozier and Friedberg, that power emerges from zones of incertitude.

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from social interactions, which are a basis for informal aspects, but their space of functioning is formally determined, and they may have an impact on system evolution through informal actions. Indeed, the formal is completed and empowered by the informal structure of the human action and by the phenomenon of power.

The actor and the system are often criticized because the pure vision of opportunism may not always apply to the actors' actions. It means that actors do not always behave in an opportunistic manner and do not always create space to fulfil their own interest. We are convinced that opportunism is also a result of the structure and how much it fits with actors. In addition to that, actors' behaviour can be influenced by different factors such as culture, background and other variables related to their origins. Especially in terms of risk culture, the comportment of actors can lead to a better understanding of some parts of risk culture.

We agree with the view of an actor put forward by these authors, and the suggestion that research tends to focus on the formal part of organization and very often omits actors. We agree that the informal dimension is often missing; this is especially the case in relation to our study and in reflections on risk management. This proves that not only norms and rules shape risk management and risk culture within organizations and we are convinced that actors are an indispensable part of studying organizational risk management.

In this presentation on theoretical origins we can see very clearly that organizations are not purely formal constructs, and that informal organizational aspects play an important role over time, even if they are often invisible or less accountable within organizations. To summarize the view of formal and informal aspects in organization theories, we can make a generic distinction between formal and informal structure and organizations that help us to explore organization literature in more detail. Indeed, the behavioural approach includes a formal view that specifies formal sets of rules and procedures, and the informal view that shows emergent social behaviours and interactions through individuals' beliefs and practices.

This introduction to the literature helps us to determine the potential that exists in organizational studies but remains underexplored in studies on risks. Specifically, we retain the notion of formal and informal aspects that might influence culture in risk studies and that we wish to gain a deeper understanding of.

Indeed, the following point leads us to look closer at theories related to the social systems and networks, organizational architecture as well as organizational change.

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The division of formal and informal aspects summarized in Table 7 allows us to develop organizational theories further and also reflect on risk culture in the next sections.

Table 7: Summary of formal and informal aspects in organization theories

Approach and main references	Formal	Informal
Behavioural March & Simon; Cyert & March	<ul style="list-style-type: none"> • Official flows, status and roles, space of functioning • Processes and standard operating procedures • Legitimize power and formal channels 	<ul style="list-style-type: none"> • Social identification and collective action are part of organization that can be formal but social groups can behave informally. Individuals identify themselves with organizational objectives. • Decision-making process can influence formal organization • Informal coalitions • Space for slack and exchange of information
Structural and managerial Mintzberg	<ul style="list-style-type: none"> • Hierarchical line, official structure, rules • Formalization of behaviour by description of responsibilities, of tasks and through rules • Organizational chart 	<ul style="list-style-type: none"> • Power and other than hierarchical connections might be informal
Actors and System Crozier & Friedberg	<ul style="list-style-type: none"> • Regulations and Formal Rules • Local Orders 	<ul style="list-style-type: none"> • Internal exchanges • Actors' actions • Collective game
Institutional Meyer & Rowan	<ul style="list-style-type: none"> • Organizational blueprints that control and coordinate activities 	<ul style="list-style-type: none"> • Unpredictable social behaviour and networks

Over time, research on formal and informal aspects has been approached under different angles. We mention these in the next section.

III.1.2 The links between formal and informal aspects and risk culture

The previous point was about theoretical origins of formal and informal organizational aspects. We would like to discuss in more depth the distinction of formal and informal in this section.

The objective of this subsection is to describe and define formal and informal by demonstrating examples and finding common aspects in order to be able to present a definition that is going to lead to our understanding of formally- and informally- based risk culture. Also, for clarification on formal and informal we refer to Table 8: Literature review of formal and informal aspects.

In order to clearly demonstrate the difference between formal and informal aspects and how it was evaluated in Chapter III.1.1, we are tackling literature with multiple theoretical views. We will divide the following sub-section into these two aspects (I.2.a; I.2b). Therefore, we further develop the previous points using more recent literature. Some studies are directed at the structural approach (*e.g.* Crilly & Sloan, 2014) others are oriented network studies (*e.g.* McEvily *et al.*, 2014; Soda & Zaheer 1992). Also, some are focused more on the fit between organization and individuals (*e.g.* Gulati, Puranam *et al.*, 2012; Gulati & Puranam, 2009) or have a focus on governance and risk (Pan *et al.*, 2017; Van Asselt & Renn, 2011).

III. 2.a Definition of Formal Aspects

We are proposing a review of the literature of formal aspects which is aligned with the previous point.

Formal aspects are defined as a set of structured implementations. McEvily *et al.* (2014, p.300) refer to it as « *the fixed set of rules, procedures, and structures for coordinating and controlling activities* » that are translated as standards, operating procedures and routines that bring regularity to the organization and organizational theories (Argote & Greve, 2007). The formal calls for the official (Reynaud, 1988), or prescribed way to implement and behave; that is also the way to evaluate and control internal systems. In other words, it is the organizational form that is more conscious and calculated (Chassagnon & Baudry 2016).

For the organization as a whole, formal aspects mean the structure defined by the systems of reporting, policies and standards (Dickinson, 2001). Formal aspects within the intra-

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organizational world of multinationals are translated into the hierarchical structure, and also refer to systems of control and evaluation (Gulati *et al.*, 2012). More specifically, companies' formal aspects refer to leadership and senior managers as formal organizational designers (Gulati & Puranam 2009, Smith & Tushman, 2005). In the same vein, Crilly and Sloan (2014) argue that formal organizational parts are represented and set by the leadership team and the CEO. According to these authors, top managers are decision makers who outline the formal structure with the intention to create the best performance for their companies.

« *The formal structure of the organization is designed to execute a set of tasks, and therefore the structure itself induces a great deal of interaction* » (Kleinbaum *et al.*, 2013, p.1318) but at the same time the organization only gives some outline boundaries in which individuals will continue to interact. Therefore, social interaction continues even in formalized structures, and individuals will always have tendencies to associate with a group by interest, geographical proximity or other characteristics that they are attracted to (Kleinbaum *et al.*, 2013). They explain that the structure is a formal setting that can influence the homophily preferences (locations, business units) and the formal structure determines the level of communication of the informal organization. Chauvet *et al.* (2011) however believe that a formal setting is by organizational design that is visible (as charts or allocation of decision by structure), but is not permanent, and it can be extended by informal aspects.⁵⁴

In other cases, formal aspects are criticized because these tools can become administrative documents that only serve to make procedures more complex and rigid. For instance, in the study of two different organizational architectures, Crilly & Sloan (2014) demonstrate that the formal part is an inevitable portion of divisional structures, but there is considerable benefit and role of internal flexibility. They are looking at the criteria of Rating Agencies (Fitch, Moody's or Standard and Poor's) and they demonstrate that companies are adapting their formal structure, form or control, and also autonomy, to those criteria, but in addition to that they show advantages of informal organization. They indicate that a more flexible organizational architecture can help to achieve better rating results. Indeed, the company that leaves space for informal organization, some autonomy and development of interactive behaviour, is characterized by soft control and is most likely to be rated A, as compared to more mechanistic companies that are rated as triple B. In fact, purely formal aspects may lead

⁵⁴ We will explain how those actors see informal in the next point.

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to a lack of coordination, incongruent norms and culture and poor coordination within the organization (Crilly & Sloan, 2014).

In other instances, we can find literature that talks about formal organization in relation to risk governance. Firm leaders are part of risk governance and have an impact on risk culture and risk activities within their organization (Pan *et al.*, 2017; Van Asselt & Renn, 2011). Their role is to decide to what extent the organization has to be formalized and hierarchized (Gooderham *et al.*, 2011). Indeed, « *Administrators are supposed to decide on all things, and then have those decisions formally authorized at a higher level before others implement them down below* » (Mintzberg & Waters, 1990, p.5). Formal aspects lead a company's strategic orientation and are mobilised in the form of tools such as risk registers, log sheets, procedural flow charts or different forms of mechanisms such as supervision or standardization.

Prior to our final proposal we will show the importance of formal aspects in relation to risk culture creation. The lack of formal directives and procedures can create confusion in risk management processes because people do not know how they should behave on behalf of the organization, and what the official company position is. In fact, corporations may find it useful to recreate the formal structure that also indirectly indicates the way to manage the business. In theory, the formal structure is a controlled way to operate.

The result of relying on formal aspects can be that operations are executed in a mechanistic way and practices become routines that may represent a potential risk:

(1) Human beings apply formal aspects in different ways. They may take a greater risk because they feel more secure, which happened during the worldwide financial crisis in 2008, when they were over-confident, and individuals thought that they were protected by the organization. The literature about crises, extreme and catastrophic events emphasizes that errors leading to catastrophes are usually not happening because of a lack of formal prescriptions, but because of human error (see Vaughan, 1997; Weick, 1990). Indeed, formal aspects cannot fully dictate and control informal practices and behaviours.

(2) Formal aspects may also produce the opposite effect. They can create an organizational inertia. When humans feel controlled, they can be hesitant to take any initiative at all, which reduces dynamic movement and innovation. A structure that is too mechanistic and under control does not allow for fast decisions and appropriate changes in a short amount of time.

(3) At the same time, if practices become routines, organizations become unable to evolve and to adapt to changing or new environments. For instance, how to address emerging markets with risk management processes that are the same as processes used in mature markets where mandatory risk regulations and policies already exist.

In accordance with the preceding analysis of the literature, Gulati & Puranam (2009) propose a comprehensive description of formal organization that is defined by normative systems and set up by decision makers and should lead employees to specific actions. For instance, description or roles are formal aspects that lead to the attribution of the place and responsibilities of individuals.

As a result of this analysis we choose to correlate different formal aspects into our research model:

- Formal part of organizational communication such as charts & diagrams (McEvily *et al.*, 2014; Kleinbaum, 2012; Soda & Zaheer, 2012) and procedures and prescriptions (Crilly & Sloan, 2014; Gulati *et al.*, 2012; Puranam *et al.*, 2012; Gulati & Puranam, 2009; Dickinson, 2001);
- Define normative systems and set-up by decision makers which should lead employees to specific actions. For instance, descriptions or roles are formal aspects that lead to the attribution of the place and responsibilities of individuals (Gulati & Puranam, 2009);
- Organizational authority and governance mechanism (Pan *et al.*, 2017; Gooderham *et al.*, 2011; Van Asselt & Renn, 2011).

These criteria are developed in III.2.3 (Criteria that we retain for our study). The description of informal aspects is made in the next subsection.

III.2.b Definition of Informal Aspects

In opposition to formally defined aspects, social structure and network studies have a tendency to be more oriented to the informal and more abstract structures (McEvily *et al.*, 2014; Soda & Zaheer, 2012) that involve aspects *behind the chart*, such as behaviours, relationships or networks (see *e.g.* Chauvet *et al.*, 2011).

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The informal, having as its root social origins, is more difficult to capture because it happens *off the book* (Reynaud, 1988 in Chassagnon & Baudry, 2016).⁵⁵ Chassagnon & Baudry (2016) relate directly to the thinking of Barnard and support the idea that informal organization is there to put consistency into the formal structure by integrating individuals through cooperation. Informal organization is supposed to modify the formal organization through its attitudes and beliefs that are enforced into the formal structure.

Informal represents human nodes (relations, groups, ...) that are related by relational ties that are not predetermined by organization (by chart) (Chauvet *et al.*, 2011). « *Informal aspects are partially related to elements that cannot be calculated or that are outside of individual capacity to calculate them. There are more results of customs, habits and of history* » (Chassagnon & Baudry, 2016, p.192).⁵⁶

Network studies focus more on the immaterial where by definition « *informal organization consists of the emergent patterns of individual behavior and interactions among individuals, as well as the norms, values, and beliefs that underlie such behaviors and interactions* » (McEvily *et al.*, 2014, p.300). In the network theory, informal aspects are related to the actors and their relationships. For Soda & Zaheer (2012), the informal is not about the formally-set organizational structure, but about the workflows which, in consequence, are not bound by officially constructed vertical and horizontal structure: « *Workflow relationships include supporting, consulting, and information exchange-oriented, task-based relationships. Whereas the formal authority network involves vertical, hierarchical relationships, the formal workflow network involves horizontal relationships between the focal organizational members and their task-related partners* » (Soda and Zaheer, 2012, p.752). Indeed, social networks are created based on common interests and human characteristics (Kleinbaum *et al.*, 2013).

The reason that companies should pay attention to the informal part is that it can bring a positive outcome as well as possibly generating problems. For instance, informal dysfunction generated from a strong dependence on aggressive competition between the organization's departments and units can create conflict in the internal environment as well as influence organizational

⁵⁵ Translated from the French word « *officiouse* ».

⁵⁶ Translated from French: «... *les aspects informels ont partie liée aux éléments qui ne peuvent pas être calculés ou qui sont extérieurs à la capacité calculatoire des individus. Ils sont plutôt le résultat des coutumes, des habitudes et de l'histoire.* » (Chassagnon & Baudry, 2016, p.192).

culture and split it in to a multiple silo culture. However, fluctuating informal aspects such as active networks and relations can facilitate coordination, flow of information and may often represent more flexibility (e.g. Huber & Scheyt, 2013). For instance, Fjeldstad *et al.* (2012) emphasize the necessity of the informal organization in order to be able to compete in a global and changing environment, and further mobilise action resources to benefit from the flexibility and multiple competencies. Specifically for them, informal organization is composed of social networks, connection of organizational members, and lateral relations defined by cross-functional teams, communities and knowledge sharing. To prove that point, they study four international companies from different sectors of activities and describe different forms of human organization that are used in addition to protocols and infrastructures that may be inflexible and slow. Thus, they propose an actor-oriented scheme based on a multi-party organization with dynamic collaboration that helps anticipate uncertainties, generate alternative solutions, and is efficient due to its rapidity. The actor-oriented scheme belongs to new interactive organizational modes where actors' capabilities to collaborate are considered to be part of the organizational resource. Still, Fjeldstad *et al.* (2012) demonstrate the value of the formal and informal together. In the panoply of four organizational cases, they study formal structure and its connection to different internal actors and how the structure allows access to information, reward by incentives to collaborate, and also how protocols, such as standards and procedures, allow for the creation of common values and raised awareness if the knowledge is shared informally. Then, the informal actors' enactment goes beyond the formal inflexibilities and anticipates uncertainties and creates dynamic value for the organization. In the same vein, Hall *et al.* (2015) emphasize that not only material (formal) conditions create organizational value. Indeed, organization stakeholders have a strong voice in creating organizational conditions through their interactions. We agree with this vision of the informal role of stakeholders.

In our opinion, the efficient informal mobilisation results in an ability to accomplish appropriate tasks by mobilising more human capital than other resources; for this reason we agree with the definition of informal organization from Gulati & Puranam (2009, p.427) that « *refers to emergent patterns of individual behavior and interaction between individuals, as well as the norms, value and beliefs that underlie such behavior and interactions* » and there the informal organization is « *the effect of who interact with whom* » (*ibid.*). Therefore, informal mobilisation is a crucial component due to the involvement of human beings as the vectors of risk culture « *even more than any tangible and documented set of decisions or actions taken by*

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organizational actors, because it is the perceptions that provide the cues to acceptable behavior. » (Bozeman & Kingsley, 1998, p.111).

As a result of this informal description, we have incorporated the following major points into our model and described them in section III.1.3.

- Social structure that is represented by emergent behaviours of groups and individuals and relational workflow that is not described in charts (McEvily *et al.*, 2014; Soda & Zaheer, 2012);
- Proliferation of communication and orientation toward actors as emergent patterns and knowledge-sharing and exchange of information (Fjeldstad *et al.*, 2012; Gulati & Puranam, 2009); Indeed, « *Informal networks facilitate the flow of knowledge and, consequently, innovation* » (Kleinbaum, 2012, p.408);
- Adjustments which represent any type of initiative in creating organizational practices and adaptation that leads to task facilitation for multiple reasons (Chassagnon & Baudry, 2016);
- The culture which can « *coordinate symbiotic interaction among otherwise independent operating units* » (Kleinbaum *et al.*, 2013, p.25).

Table 8: Literature review of formal and informal aspects

Studying formal and informal	Formal aspects	Informal aspects	References
Study of network	<p>Organizational design, diagrams and charts</p> <p>Rules and coordinating activities</p>	<p>“behind the chart”, naturally construct network and communication, connection network structure, mentoring, autonomy incitation</p>	<p>McEvily <i>et al.</i>, 2014; Kleinbaum, 2012; Soda & Zaheer, 2012; Chauvet <i>et al.</i>, 2011; McEvily & Zaheer, 1999</p>
Structural angle	<p>Standard operating procedures, hierarchical setting – tone from the top; corporate training and programmes, span of control and reporting system (is related to process and procedures)</p> <p>Formally set meetings, rules, ...</p>	<p>Social interaction, collaboration, coordination, interaction, local focus, deliberate information flow, flat setting; contacts; autonomy; communication</p> <p>Rationalization of activities</p>	<p>Crilly & Sloan, 2014; Kleinbaum <i>et al.</i>, 2013; Gulati <i>et al.</i>, 2012; Gulati <i>et al.</i>, 2012; Gulati & Puranam, 2009; Dickinson, 2001</p>
Fit between organization and individuals	<p>Roles and prescriptions; incentives encouraging certain behaviour such as effectiveness seeking, tasks and routine programmes, homogenization, implementation of structure through programmes</p>	<p>Individuals and emergent patterns, interaction between individuals, resulting in norms, values and beliefs; rewarding is related to the efficiency–process (relationships, utility)</p>	<p>Gulati <i>et al.</i>, 2012; Gulati & Puranam, 2009; Miller 1993</p> <p>Kleinbaum <i>et al.</i>, 2013; Kleinbaum, 2012</p>

	Planning divisions & strategies, corporate strategy, protocols and processes.	Structural holes – network connection Actor oriented elements: multi actor collaboration, sharing resources, self-organization capabilities	Fjeldstad <i>et al.</i> , 2012
Governance	Allocation of authority in context of risk, hierarchy in risk decision	Informal arrangements	Renn, 2017, 2008; Van Asselt & Renn, 2011
Author: Marketa Janickova			

III.1.3 Outlining the first research question on formal and informal organizational aspects to study risk culture

In this point we present the research gap outlined in (III.1.3.a) and discuss what aspects we choose to study in order to answer our research question (III.1.3.b).

III.1.3.a First research question to clarify formal and informal aspects of risk culture

In the previous sections we discussed different characteristics, definitions and concepts related to risk culture (*cf.* First Chapter). Risk culture contains both formal and informal aspects as demonstrated in recent publications (see, for instance, Power *et al.*, 2013 and its previous version Ashby *et al.*, 2012). « *Hence risk culture is a cognitive, dynamic concept with formal and informal aspects as well as thought and action interacting* » ... (Röschmann, 2014, p.24). However, we have found that there are some roadblocks in using formal and informal aspects of risk culture. For instance, models describing reporting systems as a part of formal organization also consider human behaviour mechanistically. This means that they assume that human beings are strictly and perfectly reporting information on a prescribed basis (See First Chapter, Section One) or that quality exchanges between functions can be calculated by the quantity of interactions (Ashby *et al.*, 2012). Neither of these examples takes into account the limits to formal systems or the imperfections of the human element.

As a result, we note that risk culture has a dual nature and therefore it often has unclear definitions. In our view, building an effective classification of formal and informal elements is the first step towards risk culture manageability that can demonstrate which elements can be assessed quantitatively and which can only be discussed on a qualitative basis.

However, very little is known about the informal, intra-organizational world related to risk management and there are very few studies in this field. For instance, Röschmann (2014) argues that in the insurance industry risk culture is considered to be an intangible asset for enterprises that correspond to no accountable indicators and is purely behavioural. « *While the formal risk management framework of an organization defines the processes to use, the limits to obey and the values to aspire to, its risk culture determines, in essence, how risk management is actually lived.* » (Röschmann, 2014, p.2). In fact, this quote indicates the limit of the formal

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aspects and where the informal takes over in the form of the level of commitment to the rules. In that case, companies' internal control, such as internal auditors, may verify ways and practices of using procedures and formal activities rather than looking at the respect of the rules and procedures.

Despite that, we are convinced that some form of formal structure can facilitate risk culture creation and maintenance as opposed to the less supportive silo architectures. Crilly & Sloan (2014) propose an empirical demonstration of organizational structure that may become more efficient and performing due to the clarification of roles and responsibilities across organizational levels between the top, middle and frontline. They demonstrate the formal and operationalization inside of an organization. In addition, they specifically identify two types of organizational structures referring to the more or less formal (called « *cascaded control* ») and informal practices (called « *guided autonomy* »). At the same time, the study shows that external evaluators appreciate the informal structure because the sample of the firms is related to the Triple A -and higher- individual performances, compared to Triple B market-ranking firms. Triple A firms are classified as *guided autonomies* that are able to mobilise collectively, and delegate decisions that involve initiatives, which leads to flexibility based on the understanding of the different cultures and shared values. The autonomy and local coordination had more difficulty to be accepted at local levels if it was not supported by incentives from the global level and encouraged to deploy horizontally. The upper level and the top office create incentives to collaborate and communicate, which would not be the case if the initiative stays only local. Indeed, the global component allows people to connect with each other and in the organization as a whole. The second form identified by the authors was *cascaded control*, with a more hierarchical and formal idea of the control through consistency and cascading relationships. This structure is characterized by uniformity, rules standardization and top down control, to attain consistency. According to the article, formal aspects are those that can be measured; however informal brings effectiveness to the systems.

Thus, as our first question we propose to look at risk culture through the lens of formal structure, such as official requirements and informal, as part of human capital enactment. To paraphrase this, we will describe the way formal risk culture is taken in the organization and how the organization employs informal attention to make things happen.

Our first question is:

1. How do the formal and informal dimensions contribute to building risk culture?

III.1.3.b Components that we retain to study formal and informal risk culture

In this point, we explain the criteria that we used to answer the first research question. Our first question asks whether formal and informal characteristics related to organizational studies help to structure the concept of risk culture.

For this, we considered research from the authors Power, Ashby and Palmer (2011, 2012, 2013, 2016) as a legitimate starting point for building our conceptual model of risk culture. These authors were chosen since they present the most advanced work to date on the subject of risk culture. We have chosen to research the formal and informal aspects of risk culture as they relate to organizational proprieties.

To demonstrate risk culture through formal and informal aspects we use the following dimensions:

We will consider organizational structure

Structure, as it is defined here, refers to the whole of an organization and its alignment to strategic purpose, system of hierarchy, mechanisms, relations and elements related to its internal and external environment. We will outline concepts that we used in our fieldwork and that we developed during our research. Dimensions, in this discussion, are part of organizational structure as well as being related to behavioural aspects of risk culture.

According to the literature **the elements of structure are also the elements that are part of the organizational mechanisms by which risk culture is distributed.**

To summarize formal aspects, we look at the articulation of risk management in official documents that are driven by **organizational strategy** and **interpret directional perspective** (Gulati *et al.*, 2012). The information relayed by written instructions is used to dictate the path the organization is taking. In this way we can see that formal risk culture is effective because it is **prescribed. This helps to avoid misunderstanding between different expectations,** comprehensions or cultural differences. However, due to human nature and the unpredictability of behaviour we are convinced that the direction of risk culture cannot be fully prescribed and controlled. There is a social and relationship aspect to risk culture.

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The informal aspects of risk culture relate to the social world, networks, informational exchange and relationship that encourages a particular attitude to risk, and are part of **methods that build trust** (Power *et al.*, 2013).

Within the structure we will look at the distribution of power

*At a large global industrial company which had experienced some major accidents in its recent history, we observed efforts to enhance central risk control on the basis of a new risk management framework regarded as a nonnegotiable aspect of operational practice, reinforced by videos and presentations by the CEO and CFO. (Power *et al.*, 2013, p.31)*

Risk culture literature typically mentions **tone from the top** as the main indicator of internal risk culture that is established by the top management. Our grid proposes an extension of this statement. We focus on how the **distribution of power** can affect risk culture and how it can also take on both formal and informal orientations.

The **Formal aspect** identifies **power** as « *the application of authority, rules, and regulations* », however these aspects seem to « have a clear negative impact on social capital », indeed « *the hierarchical practices of authority, rules, and regulation should be applied with considerable care, as they may be harmful to the promotion of social capital* » (Gooderham *et al.*, 2011, p.146). For this portion we maintain that formal aspects are prescriptions and **standards** that are officially **validated by management, published and accepted as rules and guidelines**.

With regard to the informal aspect, we look at large **social networks** and we try to identify informal **distributions of power through human behaviours** (initiatives, influencer, connectors, and so on...).

Within the structure we will look at risk governance

In recent years, we have seen increasing interest in risk governance. This involves risk as a part of the strategic decision-making as well as its integration into the organizational structure through decisional mechanisms (Renn, 2017, 2008; Van Asselt & Renn, 2011).

Organizational governance is strongly related to the external context and institutional change where regulators require multinational companies to align their strategy to appropriate risk

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taking (Palermo *et al.*, 2017; Van Asselt & Renn, 2011). Zhivitskaya (2015) explains that the relationship between governance and risk culture has a legal connotation, since boards ensure that each level of control has sufficient responsibility in determining the companies' risk taking. Also, risk governance is often outlined by formal structures on how risk culture should be executed, as, for instance, summarized by the *Lines of Defence* model for financial institutions (see Second Chapter) (Zhivitskaya, 2015; Power *et al.*, 2013). Governance committees have an obligation to ensure that the organizational structure supports the right amount of risk vis-à-vis the company's strategy.

External pressures arising from different sources can force leadership teams to demonstrate their interest in internal risk management. In this way, risk culture can be an instrument to ensure there is a certain level of risk awareness inside the organization. Governance centralizes power and ensures appropriate risk-taking.⁵⁷

To examine risk governance, we must look at risk culture from the formal perspective, meaning what is represented in guidelines and procedures that are classified as an influential way to create risk culture from the top (Kleffner *et al.*, 2003). More recently, Palermo *et al.* (2017) confirmed that risk culture as an instrument for governance is strongly formalized through risk management that comes as a mandatory prescription from an external environment and serves as a way to monitor the internal risk situation. We will also consider governance mechanisms according to Gooderham *et al.* (2011, p.145) **that are allocations of authority, modes of organizational control.** However, we also argue that **a more interactive and informal form has to be involved in risk culture governance to allow effective control to happen.** Vakkur *et al.* (2010) confirm that companies opt for centralization as a form of control in order to reduce institutional uncertainty as seen in the Sarbanes Oxley Act. On the other hand, Power *et al.* (2013) argue for increasing the **information share related to risk that will lead to interactive risk culture**, arising from the idea of a « *collective mind* » (Weick, 1993). We find these opposing views interesting because they also represent the two sides of risk culture from formal (Vakkur *et al.*, 2010) and informal perspectives (Power *et al.*, 2013).

⁵⁷ We have already mentioned in Chapter II that one of the ways to express risk culture is its embeddedness within performance indicators and its limits as risk appetite. Indeed, risk appetite indicates financial limits of the risk to be taken, and does not take into consideration human capacities inside of an organization and within different business environments.

We will consider organizational communication

Communication is an indispensable part of organization. We include the communication in the behavioural aspects because the communication helps to coordinate actions and also can reveal if there are any communicational barriers that can impact individuals as well as organizations. Therefore, communication can build common perceptions of risk culture and individuals' behaviours.

Internal communication serves to interconnect different organizational parts: levels, people, sectors, and functions... In risk culture, communication serves to transmit information about risk issues (Ashby *et al.*, 2012).

Formal communication creates an organizational structure through material existence (Ocasio, 1997) and blueprints that may take the form of **flowcharts or diagrams** that are indicators of the informational flow. Communication surrounding risk culture along formal lines **involves existing material** about the risk culture description, process, and decision-making. **Informal** lines would be **unofficial communication**, information associated with different horizontal and vertical levels.

« A risk-aware culture can be created across a construction firm through instituting clear accountability for risks, thus making staff at all levels have risk awareness, and should be incorporated into the corporate culture. To sustain a strong risk-aware culture, the expected behaviour within the organization should be explicitly expressed. » Zhao et al., (2014, p.827).

We consider that relationships and involvement of actors are important in risk culture for the reasons that follow. Social capital is considered to be a source for risk management (Gooderham *et al.*, 2011).

We will consider the role of social capital and the actor's role

Organizational actors may develop different risk culture attitudes and behaviours in both formal and informal ways, and they can play an important role in risk culture constructions (*e.g.* knowledge about risks, training and practices).

We specifically plan to look at their involvement and their understanding of risk culture because *« it is not just difficult to monitor from outside, but even problematic for actors internal to the organization to see and understand »* (Zhivitskaya, 2015, p.87). We define the involvement of the actors according to their perception and awareness of risk and risk culture.

Awareness is also one of the elements that is raised by research in the financial field and which represents the fact that companies should focus more on being conscious of risks rather than try to create an idealized image that may also hide them (Power *et al.*, 2013). It then follows that **awareness is represented by activities related to risk.**

On the formal side, we look at **prescribed roles and responsibilities.** These are the formal settings that create collective risk culture. On the informal side, we look at **how different actors understand, interpret and practice risk management, and develop risk culture.**

III.2 Explaining manageability to study risk culture

Even if risk culture starts to slowly develop in research literature, there is still a void in terms of the study of management in relation to this concept that needs to be studied further. For instance, Power *et al.* (2013, p.31-32) point out that risk culture is still not « *a thing with well-defined features but something that organizations perform and pay attention to in different ways* ». The same authors have seen that « *organizations are assembling approaches to risk culture from a variety of pre-existing operational elements and managerial routines* », they say that the concept of risk culture is « *empty* » because it is not taking the variety of organizational elements into account and summarize risk culture as being only made up of control. Based on their assumption we decide to consider the managerial role in the subject of risk culture. Indeed, in the following sections we demonstrate our interest in the subject and present our research questions.

III.2.1. Explaining why manageability is important to study

Kilmann, Saxton, Serpa *et al.* (1985) in their book *Gaining Control of the Corporate Culture* tried to explain organization culture in a concrete and manageable way. In reaction to that, Moore (1987, p.485) wrote about the book: «*...the reader will be sadly disappointed if he or she expects to learn how to control corporate culture* ». This means that the authors do not suggest a specific way to manage and control risk culture. Indeed, before we consider risk culture control we have to think about its management.

III.2.1.a Introduction to manageability

« The gaps are managed by making the lower levels responsible for them and by the top intervening when standards are not met. If such management is to be effective, each level must use an MIS that has significantly different properties from the other. »

(Argyris, 1977, p.117)

Manageability is related to a view of management of information systems published some forty years ago and based on organizational learning. *«...Since managers are finite and since they are monitoring the work of many human information processors, the data that they obtain about the performance of their subordinates must be comprehensive yet manageable »* (Argyris, 1977, p.115). In the last forty years, however, the work on manageability has progressed through multiple different views:

- From a decisional point of view, manageability relies on individuals, and McManus (2008) shows that there are cognitive errors in decision-making in the manageability of events. Since individuals decide on the basis of their perceptions with limited information, an organization may under- or over-evaluate the manageability of events based on a leader's perception.
- Manageability is a new challenge in the development of collective strategies in which individuals are measured and controlled as a whole without considering their divergent capacities. (Fauchart & Cowan, 2014).
- Finally, from the point of view of the company, manageability is related to strategy. In their research on multinationals, Oh & Rugman emphasize that companies' preferences are geared towards dividing their structure into smaller pieces that are more manageable; *« [a]s a result, both headquarters and subsidiaries prefer a regional strategy because it is a safer and more manageable alternative to a global strategy ».*(2012, p.494)

In addition to that, we can also look at manageability differently, by studying internal organizational systems that also help to understand how the organization is managed. That is why we would also like to develop some thoughts on Mintzberg's work. His writings on organizational systems and how people coordinate with each other deserve to be explored in the next point.

III.2.1.b Contributions by Mintzberg also enrich our reflections on manageability

Mintzberg presents fundamental aspects that direct organization by describing how different organizational parts work and are connected to each other. Those systems can also be considered in the way that the organization is internally managed. He calls this « *systems of flows* ». He describes five systems of flow:

- System of formal authority, gives a picture of organizational structure. It is mapped through charts or organigrams, and has for an objective to define division of roles and responsibilities. We consider this part in our outline of formal and informal organizational structure in III.1.3.b.
- System of regulated flows describes those aspects that are formally regulated. Mintzberg refers to a diagram that shows the flow of work and explicitly demonstrates standardization of coordination. Again, as for the previous systems, we include this part in the recognition of risk culture structure.
- System of informal communication signifies that « *centres of power exist that are not officially recognized; rich networks of informal communication supplement, sometimes circumvent the regulated channels; and decision process flow through the organization independent of the regulated system* » (Mintzberg, 1979, p.46). He indicates that communication is not always vertical, as it would be logical in any hierarchical organization that would be given in top down direction which is important to consider for us in risk management flow.
- System of work constellations, which is especially relevant in terms of the formal and informal management. Previous aspects covering informal communication are related to the formal organizational core. Therefore, work constellation can vary across departments and official working units.
- System of *ad hoc* decision process that facilitates flow of the decision and combines formal and informal aspects that « *determine organizational behavior* » (Mintzberg, 1979, p.58). This system is closely related to organizational practices that are not prescribed but can influence the construction of risk culture.

An important point is that Mintzberg recognizes the influence of formal and informal systems on the organization and that the administrative -in other words formal- structure may not be

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predominant in the organization. This supports the thought on the manageability of risk culture that may be managed by informal systems of flow.

Those five systems of flows were extended by Romelaer (2011) into the twelve coordination systems. Therefore, he adds seven additional systems:

- System of objectives that drives common vision between different organizational parts to attain the same objective. For instance, he gives an example of a department that has the same objective as the subsidiary that it belongs to.
- Non-hierarchical work relations that are interactive between members, those interactions are not ranked by hierarchy and can be more vertical. For instance, risk managers can have as a mission to connect with different departments that are also important without being superior in the hierarchy.
- Groups refer to the colleagues or practice communities are related by their proximity, but also for some specific reason as different committees, work on projects or risks assessment groups... Groups can be formal or informal. Since there exists a large variety of groups, some of them can be identified in relation to risk management (such as practice communities) that we can consider in our research, while it may be too ambitious to identify other informal groups.
- External relations refer to the question of environmental contingencies and can be more politically oriented. This specific system of coordination refers more to the influence of external context to risk culture.
- Systems of competencies represent concrete practices that organizations develop. In our case, it would be practices that are developed to manage risk. These practices represent both formal and informal management (as Romelaer indicates, there can be groups that have as an objective to develop specific competencies, or procedures, or internal databases, as well as individuals that informally contribute by their knowledge about some specific subject).
- Values, cultures and identities (already mentioned in the First chapter on organizational culture (I.1.2) are systems that reveal organizational complexity, especially in large companies in which values, culture and identities may be different in departments, at corporate level or in business units. The way that organizations approach risk management also influences behaviours and can influence individuals' perceptions and values that are important for risk culture.

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- Departments and other organizational units that have some name or title within the organization are defined by these titles and therefore their missions are defined as well. The structure of the units demonstrates the organizational choice to group some activities together in order to facilitate coordination. The organization will search for the best coordination of activities. For instance, if we consider risk management, units can be regrouped under one department or can be attached under different divisions according to their mission (*e.g.* compliance under the legal department). This coordination choice can help to define the way organizations manage risks.

Every organization can have multiple systems of flows and some of them may be predominant. Understanding the flow of those systems can drive us to understand how risk culture is managed.

In addition to the systems of flows, Mintzberg also speaks about coordinating mechanisms that are concrete actions that coordinate organizational activities. He presents five coordination mechanisms that apply to different situations such as:

- mutual adjustment that corresponds to more informal communication;
- direct supervision, that is formal control under the responsibility of some individual(s);
- different sorts of standardization, such as
 - standardization of work processes prescribing the way to do the work;
 - standardization of outputs, that is prescription of what goal, objective or performance has to be attained without looking up the way to doing it;
 - standardization of skills⁵⁸ that are required to perform some tasks. For instance, in our case pre-requires that risk managers have to possess for their work

Every mechanism applies to a different situation according to the most appropriate way to coordinate activities. As Romelaer (2011) describes, every mechanism has its advantages and inconveniences (such as rapidity, degree of formalization, *etc.*).

⁵⁸ This type of standardization is what Romelaer (2011) calls « *Standardization of competencies* ». While Mintzberg means qualification in terms of education, Romelaer refers to the knowledge that was developed in order to execute tasks and objectives.

While a formal mechanism (*cf.* standardization) can be more easily controlled and managed, an informal mechanism relies on communication and the exchange of information between individuals and is more difficult to manage. A better understanding of informal coordination would help to explain its role in risk culture.

III.2.2 Manageability applied to Risk Culture

«... And in our risk register we have a special section. It is on manageability. It was specially developed for us, for our company. It is unique for our company...» (Risk Director, Fieldwork notes, 5.4.2016)⁵⁹

The question of manageability has come up frequently during our fieldwork. It arose following some inspiring observations about risk and risk management, when we noticed that many organizations' approaches to risk consider risk to be something that has to be under control and managed by appropriate tools. The organizations were not considering the limits of those existing risk assessments, instruments and limits of people's rationalities. Thus, we decided to look more closely at what the literature says about the manageability of risk culture.

Existing views on the manageability of risk culture provide a singular view on the concept as a formal and controllable object (Power, 2007) that is implemented through instruments and policies (Beck, 2006). Palermo *et al.* (2017) discuss that instead of absorbing the benefit of the culture based on anthropological and social roots, an organization tends to interpret it through a *«manageable and calculable»* view (Mikes, 2007, 2009). Thus, risk culture *«auditable and accountable creates tensions for organizations between the need to produce legitimate accounts by reducing risk culture to a limited set of observable and measurable properties, and the need to capture organizational processes and values in all their richness»* (Palermo *et al.*, 2017, p.3).

If we apply these statements to the manageability of risk culture, we are able to identify some issues with what is and what is not manageable in terms of formal and informal practices. We are concerned at the lack of acceptance of more informal practices on the part of the organization. If organizations consider only manageable, accountable and auditable practices, they may omit important parts of their internal organization. For instance, in terms of risk

⁵⁹However, we should observe that this concept was dropped years later from the register and replaced by a more specific description of practices.

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management, if we only look at how risk is formally managed, we can consult some written internal documents such as risk registers or risk procedures, but after that have only a partial idea of risk management within the company. Risk management and risk culture can emerge from behaviours and practices that are not written anywhere and may even be subconscious. This kind of reflection leads us to formulate our second research question.

III.2.3 Outlining the second research question to study risk culture manageability

After presenting the literature, in the following section we present our second research question (III.2.3.a) and the aspects we chose to study in order to answer the second research question (III.2.3.b).

III.2.3.a *Second research question has to clarify extension of risk culture manageability*

In this point, we would like to apply our thoughts about manageability and risk culture in order to define the gap and outline our second research question.

The research about manageability places risks culture concepts in a dual position. On the one hand we understand from the literature that risk culture is defined by human characteristics that are more difficult to control and to specifically identify; but, on the other hand, risk culture has to generate tangible positive results and be on the agenda of strategic issues of a top management authority in order to gain attention within the company (Meidell & Kaarboe, 2017). Very similar issues are raised by Ashby *et al.* (2012), who believe that there is a big challenge for the concept of risk culture: the fact that organizations consider that a subject has to be « *visible and potentially manageable* » in order to attain corporate objectives. Still in the same vein, Huber& Scheytt (2013, p. 95) outline that the expansion of risk management is related to « *a set of procedures which conform to certain images of manageability, and subsequently transparency, accountability and auditability* ». All of these authors also call for serious precautions with regard to risk and its management, as using only formal aspects of risk management gives a false impression of control.

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If we consider the assumption that the importance of risks is considered according to an organizational hierarchy, then logically corporate risks are more important than risk at a lower level. In that case, operational risks would be considered to be minor. However, we are of the opinion that it would lead an organization to make mistakes in risk perception. If an organization is ready to manage risk from the top, what would happen if risk hit from another level? Since different organizational levels are interconnected, they are all joined as one culture and one risk organization (Power *et al.*, 2013). That is why we believe that looking at the question of manageability is important, and this is why we think that risk management and risk culture must be considered both at the higher and lower level, both levels being interconnected.

In our view, building a detailed classification of formal and informal aspects is the first step to clarifying risk culture manageability and the risk culture construction. By clarifying both aspects in terms of manageability we hope we could draw attention to its complexity. For instance, informal aspects of risk culture can contribute to establishing comprehensive paths that lead to a deeper understanding of risk management across different levels (Taylor *et al.*, 2012). However, existing research approaches risk management by developing indicators to respond to corporate expectations on performance monitoring indicators which allow for a proper evaluation of risk management efficiency (see *e.g.* Sengul & Obloj, 2017, Lundqvist, 2014, Beasley *et al.*, 2017;).

Our second question is:

2. To what extent can we manage risk culture?

II.2.3.b Components that we retain to study risk culture manageability

In this point, we explain criteria that we use to answer the second research question. Our second proposition states that in order to understand risk culture manageability within an organization, one must also understand both risk management and internal practices. There are elements that had not been identified at the beginning of our fieldwork and research that connect the practice and manageability of risk culture. These elements would come to be understood and recognized as our research progressed.

In order to be able to look at manageability, we have defined a number of criteria that influence to what extent risk culture can be managed. These criteria are the result of (1) prior reading in

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the literature (*e.g.* publications by Mikes, such as, for instance, the one on Enterprise Risk Management and its internal application in which Mikes and Kaplan emphasize that a large part of risk management depends on how people set it up (*cf.* Mikes & Kaplan, 2015)). (2) We had complementary reflection during our fieldwork observation (*e.g.* when we realized that people interpret and re-adapt risk management on a daily basis, in relation to their roles and responsibility, and modify the content of risk management programmes).

We will look at the flow of the management

Based on multiple sources (Meidell & Kaarboe, 2017; Deverell, 2010; Power *et al.*, 2013; Schoenfeld, 2013) we will discuss the importance of the manageability of risk culture in order to identify a clear interconnection of risk manageability between top (senior) and middle management. In the interaction between these levels, there are multiple factors that influence decisions and their quality. For instance, the top level can be more, or less, influenced by the managerial level. At the same time top managers give a direction to middle management work. The strength of the influence deepens according to their relational proximity. That is why coordination and information exchange between different levels can influence decisions regarding risk. In our opinion, notifying coordination around risk management helps to understand its manageability.

We will look at managers

We would like to refer to Mintzberg (1979), who said that managers are the liaisons between different levels in the organization. By saying that, we can consider that they may encourage or discourage some practices that lead to the formulation of risk culture within the organization. Indeed, we add the concept of the role of management and practices that are related to risk management (*e.g.* practices that the company put in place and how people execute their responsibility regarding risk management, how they translate written prescriptions into practice).

In addition to that, managerial competencies can also be factors that influence risk culture. For instance, Cameron & Quinn (2011) confirm the congruence between culture and competencies. « *When the leadership strength of individuals is congruent with the dominant culture, those leaders tend to be more successful, as are the units they manage* » (Cameron & Quinn, 2011, p.53).

III. 3 Summary of criteria that we retain for our study and proposed model

We will now summarize the criteria that we presented in previous sections and show our conceptual model.

The Table 9: Synthesis of research criteria outlines dimensions that we use for our research and that we divide in formal and informal parts as well as its manageability. We explain how we operationalize those criteria in practice in Chapter Five.

Table 9: Synthesis of research criteria

Dimension	Indicators		
	Formal	Informal	Manageability
<i>Definition</i>	<i>Prescribed, control related, leading to official risk culture, in other words, how the firm is prepared to respond to risks</i>	<i>Relational, no prescribed support of risk culture –in other words how the company reacts concretely interpreted in real time, what actions are taken and what does it imply</i>	<i>Practices, abilities and capacities leading to the achievement of risk culture</i>
Distribution of power	Authority, rules, and regulations, hierarchy	Structure setting and autonomies Incentive	Form of managing risk: (e.g. centralized or decentralized)
Risk governance: <i>Structure of the Risk Governance</i>	Allocation of authority, Form / mode of control, Internal consistency, Official materials	Actors' involvement, Creating extra initiatives and shared mind, interactions	
Communication: <i>rapidity of information</i>	Reporting, agendas, official escalation of information Risk management information	Informational flow; no prescribed exchanges	Communication and exchange of information in real time
Role of social capital	Duties and responsibilities of members	Different levels: individuals, groups who are unofficially involved in the risk management process and prevail on risk culture.	Risk Understanding Actors involvement in practice Creation of knowledge and learning

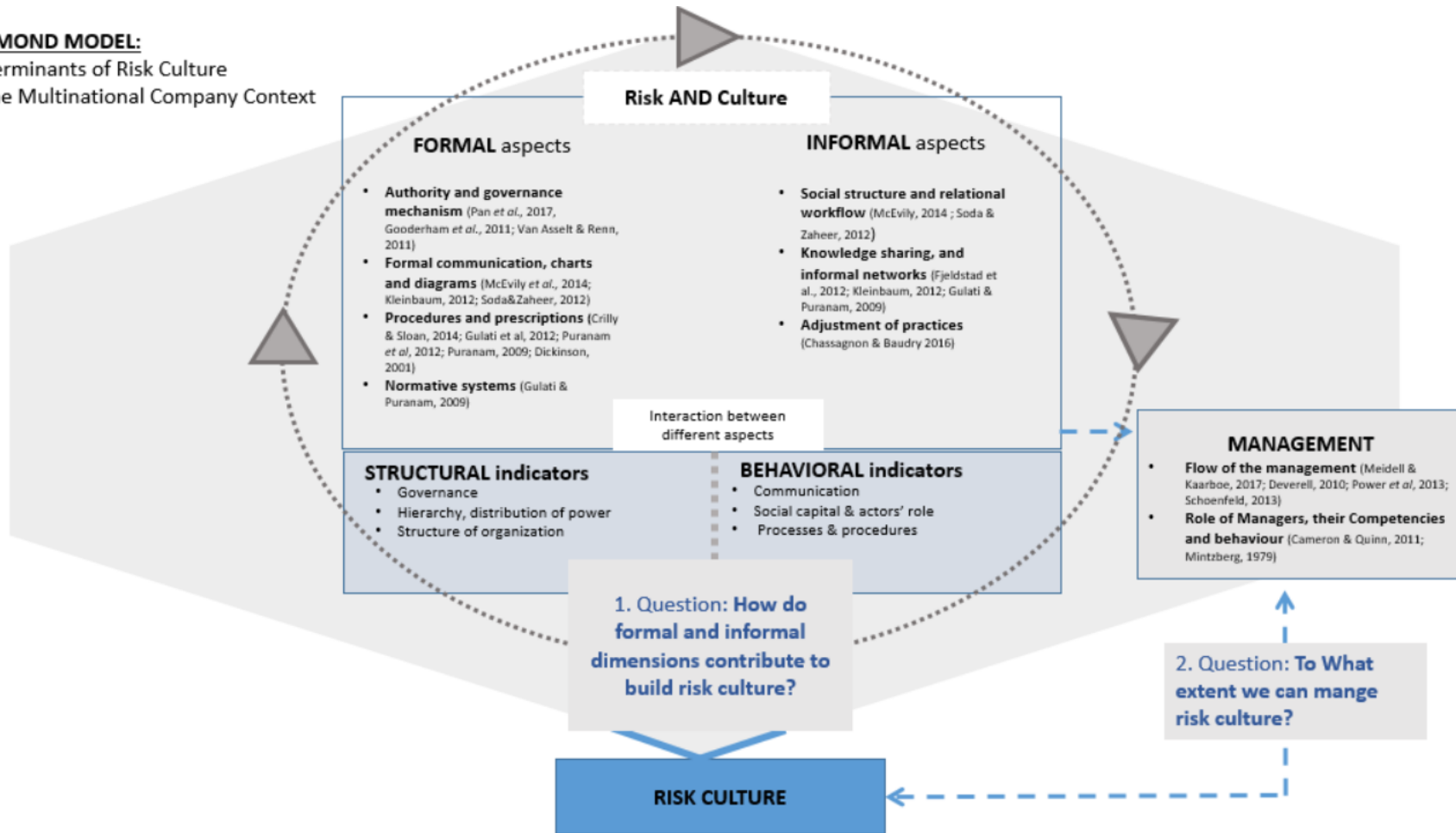
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Flow of the management	Existing coordination mechanisms and systems		
Risk managers	Official roles & responsibilities	Risk management practices in real time Characteristic of actors that are doing risk management	—
Process and procedures	Official channels of circulation	Informal connections and channels	Process of managerial practices Role of change
Author: Marketa Janickova			

The objective of our research is to link formal and informal organizational aspects to risk culture research through the view of different organizational perspectives.

Figure 7: Diamond model

DIAMOND MODEL:
Determinants of Risk Culture
in the Multinational Company Context



Author: Marketa Janickova

This chapter is important for our fieldwork research because we demonstrate the objective of our research, that is to link formal and informal organizational aspects as well as manageability of risk culture. We present origins and outline definitions of formal and informal organizational aspects that lead us to present our first research question on formal and informal parts of risk culture. In addition to that, we reflect on the possibility managing the risk culture and we present literature surrounding the management and manageability. This is the basis for our second research question. All this literature helps us build our research model that we outlined in Figure 7, and it also helps to explain the operationalization of our research aspects in upcoming chapters.

Conclusion of Part One of our Thesis

This first part of our thesis has as its objective to outline and explain our interest in doing research on risk culture. This objective is reinforced by theoretical and literature reviews.

In our first chapter, we presented risk culture as a research object that is composed of risk and organizational culture. Both prior concepts are complementary and may be approached as social constructs (*e.g.* Tulloch, 2009;⁶⁰ Beck, 1992; Douglas & Wildavsky, 1983). Despite the efforts made by several researchers to demystify the concept of risk culture and to make it more precise (*e.g.* Power *et al.*, 2013; Mikes, 2009) we think that our research can bring additional clarification to that concept.

In the Second Chapter, we have outlined the interest in risk culture as it relates to risk management. This applies to all organizations in general, and thus also in worldwide organizations such as multinational companies. These organizations are overwhelmed by formal risk management and standardization from regulators, legislation and institutions. Therefore, we focused on the literature on multinational companies and risk management. We have pointed out some matters as being relevant to risk culture in the way it is taken as a measure and control in large organizational systems and in relation to the external environment.

After that, we could observe that « risk culture » as a social concept contains informal aspects that are neglected within the vision of risk management. Consequently, our Third Chapter defines both what we see under formal and informal aspects that help us build our research model.

Specifically our research choice is based on:

(1) Formal and informal aspects related to organizational studies that help to structure the concept of risk culture. We presented our first research question in which we see risk culture as a construction of formal and informal aspects.

(2) In order to understand risk culture manageability within an organization, one must also understand both risk management and internal practices. Therefore, in our second research question, we are questioning the extent of risk culture manageability. That means that we will

⁶⁰ In Zinn (2009) pp. 138 – 168.

explore practices that may be formally prescribed as well as those that are socially constructed, and hence more difficult to capture.

Finally, we present our conceptual model which we call a *diamond model* (Figure 7); this model relies on major components of risk culture that we identify as relevant for studying multinational companies. There are elements that had not yet been identified at the beginning of our fieldwork and research that connect the practice and manageability of risk culture.

PART TWO: RESEARCH METHODOLOGY

« A research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial question of study. Every empirical study has an implicit, if not explicit, research design. » (Yin, 2003, p.19)

This second part of our work presents our research strategy and the methods that we use in this thesis.

The Fourth Chapter describes the design that we adopt, including the epistemological positions, in our approach to the single case study and its context. In broad terms, the objective of this chapter is to present the choices that drive the qualitative research.

The Fifth Chapter presents our research methods of how we operationalise characteristics of risk culture that we identify in the literature, and what characteristics we added during our research. We explain our intention to collect primary and secondary data, and we outline how we analyse this data. Finally, we conclude by a presentation discussing the validity of our study.

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« A research design is the logic that links the data to be collected (...) to the initial questions of study. » (Yin, 2003, p.19)

The objective of the Fourth Chapter is to introduce the research context and present the choice of our case study that guides our research on risk culture.

Our design is driven by an extensive literature review and the progressive evolution of the literature review during our fieldwork. Our conceptual elaboration was systematically reviewed according to a constant back and forth movement between fieldwork and theories as demonstrated in the following process chart (Figure 9: Model of the back-and-forth process between literature and fieldwork), which includes our research timeline.

The first section (IV.1) introduces our research strategy: in (IV.1.1) we link the research with the debates about epistemology that developed in recent years and through that we justify our position. We present the method with which we approached our study as qualitative and abductive research. Then, in (IV.1.2), we describe our choice to use a single case study as well as our mixed approach. In the second section (IV.2) we present our choice to study one multinational company in the Engineering and Infrastructure industry. In sub-section IV.2.1 we track the course of the progression that led us to this specific choice of one case study. In the second sub-section, IV.2.2, we get closer to the specificity of the context of risk management and risk culture that is one subject of deeper analysis in the case study.

IV. 1 Research Strategy

In this section, we start by describing our epistemological position (IV.1.1.a) and by explaining our qualitative abductive research (IV.1.1.b) with detailed fieldwork phases and the articulation with research literature. Following that, (IV.1.2) we describe our study approach.

IV.1.1 Epistemology and explanation of our position

The inflexibility of an epistemological position is creating more and more debate in research literature. Our epistemological explanation briefly describes paradigms and focuses on epistemological debate. We note the comments from Avenier (2011) who was reacting to an article by Dumez (2010) talking about advancing flexibility in epistemology. Dumez responded in turn, indicating that there is still academic rigor in his research despite the flexibility of the approach (2011). Finally, Avenier summarizes all the points in his and Dumez' articles in a 2012 paper (Avenier & Thomas). We take the lessons from these articles and develop their positions, as well as advancing and justifying our choice of an abductive approach.

IV.1.1.a *Epistemological construction and position in between*

By its definition, epistemology defines the nature of understanding of the world (Van de Ven, 2007). It then follows that the epistemological paradigm represents a researcher's understanding, and the way that the research process elaborates the nature of knowledge (Allard-Poesi & Perret, 2014).⁶¹ Epistemological paradigms are positions that lead a researcher to the answers they are looking for, and also the choice of epistemology will determine the attitude to our research.

Scholars generally evoke three paradigms: positivist, constructivist and interpretative. In order to demonstrate the difference between the paradigms we are going to describe the nature and processes that lead an understanding of two major paradigms: positivism and constructivism.

⁶¹ In Thietart *et al.*, 2014.

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The two paradigms have very similar characteristics, which are shown in the table (Table 10) below, and it is because of these similarities that we are not presenting them separately. There are, however, even subtler paradigms that exist in between (post) positivism and constructivism. In fact, the natural evolution creates more detailed positions such as post-positive / modernism (Boisot & McKelvey, 2010), open positivism (Romelaer, 2012), realism (Hunt & Hansen, 2010), arranged positivism (Eisenhardt, 1989) interpretativism (Sandberg, 2005). Romelaer & De Rozario (2016) « *define six versions of positivism though history* », Creswell (2014) proposes four Philosophical Worldviews⁶² or Avenier & Gavard-Perret (2012) consider five⁶³ foundations of contemporary epistemology. However, we are not going to develop these postulates deeply in our work because we would like to focus on the debate about epistemology instead of being lost in the mix of multiple postulates. We would therefore refer readers who are interested in the more nuanced details to an article by Avenier & Gavard-Perret (2012) and to Romelaer (2012).

As suggested by Allard-Poesi & Perret (2014, p.22), a research subject is very difficult to define and is subject to debate. Epistemology is led by two major paradigms,⁶⁴ positivism and constructivism (Royer & Zarlowski, 2007),⁶⁵ that indicate how researchers perceive reality.

The positivist paradigm is defined by objectivity and independence between the subject and studying object. It is based on what we are able to observe and measure and which has the consequence of defining the result as truth. There is a more current form of positivism called post-positivism which looks for « *determinate effects or outcomes...(thus) a researcher begins with a theory, collects data that either supports or refutes the theory, and then makes the necessary revisions and conducts additional tests* » (Creswell, 2014, p.7). Post-positivism as compared to positivism represents a modified view that admits that there is a limit of attaining pure objectivity of researcher.

Researchers in constructivism « *believe that individuals seek understanding of the world in which they live and work* » (Creswell 2014, p.8). Ontologically speaking, constructivism is

⁶² Post-positivist, Constructivist, Transformative, Pragmatic.

⁶³ Post-positivist, Critic Realism, Pragmatic constructivism, Interpretivism, Constructivism in the sense of Guba and Lincoln.

⁶⁴ We are consciously appointing these two paradigms by omitting paradigm interpretative that is however outlined in the summary model adapted from Perret & Seville, 2007, p.14-15 in Thietart *et al.*, 2007.

⁶⁵ In Thietart *et al.*, 2007.

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based on relativity of the « *local and specific constructed and co-constructed realities* » (Lincoln *et al.*,⁶⁶ 2011, p.98). Indeed, the object is attached to the subject of the research.

Table 10: Main epistemological positions

Epistemological Question / Paradigm	Positivism	Interpretivism	Constructivism
Status of knowledge	Realistic hypothesis Essence of the object itself	Relativist hypothesis Essence of object cannot be attained	
Nature of Reality	Independence between subject and object Deterministic hypothesis The world is made by necessities	Dependence between subject and object Intentional hypothesis The world is made by possibilities	
Path of knowledge	Discovery Status of explanation	Interpretation Status of comprehensions	Construction Status of construction
Criteria of validity	Verifiability Confirmability Refutability	Ideography Empathy	Adequacy Teachable
Source: Adapted and translated from Perret & Seville, 2007, pp.14-15, in Thietart <i>et al.</i> , 2007.			

Each paradigm that is discussed also represents a methodological articulation of research. Researchers of positivism formulate hypotheses and process by deduction, therefore their approach is most likely hypothetico-deductive.⁶⁷ Conversely, the constructivist process operates in the opposite way from fieldwork observation, functioning through induction or abduction. As Langley (1999, p.691) describes: « *One group of researchers has chosen to address (...) dynamics by formulation a priori process theories and testing them....(...) Another camp has chosen to rather plunge itself deeply into the processes themselves, collecting fine-grained qualitative data – often, but not always in real time...*» Indeed, there are also

⁶⁶ Lincol, Y.S., Lynham, S.A., Guba, E.G., pp. 97-129, in Denzin & Lincoln, 2011.

⁶⁷ Dumez (2010) emphasizes that it is not a written rule that positivism research is hypothetico-deductive.

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interconnected processes in between which are called abduction (see I.1.a and V.III.2.b Coding). It is a more interactive method that creates a dialogue between induction and deduction and represents the best of the process of research.

Recently, the position toward paradigms has shifted to one that is less categorized and academics now admit that it is hard to have a strict attitude in taking a position and there is not only growing doubt regarding traditional epistemology (Miles & Huberman, 2003) but a movement towards the idea that a researcher should build his/her epistemological position « *his/her own way* » (*à sa façon*) (Dumez, 2011).⁶⁸ Even if Royer & Zarlowski (in Thietart *et al.*, 2007, see pages 143-144) reveal that research without specific epistemological framing can have problems in the publication process, being in between does not mean that there is less rigorous and high-quality research. An excellent example is the recent work of Mayer (2017) who positions her thesis as constituting her own blend (Mayer, 2017, p.94).⁶⁹ Also, in his thesis, Cusin (2008) claims that he frees himself from epistemological rigidity in order to accomplish his research.

Indeed, our epistemological position is represented by the *in between*. We respond to the risk culture problematic by clarifying the ambiguity of the concept. Due to the nature of our research object, our position is directed more towards constructivism. We are studying a culture that is defined as a social construction, in fact, for our purposes we consider risk culture to be a composition of values, subjects and objects of human and social construction that looks for the construction of that knowledge. Allard-Poesi & Perret (2014, p.42) label this kind of approach as constructivist.

Additionally, our objective is to fill the gap that currently exists in the literature and to construct the knowledge concerning risk culture: this gap comes from the lack of clarity of the concepts of formal aspects, of informal aspects, and of manageability.

Our subject is based on the social conception of the culture that has a complex place in the world of organizations. In addition to the culture, we specifically focus on risk culture that is defined by multiple aspects that were defined in the Third Chapter. These aspects include structural and behavioural attitudes to risk that we consider through the lens of formal and

⁶⁸ We would like to thank Julie Mayer who mentioned to us the reference work by Hervé Dumez that became the inspiration for our research position.

⁶⁹ She adopted this expression from Dumez (2010) and we translated from French: « *en constituant notre propre miel* ». The meaning of the sentence is the suggestion that a researcher has the right to adapt his research to the epistemological mix in accordance with his research problematic.

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informal aspects. While culture is a human construction, risk may also be approached by deduction on a qualitative and quantitative basis of risk representations. Therefore, we propose our position based on the following outline:

Table 11: Epistemological foundations of our research

Ontological hypothesis	<p>The ontology is in between:</p> <ul style="list-style-type: none">• There is a construction of reality by actors/ humans that represents the informal portion• There are general and objective criteria of the reality of risk that are outside of the social reality that are formal
Epistemic hypothesis	<ul style="list-style-type: none">• The prior reality exists but is not fully understood. The prior knowledge of object is only partial• There is interdependency between the process and subject building
Objective of the knowledge	<ul style="list-style-type: none">• Our objective is to create the knowledge in order to fill the gaps in the research on risk culture
Principles of justification	<ul style="list-style-type: none">• Internal validity: through qualitative research and granulation of data, through research instruments.• Theoretical validity: construction on the basis of prior research and indicators about risk culture• Trustworthiness and authenticity: description of our processes of single case study and its design

Author: Marketa Janickova, categories adapted from Avenier & Gavard-Perret (2012)

IV.1.1.b Abduction based on Qualitative study

Qualitative studies textbooks emphasize the imprecision of the specific epistemology of research, and reveal increasing difficulty of elaborating stable and unique positions (Miles & Huberman, 2003). Abductive logic helps in dealing with new and complex subjects: « *the logic of abduction is frequently discussed as the logic from which new concepts and hypothesis are derived and, ultimately, how new discoveries are made.* » (Cornelissen & Durand, 2014, p.998)

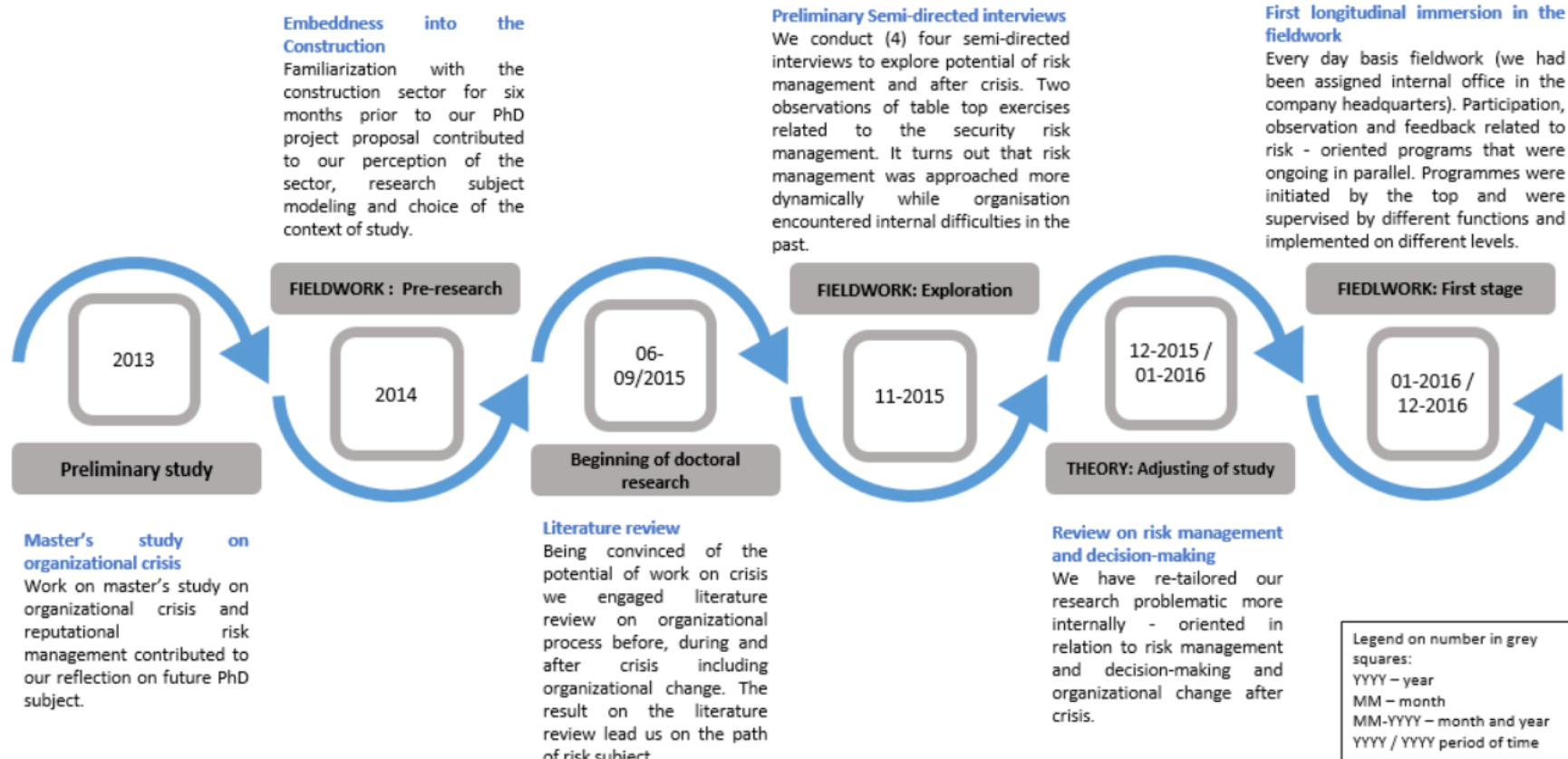
Fourth Chapter: Presenting the Design of the Case Study

Our case study subscribes to the qualitative research method, and its components will be described in the chapter on methodology (Fifth Chapter). Our research subject was constructed through an interactive back-and-forth between literature and fieldwork (Allard-Poesi, 1997; Allard-Poesi & Marechal (in Thietart *et al.*, 2007)). We determined the *outline ex ante* and we co-constructed our object while our fieldwork progressed (more details in section IV.1.2). This helped us build our research architecture (Allard-Poesi & Perret, 2003) over time. First of all, our research object was defined as risk management in the context of change after a major event, such as an organizational crisis. Our subject was re-defined and refined and our thought process evolved as a result of the fieldwork, of the readings in the literature, and of regular exchanges inside the company. The fact that we re-defined our logic from fieldwork observation towards theories, and from theories to fieldwork we embarked on a hybrid exploration; this method is described as abductive by Charreire Petit & Durieux, (in Thietart *et al.*, 2014). Also, as a result of our fieldwork we were able to better understand and refine the subject of our research, which allowed us to be in a better position to be able to test, modify and adjust our research model.

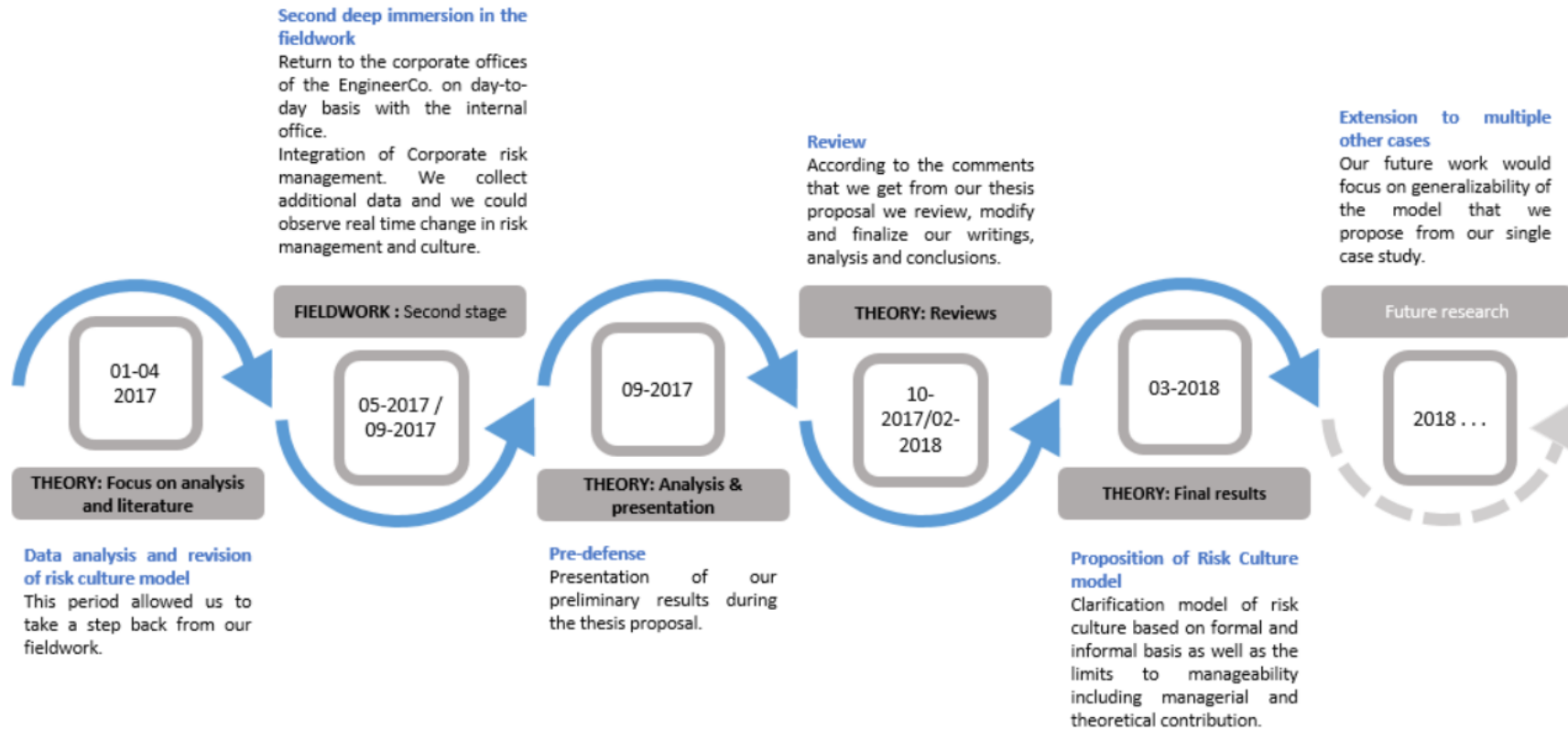
The following model (Figure 8: Process of back-and-forth) demonstrates the communication between fieldwork and the back-and-forth with research literature. Indeed, we have started to work on organizational crisis and processes. That field represents a rich source of process literature (e.g. Langley, 1999) for example surrounding organizational learning (Cusin, 2008; Roux-Dufort, 2009, 1997), change process (Demers, 2007), organizational crisis and warning signals (Pearson *et al.*, 2007; Nadler & Tushman, 1999); organizational resiliency (Altintas & Royer, 2009) etc. ... We assimilate and challenge this type of literature during our year-long preliminary discovery during immersion in the Canadian context of the construction industry. As a result of our almost one-year embeddedness we were able to better understand the industry, and we adjusted our research view to be more risk-oriented. We submitted our research project as a study of internal change and the resiliency of internal systems. Afterwards, we pursued additional fieldwork and we began our preliminary interviews. (A more detailed description is in this chapter, IV.2.1: Stages Leading to case study choice).

Figure 8: Model of the back-and-forth process between literature and fieldwork

Process Chart: back-and-forth between literature and fieldwork 1/2



Process Chart: back-and-forth between literature and fieldwork 2/2



Author: Marketa Janickova

IV.1.2 Single Case study with mixed approach

« The case study method allows investigators to retain the holistic and meaningful characteristics of real-life processes, neighborhood change, international relations, and the maturation of industries. » (Yin, 2003, p.2)

The single case study design is appropriate to demonstrate the organizational complexity and reality related to social and managerial subjects. Yin's (2003) single case study methodology allows us to examine risk culture as a part of organizational process and of the organizational structure.

The appropriate choice of case study is the one that corresponds to the object of the research and is key for appropriate case study design (Yin, 2003). Following the Eisenhardt (1989) case study process, we followed the method of building a case study starting with a broad topic and then defining the content over time. This methodology is known through Mintzberg (1973), who used it while studying the managerial types for his doctoral thesis. His study began by observing managers generally, which led him to identify potential types of management by gathering and classifying field data over time. Our methodology was also divided in multiple stages; going from broad, general topics to specific ones, and it is by moving from risk management to risk culture that we are going to describe the process as we delve *« deeply into the processes themselves »* (Langley, 1999).

The following points (IV.1.2.a) are going to outline our unit of analysis that is organizational risk management translated to formal and informal forms. We examine our research sample in section (IV.1.2.b); this sample is obtained by *« purposeful sampling »* (Patton, 2002), which goes hand in hand with our study and it *« focuses on selection information – rich cases whose study will illuminate the questions under study »* (Patton, 2002, p.230). Therefore, we choose a mixed approach of content and process (IV.1.2.c-d). It may appear that this is a challenging choice, but we believe that a mixed strategy allows us to answer our research question better. Methodology literature does not discourage mixing research strategies, as long as the researcher maintains a clear consideration of both content and time within the research (Grenier and Josserand, in Thietart *et al.*, 2007). We put an emphasis on the understanding of risk culture content and its development over time. Indeed, processes enrich the research on content (Grenier and Josserand, in Thietart *et al.*, 2007).

IV.1.2.a Unit of analysis

Careful selection of our case study was critical to the success of our research because we needed to find an organization that had experienced an extreme event, such as a company-wide crisis, in order to be able to observe changes in risk management, organizational systems and ultimately the company's risk culture. Following Yin, (2003, pp.41-42,47) our choice of research case study pulls together multiple rationales that justify our case:

We study one multinational company following an organizational crisis that we considered to be a major change event for the company. Thus, we approach our unit of analysis as the representative case to study an organization with the objective « *to capture the circumstances and conditions of an everyday or commonplace situation* » (Yin, 2003, p.41). We approach it through analysis of formal and informal aspects as well as of practices of risk management that we consider appropriate: our purpose is to examine -as a whole and in detail- risk culture, and relevant elements of organizational structure, internal practices and change. In building holistic and managerial risk culture « *different units of analysis are not mutually exclusive* » (Patton, 2002, p. 228). To justify this, we considered that structural evolution of the multinational company involved multiple formal and informal aspects related to risk culture as well as risk management practices outlined by structure and behaviours.

Studying risk culture and risk management in one multinational company that is post-organizational crisis and in the process of introducing new practices and structural change within their system needs a « *representative and typical* » research case. Also, the previous crisis is appropriate for our holistic risk culture view. Otherwise « *in the absence of a problem to be solved or some new strategic goal to be achieved, culture analysis turns out to be boring and often fruitless* » (Schein, 2009, p.77). Therefore, the context of our study also gives the reasons why the company should implement internal change.

There is very little research that provides a deep analysis of the aspects of risk culture and its processes in multinational companies, especially within the Infrastructures & Construction sector. Moreover, risk culture as a part of Enterprise Risk Management is not clearly described by formal and informal indicators and the levers of control that they may represent. During our research we had the unique opportunity to have access to internal data and make key observations to enable us to formulate a description of the company's risk culture. As a result, our single case study may help identify deep and revelatory insights.

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Finally, our goal is to demonstrate the change that occur at different « *points in time* » (Forgues & Vandangeon-Derumez, in Thietart *et al.*, 2007). For this reason, real time process study with some retrospective allusions (Leonard-Barton, 1990) is appropriate to demonstrate the dynamic process of risk culture creation.

IV.1.2.b Research Sample

« In studying the interaction of two large molecules, generally we do not need to consider in detail the interactions of nuclei of the atoms belonging to the one molecule with the nuclei of the atoms property belonging to the other. In studying the interaction of two nations, we do not need to study in detail the interactions of each citizen of the first with each citizen of the second. » Simon (1962, p.477)

Organizational studies naturally require a multilevel analysis. Within organizational research, Burgelman (1983) laid the groundwork for future research about organizational structures and multilevel constructions by emphasizing middle level positions. Multilevel organizational research (Glaser *et al.*, 2016; Romelaer & De Rozario, 2016; Moliterno & Mahony, 2011;) focuses on different level links between governance-middle management-operational and individual levels. Links between Intra-, inter- and external organizational worlds are presented by Romelaer & De Rozario (2016) and the links between countries, organizations and individuals can be found in Kostova (1999). Moliterno & Mahony (2011) in particular propose multilevel network theory models. However, multilevel organizational parts research also « *encompasses governance systems that have three to five levels of independent political decision-making centers.* » (Stein & Turkewitsch, 2008, p.26).

According to Patton (2002), the research sample should follow the unit of analysis. We look at the organization as a whole and we focus on internal formal and informal aspects of risk culture. Due to the organizational complexity of risk management in multinational companies, we combine different sampling strategies by following Patton (2002):

- We sample an unusual case that illustrates evolution after an organizational crisis and emphasize the place of, and change within, risk management including risk culture.
- Our topic also outlines some sampling criteria that were predetermined by our research question. We were looking for a typical case to help us describe and understand risk

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culture. Therefore, we were looking for a company profile that would allow us to see an evolution in risk management; being able to be involved in different risk management practices represents a good basis to gather primary information.

- Once the fieldwork started we took advantage of the opportunity to interact with different units and functions that gave us additional sampling opportunities.

We did not start by determining a specific sample size, rather we began with the concept that « *sample size depends on what you want to know* » (Patton, 2002, p.245) and reconsidered it throughout our study to determine if we have enough information to answer to our questions.

IV.1.2.c Types of data we wanted to collect

In order to study empirical material and determine our research strategy, we also had to choose our research approach. Literature proposes different options to approach the study. We can take an approach centered on the content of the strategy, or an approach centered on the strategy as a process. We describe the first of these choices in this section and the process approach in the next subsection.

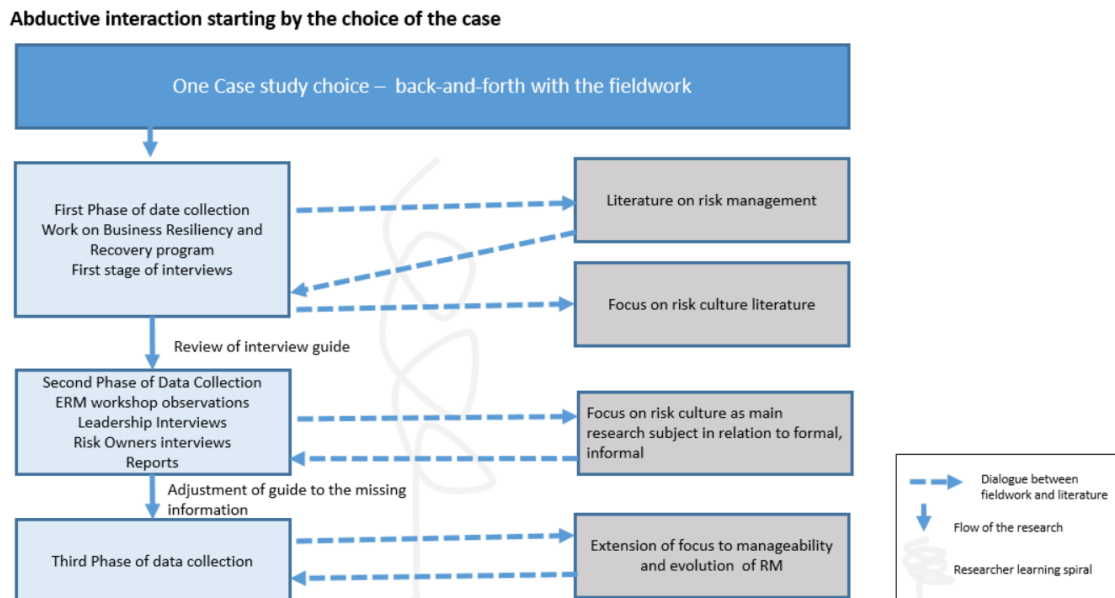
The content approach of the research is present in the descriptive and explanatory portion of our thesis: it helps in understanding the phenomena of risk culture inside companies. This content approach has been used in Mintzberg's content analysis (and has also been described by Grenier & Josserand, in Thietart *et al.*, 2007). Mintzberg arrives at his results by parsing data. Without any preliminary grid analysis, he manages to collect, organize and classify different managerial types.

In our case, the content approach begins with the choice of characteristics that we are going to look at in risk culture (Third Chapter). These characteristics were developed on the basis of the literature review, and also an extended back-and-forth between fieldwork and theories, as demonstrated in the Figure 9: Abductive interaction starting by the choice of the case. The characteristics noted above are presented in the Third and Fifth Chapter. We made some adjustments to our initial list of variables during our research, and we present evolution of list of variables in V.3.1 Analysis. For instance, in the role of actors we had decided to consider individual risk tolerance, since we notice that not all individuals are acting in accordance with

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the direction of the company's risk perception that was set at the top. Other variables that were adjusted were in communication, where we took into account the rapidity of a response to a risk event that at the same time contributes to the coordination and informal interactions. Finally, the characteristic of resource allocation also appeared during fieldwork while we observed the process of risk management through different change programmes.

Figure 9: Abductive interaction starting by the choice of the case



Author: Marketa Janickova

IV.1.2.d Process approach can help collect additional data

« As change sweeps through industries, organizations, and workgroups, we are seeing a surge of interest among organizational researchers in process theory and dynamic phenomena... » (Langley, 1999, p.691)

We would like to be cautious in order to avoid falling into the trap of static risk culture conceptualisation. It seems to us that it is very easy to overlook the dynamic nature of risk culture. If we forgot to take account of *time* in the development of the concept, we would lose the « *temporal flow of much of organizational life* » (Langley *et al.*, 2013, p.4). Hence, we must study risk culture as a process and not as a static notion.

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In studying risk culture evolution and its process, we look at action and « *how and why things emerge, develop, grow, or terminate over time* » (Langley *et al.*, 2013, p.1). Also, process study can interconnect different levels such as: an organization with individuals, or between individuals (Langley *et al.*, 2013). The dynamic of process study is important for our longitudinal research, especially to be able to fully answer our research question. If we omit risk culture development in the context of evolution, we will not be proposing a full picture of the model, because it will be a static model without due consideration of organizational life.

Considering process brings a dynamic aspect to our study. Maintaining different organizational elements in process is central for risk culture and structural organizing if we want to allow the concept to be *alive*.

In our case, process approach represents an additional aspect that we used to understand the environment and the coordination process related to risk culture. As Grenier & Josserand (in Thietart *et al.*, 2007) describe, process study as an additional analysis is not usually detailed, but may be present in the shape of process categories or having an explicative nature of the environment. The objective is to understand the evolution of risk culture within internal systems.

Process study complements our content analysis and our research on *Why* or *How* (Yin, 2003) in two forms: First, we explain our case study's previous environment as a justification for changes in risk management initiative. Subsequent to a major organizational crisis, the organization is forced to review and change all activities related to risk management, as well as restructure its vision through multiple formal and informal methods.

IV.2 Choice of the Context of an Engineering and Construction multinational company

Note to the reader: We studied one multinational company within the Engineering and Construction sector. For the purpose of confidentiality, we shall call them EngineerCo.⁷⁰

⁷⁰ In Chapter V, section V.2.1 on « Primary Qualitative data » we mention our commitments and confidentiality agreement. Also, we present the agreement to publish our thesis under certain conditions in the Appendix Introduction: Confidentiality and EngineerCo.'s name.

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Our justification continues in the choice of an appropriate case study to research the object of risk culture. In Figure 9 at the end of section IV.1.1.c, we presented the model of how we crossed multiple stages and processes over 4 years, and how we moved back and forth between theory and fieldwork. In the present section, we describe how we arrived at the choice of the case study, and we present the elements of the multinational companies' background that are defining factors in our selection.

IV.2.1 Stages leading to case study choice

« A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. » (Yin, 2003, p.13)

Our interest in studying multinational companies comes from our origins, as well as our passion for the subject of organizational complexity. Our origins coupled with our international experience, life and study within multiple cultures gave us valuable insights, which led to an understanding of international relations and cultural complexities within the global environment. Therefore, we are interested in multinational companies that face cultural variety in day-to-day business and management. We believe that culture influences organizations in an important way. However, it is difficult to catch the subtlety of cultural factors and attract attention to that subject. The recognition of the importance often arises when organizations fail to attain their goals and multiple problems appear (Van Ees *et al.*, 2009; Cyert & March, 1963). Risk culture questions arise after multiple crises and cases in which it was relevant that organizations have had difficulties to translate their cultures. Risk management as a practice led to our choice within our Master's study's final work.

More specifically, we identified our case study as a result of our previous investigation for a Master's thesis when the company encountered serious difficulties in internal management resulting in an organizational crisis. At the conclusion of our Master's thesis, we had identified processes that companies may follow to partially recover from crisis situations. We formulated recommendations in our Master's thesis, knowing that such recommendations are fragile. Our recommendations included generalized implementation of new systems and approaches to risk management. However, at that time we were not studying the company's internal workings but rather the external influences driving the change. Also, we based our study on external

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resources and interviews without any direct relation to our two case studies. That study ended during a period when one of the companies we had studied was beginning to stabilize from the internal and external shocks. By deduction we were supposing that the company's survival would depend on internal change and changes related to risk management activities.

Between the completion of our Master's work in December 2013 and the beginning of our doctoral thesis research at PSL University Paris Dauphine in September 2015, we started by taking the time to better understand the subject in which we are interested and were planning to research. We explain this process according to elaboration stages of perception, outline and choice (Simon, 1962) that we develop in the following points.

IV.2.1.a Perception

In this point we would like to describe the development of the perception of the construction of our research subject. We have demonstrated the interest in the Construction and Engineering industry during our Master's study, but we wanted to better understand this sector of activity and what it represents. We spent a period of six (6) months with the research chair related to Ivanhoe Cambridge company in Montreal from January to June before we proceeded to our doctoral post at Paris Dauphine in June 2014. We were in charge of the coordination of different events and administrative work related to the construction industry. Our responsibilities required us to have regular contact with third parties operating in the construction sector (as well as during webinars, conferences or forums). This work allowed us to become familiar with the sectors of real estate, construction as well as engineering.

IV.2.1.b Creating the outline of our research

As a result of that experience and of reading literature surrounding multinational companies and risk management, we were able to create our research outline and modeling reflections related to the question of risk management pertaining to the global context of the construction industry. The preparation of our doctoral candidature inspired us to build on related subjects in the domain and integrate those subjects with our previous research.

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At the same time, we started to build the pathways that would allow us to access the potential situations for our fieldwork by scanning the environment and we began negotiating a potential entry to the company that we had determined would be the best candidate for our case study among our preliminary sample.

IV.2.1.c Choice of the context

Our conclusions led us to get in contact with the CEO of the company we previously studied. In April 2015, we were able to obtain his commitment and support to study the company internally and conduct interviews with employees. The CEO at the time put us in contact with the newly created team in charge of one element of risk management: Security; this department falls under the Integrated Management Systems function. In June 2015, after the meeting with the Senior Vice President of Global Security at the time, who was in charge of the resiliency programme operationalization, we agreed to be involved with the company-wide implementation of the new programme. The programme, called Business Resilience programme (BR), was targeting key activities related to risk and business security. The programme planning started in 2015, some preliminary implementation tests were organized in Autumn 2015 and the roll-out of its main components across the company were planned for 2016, with additional implementation and review in 2017. Our planning enabled us to attend a table top exercise designed for the corporate leadership team in November 2015 and participate online in a deep-dive analysis of one extreme-risk country (Iraq) in December of the same year.

IV.2.1.d Validation of the choice

In the Autumn of 2015, we officially started our PhD commitment as a student. Our first task was to undertake an in-depth review of the literature on organizational crises and multinational companies. As a result of that, we began to question decision-making not related to risk and internal functioning of organizations. We also completed preliminary semi-directive interviews to confirm our case study choice and validate that it was an appropriate choice for the study of risk management. We took advantage of our time in Canada to complete fieldwork with four different companies via four interviews, which were divided as follows:

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We conducted two interviews in two (2) additional Canadian companies (called B and C) operating in the same sector as our preliminary choice. Our objective was to identify the most appropriate field for study. At the beginning we targeted « Company B » in the same industry, and similar to our potential fieldwork, so as to evaluate the relevance of their risk management and make a preliminary comparison with a risk management focus. The person interviewed at « Company B » directed us to another potential case study, « Company C », in a connected industry: investment in Infrastructure & Construction. As a result, we conducted two interviews, but « B » and « C » did not present cases that corresponded to our research criteria. The focus of Company B on risk relied on traditional assessment and reporting with the main focus on return on investment.

We address, I would say two or three risks on average for our principal investments, for transactions and also, we are doing stress tests on our principal hypothetic models for investment and then we make a conclusion about if we think there are returns on risk and we submit a report.

(Director of risk, Company B, 3.11.2015)

In addition, Company B suggested that we go to see another company (Company C) if we are interested in seeing how functional risk management works. As a result of the suggestion from Company B, we arranged a meeting with the responsible from C's risk systems and we could confirm that Company C, as indicated, had a very stable, unchanging risk management that does not represent any particularity to study.

It is important to say and understand, Marketa, that it happens at all levels of the company; so, it is not only me who is responsible for risks. I would say I am here to ensure that there are already existing mechanisms and conscience in terms of importance to manage risks in our activities...

(Director of risk, Company C, 16.11.2015)

The following Table 12 shows the profile of the companies that were part of our preliminary research and where we held some preliminary interviews before confirming our final case study choice.

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Table 12: Profile of companies where we held preliminary interviews

Approximate ⁷¹ Information 2017	Total Revenue	Size
Company B	More than 2 billion \$CA	Between 1000 and 5000 employees
Company C	More than 5 billion \$CA	Investment in different subsidiaries between 500 and 50.000 employees
Company D	More than 3 billion \$US	Between 1000 and 5000 employees

In addition to this, we initially wanted to have one company sample from another industry, with a different institutional basis, in order to corroborate our choice of context of study. To accomplish this, we chose one (1) company from the pharmaceutical sector.⁷² This provided us with an opportunity to verify risk exposure in another field. Secondly, it helped us to understand the different institutional challenges between having a Headquarters (HQ) based in Canada versus being a subsidiary based in Canada with an HQ on a different continent; which is the situation with the third test case, Company D. Having this point of view from another sector gave us an idea of the direction of risk management in a different industry and an understanding of variations in industrial dynamics.

It is the industry that can be dangerous and is very strategic for some countries... It does not move fast, we cannot change a lot of things...

(Vice-President, Company D, 2.11.2015)

Finally, we chose one (1) person from the case study EngineerCo., not involved in any type of formal risk management, but who has decision-making responsibilities and could indirectly involve themselves in risk management. This provided a perspective on changes in risk management and a more objective view of it.

⁷¹ In order not to reveal the identity of the companies we are communicating only approximate information.

⁷² In fact, according to Euler Hermes, the Pharmaceuticals sectors are rated as Low risk Sector. Source: <http://www.eulerhermes.com/economic-research/sector-risks/Global-Pharmaceuticals-Report/Pages/default.aspx>. Accessed August 10, 2017.

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Oh, yeah, now we are putting many things in place, (person explains different tools for security and control of risks). ... You see [tool for short training on visitor security], it was not here last week, it is brand new in the company.

(Vice-president, EngineerCo., 18.11.2015)

This discovery phase confirmed the relevance of the risk management situation at EngineerCo. and its relevance as our choice of company for fieldwork. Ultimately, these preliminary steps and interviews, in addition to negotiations with EngineerCo. to complete our fieldwork in their offices (See contracts and agreements in Appendix 4P), solidified our choice of the company as the appropriate case study to examine risk management, and then specifically risk culture conceptualization. The Table 13: Explanatory Interviews, lists the preliminary interviews that we conducted and summarises the comments that led us to our final decision.

Table 13: Explanatory Interviews

Company profile	Person role	Date/Time	Comment
Company B: Infrastructure and Real Estate	Director of Risk	3.11. 2015/57min45	Risk management as mechanistic and quantitative approach
Company C: Investment in Infrastructure and Real estate	Director of Risk	16.11.2015/51min40	Already enrooted risk management. No big changes in risk management.
Company D: Medical /pharmaceutical	Vice President	2.11.2015/91min	Interesting, but no major transformation, formalization of risk management ongoing
EngineerCo.: Targeted case – Infrastructure and Construction	Vice President	18.11.2015/45min	Changes to different types of risk management ongoing

After the discovery phase, we identified a real gap in the organizational attitude towards risk and we followed that path using the method of analysis of the risk coming from the internal organization developed in Romelaer (2013).

We began the first section of fieldwork in mid-January 2016 and completed it in December 2016, as an external independent observer with the status of « External Consultant, PhD Candidate ». We worked with the unit of Health, Safety and Security related to Integrated Management systems, and over time we were also assigned to Ethics & Compliance functions

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as well as Corporate Risk Management (more details can be found in Chapter V, section V.2 on « Data collection »).

We arrived at our final subject of risk culture, formal and informal aspects, as a result of a converging set of circumstances. First, during our fieldwork in March 2016, we were reporting to the president of Integrated Management systems who was in charge of the validation of risk strategy, and he regularly mentioned projects on the company's risk culture that appealed to us. Secondly, and to a certain degree simultaneously, we participated in the discussions on the definition of risk appetite proposed by the Risk Management Department but not validated by the company's directors. Finally, we also noticed that the consultancy literature does not contain much information concerning the formal and informal aspects of risk culture.

The second part of our fieldwork was in the role of « Contractor »⁷³ in Corporate Risk Management, which began in May 2017 and continued until September 2017. The objective of this fieldwork was (1) to collect additional information for our research, (2) to observe the evolution within the company of risk management over a one-year period. We were asked and authorized to do this by the Director of the Security unit. At the same time, we were supporting risk management at the corporate level as a contributor to the corporate risk function development as well as with the community of practice and its implementation as well as on the risk peer review layout for projects. (See Table 14: Total 18 months fieldwork).

Table 14: Total 18 months fieldwork time

Company coordination meetings for 4 months Total deep fieldwork immersion of 14,5 months	
September to December 2015 (4 months on an irregular basis)	<ul style="list-style-type: none">• Preliminary study: Approach the company and risk management outlines• Preliminary interviews inside and outside of EngineerCo.• Observation of two pilot table top exercises

⁷³ According to Oxford dictionaries, the contractor is « *a person or firm that undertakes a contract to provide materials or labor to perform a service or to do a job* ». In other words, we had the role of an external consultant. We had an office within the company, but we were not hired as an employee and were not given any financial reward in order to keep research objectivity.

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<p>January to December 2016 (10,5 months)⁷⁴</p>	<p>Starting within EngineerCo. and simultaneously doing first interviews with a focus on the specific programme in risk management</p> <p>Mid-January to March:</p> <ul style="list-style-type: none"> • Health, Safety & Global Security unit. • Participation in Business Resilience and Recovery programme, preparation, implementation • Thesis-oriented interviews (first version) • Positioning on Risk Culture and formal and informal aspects <p>April – December:</p> <ul style="list-style-type: none"> • Reporting to Integrated Management System President • Observation on Ethics & Compliance Workshop, feedback with Ethics & Compliance team • Observation Risk Assessment workshops <p>Thesis-oriented interviews (second version)</p>
<p>May to September 2017 (4 months)</p>	<ul style="list-style-type: none"> • Additional 4 months to see evolution and collect additional data within EngineerCo. • Integration to Corporate risk management • Work on Internal knowledge system and community of practice • Risk peer review work on the process revision • Observation on risk assessment workshop process • Feedback about new format of risk assessment workshops

We can also identify some bias in design evolution over the fieldwork process based on the following. Royer & Zarlowski (in Thietart *et al.*, 2007) warn of multiple obstacles in the evolution of fieldwork and the possible impact on the development of research (*e.g.* changes within the structure, new internal politics...). During our longitudinal fieldwork we faced a number of challenges that could impact our research design. We were confronted with major changes in the team where we were working, including the departure of the person that we were reporting to at the beginning of our fieldwork. We had been exposed to a double challenge

⁷⁴ Excluding July, which we spent outside of the EngineerCo.

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(1) of internal unit restructuring and behavioural changes of actors; (2) about the reporting reliability of our research and potential modification of publication agreements.

Following the unexpected departure of the head of department on Friday one starts to see some individualistic initiatives on opportunities to take head on department. ... During the meeting different possibilities were mentioned (Fieldwork note, 14.3.2016)

There is quite visible new strategic disposition of different individuals in this uncertain environment. Different persons think about their game and how they have to reposition. There is a very uncertain atmosphere, but nobody talks. I have information about the situation from informal sources. (Fieldwork note, 16.3.2016)

In every case we had anticipated the possibility and were prepared with solutions in order to not expose our fieldwork to danger. (1) As a result of our anticipation, we had arranged to be connected to a larger entity that covered not only organizational security but also other units related to risk: Corporate Risk Management Department; Strategy and Development Department and Health, Safety and Environment Department. (2) We had changed the reporting person with whom we were discussing our research, from Vice-President to President of the sector. These decisions were made in agreement with the new head of the Department where we were working as well as by our own initiative.

We also considered the bias that can be brought about by ethics and confidentiality agreements, which is a subject covered by the confidentiality agreement as well as our personal integrity towards the research (see Fifth Chapter, section V.2.1 on « Primary Qualitative data »).

IV.2.2 Multinational company context for studying Risk Culture as a part of Enterprise Risk Management

In order to better understand the major changes that occurred at EngineerCo. during our fieldwork, we would like to explain the contextual risk management conditions of our case study. This contextual information is drawn mainly from detailed knowledge of the company acquired during our Master's studies. We also complemented that information with internal data on the company which was collected during our fieldwork.

IV.2.2.a Presentation of the case study

« Founded more than 30 years ago, EngineerCo. is a company involved in engineering and construction with activities in over 20 countries. EngineerCo. provide multiple services related to the engineering industry, they can also combine these services with financing, operations and maintenance capabilities to provide complete end-to-end project solutions....

They propose a world-class expertise which is an important differentiator in their industry for delivering outstanding value to their stakeholders. »

(EngineerCo. Annual Report, 2017, online)⁷⁵

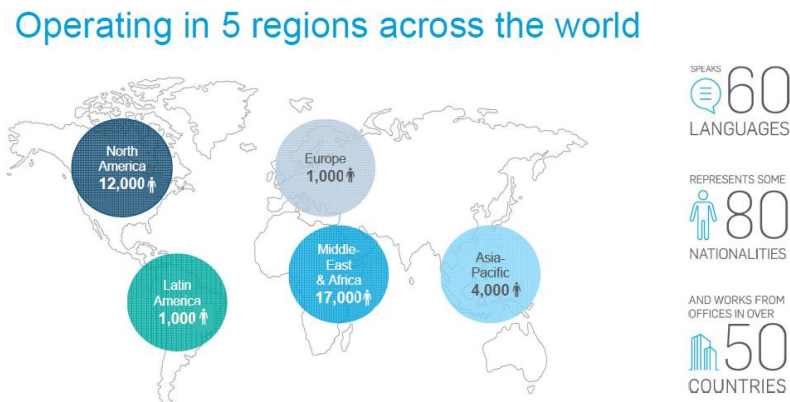
The company has a multi-divisional structure that focuses on multiple sectors covering operations in sectors such as Infrastructure and Power. Other related activities, including project investment, support these sectors. In 2016, the company's annual report indicated a total revenue of more than 5 billion Canadian dollars. The breakdown by division was: more than 20 percent Infrastructure, less than 15 percent Power and other portions were distributed among their other activities. The largest geographical distribution was in North America, which represented more than 50 percent, compared to the other regions of the world.

The business units are mainly supported by the following functions: Finance; Human Resources; Legal & Conformity; Management Systems; Marketing and Communication. According to the last update (July 2017), Corporate risk management falls under Commercial & Risk Management and Project Services falls under Management Systems.

The company had more than 20.000 employees around the world.

⁷⁵ All information from any company's statement are modified in this thesis in order to protect the confidentiality.

Figure 10: Geographical disposition



Source: Extract from EngineerCo.

In terms of governance, the company is led by the Chief Executive Officer (CEO), who reports to a Board of Directors that represents the shareholders. At the head of every sector is a President, and every function has at its head an Executive Vice-President. On the organizational chart, there are multiple denominations according to the positions and responsibilities, including Presidents, Vice-Presidents, Senior Managers, etc... Every Function Head (Executive Vice-President) is also assigned a sector. As the company itself promotes, they are a matrix structure where sectors actively develop business and create revenue while functions support these activities.

IV.2.2.b Company's Risk Management context presentation

In Chapter II, section II.2.1 we devoted one subsection to the different formulations of risk management inside an organization. In order to adequately complete the « *rationale for doing single case study* » (Yin, 2003, p.42), we decided to focus on the study of Enterprise Risk Management (ERM) as a holistic dimension to risk management structure in the internal systems of a multinational company. This choice is the most appropriate, and goes beyond more traditional risk management⁷⁶ that focuses on only one specific, individual part of an

⁷⁶ By definition, « risk management (are) coordinated activities to direct and control an organization with regard to risk ». In that case (in the short definition of ISO), risk means « *effect of uncertainty on*

organization (such as IT, projects, operations, etc.) and assesses risk via potential loss and impact evaluations in silos rather than as an integrated portfolio of risks that can arise out of internal, as well as external, organizational backgrounds (Gordon *et al.*, 2009; Power, 2004a; Dickinson, 2001). Enterprise Risk Management represents an integrated approach for multinational companies in terms of risk management, control, and performance indicators. It also supports organizational value creation, and, in some cases, may help identify formal and informal aspects of risk culture. These aspects enable us to best address and answer our research question. Table 15 below outlines definitions of Enterprise Risk and emphasizes some key aspects on its holistic view and internal aspects related to risk and culture.

Table 15: Enterprise Risk Management Definitions

Bromiley <i>et al.</i> , 2015, p.265	« ERM proposes the integrated management of all the risks an organization faces, which inherently requires alignment of risk management with corporate governance and strategy . »
Frigo & Anderson, (2011, p.3, In COSO)	« ERM is a process, effected by an entity’s board of directors, management and other personnel, applied in strategy-setting and across the enterprise , designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. »
RIMS (Risk Management Society, 2012, p.2) ⁷⁷	« Enterprise Risk Management is a strategic business discipline that supports the achievement of an organization’s objectives by addressing the full spectrum of its risks and managing the combined impact of those risks as an interrelated risk portfolio. »
Enterprise Risk Specialists LLC, 2017, online ⁷⁸	« Enterprise risk management is, in essence, the latest name for an overall risk management approach to business risks. Precursors to this term include corporate risk management, business risk management, holistic risk management, and integrated risk management. »

EngineerCo.’s efforts related to Holistic (Enterprise) Risk Management rather than the traditional forms were first noticeable around 2014. Previously, the company had an almost non-existent Enterprise Risk Management that was holistically covered by structure. That

objectives ». Source: ISO 31000:2009 (online, section 2.1 and 2.2)
<https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-1:v1:en>.

⁷⁷Source:

<https://www.rims.org/resources/ERM/Documents/FAQ%20on%20SRM%20and%20ERM%20FINAL%20April%202020%202011.pdf>.

⁷⁸ Source: <http://www.erm360.com/erm-process/erm-history/>.

previous structure was limited to a few divisions and functions, each working in its own silo with no collaboration.

Example 1:

MJ: I know there are some renewals about continuity planning, can you explain to me how it worked until now? What did you do if something happened? Could you just describe the process to me please?

First Phase Interview 1: It is simple. Because there was not any.

MJ: OK, (smile).

Example 2:

MJ: Have you apprehended any changes on risk management since you are here [2 years, note from the author]?

First Phase Interview 2: There happened quite few changes. ...there wasn't almost anything in place as far as policies and procedures ...now we have house policies, stakeholders engaged what we are trying to achieve which did not exist in the past. And there were huge steps forward. And now we are putting in place and try to figure how we are going to put it in place.

Note: Interviews were held in Q1, 2016.

I was informed that at the time (around 3 years ago) there were not risk evaluation at the corporate level. Indeed, different functions such as Security arrived around 2013/2014. (Fieldnote, 8.3.2016)

The eventual improvement in risk management, and specifically the development and resource allocation of an Ethics and Compliance function and of Integrated Management Systems including Global Security and Continuity Planning, IT department, Health & Safety, Security and Environment came as a result of institutional requirements stemming from a severe crisis case within EngineerCo. Revelations of bribery and unethical conduct in the bidding process for flagship projects plunged the company into a major crisis. During this period, EngineerCo.'s share prices dropped by more than 20%, and there were numerous legal pursuits. Governing institutions, Financial regulators as well as funding bodies placed severe restrictions on the company and demanded that formal structures be introduced to ensure such fraud could not re-occur. EngineerCo. had no choice but to meet these demands, so as to be able to continue operating around the world and have access to new projects. External requirements pushed the company to restructure the existing limited risk management structure and implement a formal,

company-wide system. However, in the process of doing so, internal audit reports and external reviews identified other major gaps in the company's risk management, security, compliance and health & safety initiatives. (Extract of Risk prioritization as a result of Audit risk assessment in Appendix 1C with a confidential content).

In 2015, Company Management appointed a team to develop, implement and manage a critical component to address the identified gaps: Business Resiliency programme (BR). Development of the BR began in the spring of 2015 and was presented to the top fifty executives of the company (representing the Corporate Governance Body) in November 2015 via a table top exercise simulating a global crisis affecting almost every aspect of the company's operations around the world. This was followed-up by a risk analysis activity in December 2015 that zoomed in on one project within one of the most vulnerable countries targeted as an extreme-risk country. Then, in 2016, the rest of the programme was deployed company-wide by the Global Security department.

In parallel to these BR activities, the Enterprise Risk Management department ran the workshops to conduct the risk assessments within HQ functions needed to populate the BR. Additionally, the Ethics and Compliance function provided assessments and ethics-awareness-raising training sessions to all functions and operations around the world (often via online sessions and learning modules).

This took place at the very beginning of our integration into the company, and we could observe those nascent initiatives over one and a half years in two periods of fieldwork.

The next chapter will introduce our research methodology as it relates to our case study and outline our choices to assess risk culture as object of research.

Fifth Chapter: Research Methods

The objective of this chapter is to present the grid that guided our analysis, introduce our research criteria and describe the process of data collection.

This chapter is divided into three sections that present our research on risk culture operationalization, data collection and analysis. The first section (V.1) shows how we operationalize aspects that we mentioned in the Third Chapter. Our choice of criteria was developed over the course of the evolution of our case study, hence the criteria presented here are those coming from the literature analysis, complemented by those identified during our fieldwork. The second section (V.2) describes our qualitative approach through (V.2.1) Primary and (V.2.2) Secondary data collection. The third section (V.3) presents how we proceeded to analyse our data and confirm our research validity.

V.1. Operationalization of concepts

In this section we explain how we operationalized our research concepts, how we presented the data we collected, and the analysis we performed with the data. As mentioned in the Third and Fourth Chapter, our research started with some pre-defined categories that we identified in the literature. Those categories were completed by other elements that we found to be relevant during our fieldwork. The Table 22: Summary of operationalization criteria outlines the process of evolution and development of those categories.

In this section, we elaborate our research concepts including those that evolved during our fieldwork. We have already made a literature review and we propose a concept in the Third Chapter. Indeed, this section is only a short overview of our research dimension that we specify in relation to the application to our case study. Our dimensions are based on our understanding of risk culture and how we proposed to approach it in the course of answering the following research question:

Under what conditions can risk culture be established in a multinational organization?

Q1: How do the formal and informal dimensions contribute to building risk culture?

Q2: To what extent can we manage risk culture?

In this section we articulate our research criteria and establish the coherence between risk culture as a part of the organizational environment as well as a set of managerial practices. We chose to approach it through both formal and informal lenses.

The Third Chapter was a preliminary literature analysis chapter. In this articulation we develop how we specifically apply the criteria to our fieldwork.

V.1.1 We must take the context into account

We have already demonstrated the importance of **external environment** in the Introduction and in the Second Chapter of our thesis. We believe that the external context has an important impact on internal organization. Even if we focus on internal risk culture development, there are multiple external factors that can influence what risk culture looks like internally, for example COSO articulates the risk structure by which the risk management is integrated in internal organization. For instance, according to COSO guidelines, organizations are expected to align their risk management strategy with monitoring and internal controls, and to reinforce their governance as well as risk committees. For us it is essential to understand the external context surrounding our case study and eventually identify any correlation or other logical link or influence process between external and internal aspects influencing risk culture.

Also, in the operationalization we are adding the idea of competitive advantage, even if we have not selected it in our prior criteria. Originally, we were not planning to evaluate risk culture in relation to competitive advantage as part of our analysis, but the subject was quite relevant during our contextual analysis so we decided to include it. Our literature review demonstrated that risk is not only about threats but also about opportunities and so organizational culture should be a source of competitive advantage (Cameron & Quinn, 2011). Therefore, risk management practices may add additional benefits and result in competitive risk culture. Different aspects of risk management may help develop competitive positions. Existing research approaches on risk management function by developing indicators to correspond to the corporate expectation on performance monitoring indicators, this allows for a proper valuation of risk management efficiency (see *e.g.* Lundqvist, 2014; Beasley *et al.*, 2017;); but we had collected a large amount of external data about the industry that we were able to compare to the internal risk management so as to make an assumption on risk management and competitive advantage that we present in our results in the Sixth Chapter.

Table 16: Synthesis of Resource Criteria

Dimension	Formal aspects	Informal aspects
1. Additional: RC as outcome for competitive advantage	Contribution of formal vs informal to add value to organization from RC.	

V.1.2 We must take the organization into account

The literature on risk culture helped us to identify some research criteria, as summarized in the Third Chapter (III.3). The following propositions are based on the information that we already mentioned in the Third Chapter and we explain how we used the criteria to advance our study in the field.

In order to understand the structure and behaviours that are related to risk culture we have decided to consider Distribution of Power, Risk governance, Communication, Role of social capital and actor's role and resource allocation.

- **Distribution of Power**

We can gather information about power in different ways. For the formal, it is easy to ask for and consult organizational diagrams that design the structure of hierarchical power. The tone from the top will be a designed document that is supposed to indicate how to escalate responsibility. Specifically for risk culture, we can also analyse diagrams related to risk functions (risk department etc...). In addition to the visual outline that is represented through diagrams we will also consider organizational rules that can indicate who is responsible and who has the power to make decisions. All that information helps us to understand the risk control and formal structure in the organization. We will understand if the power is centralized or decentralized and therefore identify the space for the action or control.

We also rely on the observation of natural human behaviours in day-to-day business life. This is how we will be able to observe the creation and distribution of informal power. We will take advantage of the embeddedness into the fieldwork to circulate and exchange with internal stakeholders. In terms of structure, there can also be informal control and groups that have power that is not written on paper.

- **Rewiring Risk Governance**

We have already introduced risk governance as an important element used to build risk culture. It is also a part of the structure we presented through the Three Lines of Defence model in the Second Chapter, which shows the way the organization allocates risk authority. To demonstrate how formal power is distributed within Governance to effectively manage risks, we propose interviews with the senior management teams and decision makers at the top. Their testimony on risk and risk management will become the starting point in creating a picture of risk

governance. The interviews are completed by documents such as politics and policies that outline the idea of risk governance.

For the informal part we will use our observations in the field and human interactions at the top.

The following table offers a synopsis of key aspects that we will develop in order to analyse the structure of risk management and of risk culture.

Table 17: Synthesis of Operationalisation of structure criteria

Dimension	Sub-dimension	Formal aspects	Informal aspects
2. Structure	Distribution of risk power	-Strategic tone from the top -Form of the control and procedures about RM -Materialities	-Social control, peer control, incentives
	Risk Governance	-Level of risk-taking and alignment with organization strategy -Allocation of authority	-Involvement of collective and interactions -Balance between control and actors' initiatives.

- **Communication**

Our definition of formal and informal communication is given in the Third Chapter. Specifically, we would like to examine the notion of information rapidity as a part of formal design and informal flows. Communication is about information, and we would like to know the formal channels of communication, and also consider the pace and rapidity in comparison to informal communication. Once the information escalates to the appropriate position, it is possible that the situation in question has already evolved. We are going to attempt to observe the escalation of information, by this we mean who is going to contact and connect with whom and what kind of information is going to be reported in relation to risk. In addition to those aspects, we will try to determine what kind of information is communicated about risk and what people's reactions are and what they are discussing about risk in an unofficial manner.

Organizational charts can give an idea of where and to whom the information has to be addressed, but in the human organization there will also be an emergence of informal communication that we call open communication.

Table 18: Synthesis of Operationalisation of communication criteria

Dimension	Formal aspects	Informal aspects
3. Communication	-Formalized flow of information -Official role Risk functions -Information raising from Risk Management	-Unplanned communication, no prescribed information/ exchanges. -Open Communication through observations related to risk management (meetings, groups, workshops...), that is not prescribed.

- **Role of social capital and actor's role**

Following on from the previous chapters, specifically the sections on formal and informal aspects (Third Chapter), we can consider organizational actors to be a crucial part of risk culture. From the formal point of view, the place of humans and of social capital can be perceived through the description of responsibilities in risk management role and responsibilities of individuals towards risk. If the company possesses such documents, we will base our analysis on those. These descriptions may also most likely indicate how to translate the knowledge about the risk and how to be accountable. These formal aspects can be found in internal documents and communication.

Besides prescribed roles, individuals also have some understanding of risk and can interpret it in their own way. Therefore, the perception of risk can vary, especially on different levels, but also according to cultural differences. Also related to the perception is the level of awareness of and knowledge about risk and risk management. The informal aspects will be observed during meetings, conversations or observations. We also plan to ask how people work and coordinate informally and how they apply risk management in their day-to day business.

Table 19: Synthesis of Social Capital Criteria

Dimension	Formal aspects	Informal aspects
4. Role of social capital	-Prescribed role & Responsibility -Official setting to develop risk knowledge	-Risk understanding, interpretation and practice -Knowledge and Awareness related to the activities surrounding information on risks

- **Resource allocation**

We present here an additional criterion that is not in the Third Chapter. Our fieldwork revealed that the allocation of resources to risk culture appears to be an important aspect that can create a better understanding of risk culture and increase the focus of the organization on risk culture. Therefore, we have decided to include this aspect in our research. We verify what formal resource allocation takes the shape of budgetary, human or material resources that are supplied by the company to create risk culture. To do so we focus on what attention is attributed to risk management from the top level and what importance risk management has for them within the company.

As a result of that, we also expect to see some concrete outcome of this resource allocation and its impact on practices and behaviours. For instance, if a company decides to allocate a specific amount of financial resources to some training, we would like to know if individuals are more committed to the training development and training tasks than to any other training with different resource allocation. In order to observe that we found two similar programmes or risk assessments to observe.

Table 20: Synthesis of Resource Criteria

Dimension	Formal aspects	Informal aspects
5. Resource Allocation	-Prescribed role & Responsibility -Allocation of material resources and of time to risk management activities	-Way that the allocation of resources influences behaviours

V.1.3 We must take the management into account

We consider manageability of risk culture as an issue that requires more precision. We have therefore decided to look at it through the lens of risk management practices that may have the formal purpose of auditability and control as well as the informal form of collective strategies.

- **Manageability and practices**

In the study of structure, we focus on risk governance, but the part on management will help to answer the question about risk culture manageability and at the same time to focus on the risk management practitioners. The role of risk management can be formally prescribed in the activity descriptions that also indicate to whom they have to report. We also would like to ask those we will interview how they interpret their role in practice. Managerial characteristics and traits can also have an influence on the dynamic of their role. If we have the opportunity, we will classify different managerial characteristics that we are going to encounter and collaborate with. The observation of different practices across the company and within different contexts could help us identify behavioural differences in the management.

The aspect of risk manageability will be studied through the coordination system. Coordination can have a more formal or an ad hoc character, as we will observe directly during our fieldwork. In addition to that, our interviews are focus on decision maker levels. Therefore, we are going to ask how they coordinate with their team and their peers in real time actions.

Table 21: Synthesis of Manageability Criteria

Dimension	Formal aspects	Informal aspects
6.Manageability	-Hierarchy & Linkage to risk management in managerial work by « prescription » -Formal coordination	-Interpretation of risk management in practice -Individuals traits about risk management practitioners Informal coordination -Real time actions

We must take the management into account...

- What mental image do top managers and senior managers have of the organization?

For the research criteria that define our level of analysis, we identified an organization represented by its risk governance: **corporate top level** is defined as strategic and we then interconnect it with **senior management levels**. These are the two pillars that we consider in order to be able to outline the core of the risk culture while we study the organization.

Of course, the people who are at organizational levels below these two also play a role in the emergence, modeling and evolution of the risk culture. We will limit ourselves to the two top levels because they may have the highest influence, and also simply for reasons of feasibility.

The Table 22 below summarizes all of our operational criteria:

Table 22: Summary of operationalisation criteria

Dimension	Sub-dimension	Formal aspects	Informal aspects
1. Additional: RC as outcome for competitive advantage		Contribution of formal organization from RC.	vs. informal to add value to
2. Structure	Distribution of risk power	-Strategic tone from the top -Form of the control and procedures about RM -Materialities	Social control, peer control, incentives
	Risk Governance	-Level of risk-taking and alignment with organization strategy -Allocation of authority	-Involvement of collective and interactions -Balance between control and actors' initiatives.
3. Communication		-Formalized flow of information -Official role Risk functions -Information arising from Risk Management	-Unplanned communication, not prescribed information/exchanges about - Open Communication through observations related to risk management (meetings, groups, workshops...), that is not prescribed
4. Role of social capital		-Prescribed role & Responsibility -Official setting to develop risk knowledge	-Risk-understanding, interpretation and practice -Knowledge and Awareness related to the activities surrounding information on risks
5. Resource Allocation		-Prescribed role & Responsibility -Allocation of material resources and of time to risk management activities	-Ways that the allocation of resources influences behaviours

6.Manageability	<ul style="list-style-type: none"> -Hierarchy & Linkage to risk management in managerial work by « prescription » -Formal coordination 	<ul style="list-style-type: none"> -Interpretation of risk management in practice -Individuals traits about risk management practitioners Informal coordination -Real time actions
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Author: Marketa Janickova

V.2 Data collection

During our fieldwork we had open access to primary and secondary information. This section will present details that outline our integration into and our mission in the company.⁷⁹

We would define our position as very versatile and evolving according to the opportunities that arose during the evolution of our fieldwork. The organization, specifically the leadership team, welcomed us as a result of our interest in their company and the fact that we proactively sought them out to discuss our research. As a result of our efforts, and because we clearly defined our expectations with the organization before beginning our fieldwork, they consented to allow us to integrate with the risk department team. We are convinced that our research was not skewed by any bias as our work was not remunerated in any way, and the only return that was asked for was to share our research and findings and to consult our results. We did not have any restriction with regards to access to organizational data or people, which allowed us to take our fieldwork in any direction the research pointed us. We could circulate within the organization with the access card that gave us access to all levels. When we were going to see an executive, we were welcomed by an assistant that announced our presence. Those meetings were usually agreed in advance through an email exchange with the assistant of the specific person. For other levels, we could contact the person by email or by phone and then have an organized interview or informal exchange. At the same time, we were able to freely communicate, without planning in advance, with people on the same floor and in the same unit. We were welcomed in various departments, and our original department considered us as part of the team even if

⁷⁹ We would like to thank Profesor Romelaer for proposing the idea of adding a note on the influences/restrictions guiding our fieldwork.

we always maintained the position of an external researcher. We were invited to all events (such as lunches) organized by this department. We were told that it was unusual to have a researcher within the company, which explains why people were usually both curious about our work and excited to talk to us.

I have never met any intern before; it is very unusual in this company. I think you are the second person I have met within two years. (Informal discussion before Interview, Interview 1; 1.6.2016)

Thus, we can classify that internal influences on our research were positive, including easy access to information and an open field to have formal and informal discussions with people in the company. People were very welcoming, and we rarely encountered a situation in which we were not able to make our observations or refine on interviews (see primary qualitative data).

Table 23: Process of Construction Case Studies

The Process of Construction Case Studies		Application to fieldwork
Step1	<p><i>Assemble the raw case data.</i> This data consists of all the information collected about the person or programme for which a study is to be written... « <i>The starting point for case analysis, then, is making sure that the information for each case is as complete as possible</i> » (Patton, 1990, p.384).</p>	<p>We have recorded (written or voice) every information related to organizational change or risk management, as well as our methodological notes to the <i>FIELDWORK</i> folder. We also created another folder <i>RESEARCH</i> with our interviews, transcription and interview guide evolution. This had to be done through two longitudinal stages of fieldwork during which we were able to collect additional information during the second stage. (see process model in Chapter IV).</p>
Step 2	<p><i>Construct a case record.</i> This is a condensation of the raw case data, organizing, classifying, and editing the raw case data into a manageable and accessible package.</p>	<p>We have organized our collected data into the groups according to our operational model. We have data from different periods of time and related generic topics of our research on RC.</p>
Step 3	<p><i>Write a case study narrative</i> The case study is a readable, descriptive picture of a person or programme making accessible to the reader all the information necessary to understand that person or programme. The case study is presented either chronologically or thematically (sometimes both). The case study presents a holistic portrait of a person or programme.</p>	<p>We have developed themes related to the evolutions over time.</p>

Source: Adapted from Patton, 1990, p.388, applied to our case study

We combine multiple data sources in order to demonstrate the richness (Eisenhardt & Graebner, 2007) of the formal and informal internal systems related to Enterprise Risk Management and risk culture. To make the connection with our unit of analysis (Patton, 2002) we align our sample to the intra-organizational systems and structures of risk management on multiple levels of top management. « *The (multilevel) studies also reveal interesting theoretical dynamics surrounding emergence, in which local and separate forms of interaction gradually become connected to create more integrated and institutionalized forms* » (Langley, Smallman, Tsoukas & Van de Ven, 2013, p.6). We collected data in real time following Eisenhardt's (1989) methodology employing a back-and forth between the fields and theoretical models: « *as patterns emerged, other cases were added to develop more robust theoretical concepts and causal relations. Discrepancies and agreements in the emergent theory were noted and investigated further by revisiting the data* » (Santos & Eisenhardt, 2009, p.648).

In the first stage, we spent ten and half (10,5) months (see Table 14: Total 18-month fieldwork time in Chapter IV, section IV.2), from January 2016 until December 2016, at the Headquarters of the company and worked closely with functionaries that were in charge of implementing risk management programmes, practices and training within the organization worldwide. These functions are related to Enterprise Risk Management (ERM), Global and Corporate Security, and Conformity Programmes.

We had an equipped office space, with a laptop, within one of the Integrated Management Systems functions. We had access to internal databases and the internal online network, our own internal email address and a security access card that gave us access to the entire building. Our work with different teams represented involvement with their day-to-day activities and regular meetings, such as for instance weekly reports with the entire team or team updates on the evolution of the BR programme or other programmes ongoing. Thus, we were at the company's offices even if there were no meetings. This allowed us to be close to potential and unexpected opportunities such as:

Fieldwork notes: February 9, 2016

(Person Y) proposed that I come to see the annual executive meetings that were held in (other building). We were going during the lunch hour to support (Team Y2) and help with organization. (Person Y) explained that this meeting is to be attended by all people in leading positions, from the top echelon of various sectors, geographical and functional responsibilities and they are having a briefing on annual strategy (...)

During our fieldwork (in 2016) we regularly reported⁸⁰ to the Executive Vice President (EVP) in charge of Management System⁸¹ functions (including security and corporate risk management). We had a standing 30-minute meeting every two weeks. These exchanges were an important part of the evolution of the research as well as informing the reports we prepared, which became apparent upon later review. The concept of risk culture was particularly present in our discussions and reports as early as March 2016, and these ongoing discussions helped to determine our choice of case study. At this time, we presented the first outline of our model including risk culture dimensions (See Appendix 2C: Extract of risk culture dimensions that we developed). This helped us with the development of our conceptualisation of risk culture dimensions. In the same vein, but not on a regular schedule, we had meetings with managers and directors in charge of the programmes: Business Resilience Programme, Conformity Risk Assessment and Risk Assessment workshops.⁸² (The Agenda with our meeting is in Appendix 3C).

Having an office at the Headquarters provided us with the opportunity to attend a variety of meetings and directly observe informal interaction in the day-to-day organizational life. We were also able to closely follow risk management operationalisation as well as the practices described in more detail in section V.2.1: Primary Qualitative data.

V.2.1 Primary Qualitative data

Yin (2003) outlines six⁸³ of the most current sources of evidence that contributed to our case study construction and its quality. We mobilised different sources of evidence in order to

⁸⁰ We would like to specify that we are not liable to the company in any way, such as any financial outcome resulting from our work, and our research was done in an independent manner. The only condition was the negotiation and signing of the confidentiality agreement. The agreement mentioned that we will have access to the internal world of the company and to company documents, and that we will be free for the fieldwork research that would culminate in a published thesis. In exchange, we offered to present ongoing research and results in periodic meetings with the Executive Vice President (8 meeting on updates on our fieldwork), and occasional meetings with the Risk Corporate Management (6 meetings related to our thesis during our research) and 3 meetings with the President.

⁸¹ The exact name is disguised.

⁸² Exact names are disguised.

⁸³ Documentation, Archival records, Interviews, Direct observation, Participant-observation, Physical artifacts.

triangulate different sources of information. In the following sections, we describe the sources that are complementary to the study of our case.

V.2.1.a *Semi-directed centered interviews*

« One of the main differences between normal conversations and interviews is that the interviewer guides conversation in an interview, not only in terms of the questions asked and the flow of the topics, but also in terms of the emotional tone and intensity of the interaction. » (Rubin & Rubin, 1995, p.129)

In addition to formally organized assessments and programmes we conducted semi-directed interviews (Romelaer, 2005). Interviews were arranged in advance and we approached our sample in three ways: (1) meeting during a risk workshop and our face to face (or online) presentation; (2) Email contact and introduction on the basis of the list of contacts related to risk positions or suggestion of president positions; (3) By a third party. The proportion of each of these approaches is as follows:

- 56.5% (26) First introduction during an event / meeting / workshop
- 30.5 % (14) Email contact / introduction
- 13% (6) By a third party (Finance, communication, legal...)

We have made two main modifications to our interview guides, the description can be found in Table 24: Stage of guide evolution in 2016.

- **Interviewees sampling**

As we described previously (Chapter V, section V.2.2 on the « Research model: levels » and Chapter IV, section IV.1.2 on « Single Case study »), our study is focused at the level of the organization's headquarters and leadership. By definition, one's research level represents the angle and target which the study is designed to answer (Grawitz, 1996). Further to Grawitz (1996), the level of study represents a dynamic notion and interface between levels that are an important area of study and which represents a complex phenomenon. Risk culture involves human interconnections that create some level of complexity, as corresponds to Grawitz's (1996) descriptions. Thus, the scope of our interview activities and the decision on which

individuals to interview were based on the pre-requisites we established as we developed the concept of our case study.

The primary targets for the interviews were individuals from the top management and senior management, including members of the leadership team and individuals who were responsible for specific sectors, geographical areas or functional areas. The profile of our interviewees was mainly Vice presidents, Executive Vice presidents, Presidents, CEO and also senior-range managers such as senior directors, directors of functions or projects and managers in charge of the risk management (see Table 25: List of Interviews).

Our secondary targets were candidates who have official responsibility related to risk management and are targeted by the company as « risk owners ». To facilitate the interviews, we prepared an interviewer guide as supported by Romelaer (2005).

The interview guide was related to our themes (identified in V.1), which focus essentially on informal and day-to-day practices, and individuals' representation in relation to risk management that would be difficult to gather in formal documents.

- Competitive advantage: we were asking for opinions on where the company stands among their competitors in terms of risk management, and if they think that they have something specific in place in terms of risk management
- Structure: we were asking how they laterally and horizontally interact with their teams, superiors and peers
- Communication: we were asking how they communicate together
- Role of social capital: we were interested in practical examples of risk management and how people were involved
- Resource allocation: We asked about how the capacity to manage risks is acquired, and what has to be allocated and be in place
- Manageability: we were asking for a description of their roles in relation to RM and how they manage risk within their functions. We asked how they interact with people.

These questions also lead us to discover new variables that add more granularity to our themes. We discovered most of the variables related to informal manageability and multiple sorts of informal coordination enrich our results. In addition to that, we developed our part on manageability using the concept of soft management.

We were surprised at how much directors and the leadership level operate on an informal basis with their teams, but that is in direct opposition to the rest of the organization that has to follow very tight formal procedures. In addition to these things, we were asking for more explanations and concrete examples.

- **Conducting interviews**

Before every interview we contacted the intended interviewee via email and sent him/her a one- page introduction outlining our research (Appendix 5P: Introduction to Interview). In the case of the individuals that were selected from the Risk Assessment Workshop, we introduced ourselves during the workshop and asked permission to contact them at a later date to set up an interview. We would agree on a date that was convenient for both parties as well as the time and location. All interviews related to the company were conducted in the interviewee's office, in an interview office or in a conference room.

Rubin & Rubin (1995) emphasize that, at the beginning of an interview, the interviewer should create a comfortable, discussion-oriented atmosphere in which the interviewer draws out information via a long interview process while interacting with the interviewee. Beyond that, it is about understanding people, and following our experience, we believe that qualitative research -and especially the interview process- is facilitated by emotional intelligence. People generally like to talk and share information, but they are also aware (at least at the beginning) that they are still in the context of their work environment and so take a bit of time to relax and speak more freely.

At the beginning of each interview, we introduced ourselves (if we had not previously met the interviewee), confirmed the duration of the interview, and we briefly explained the background of our thesis. For corporate-level interviewees we requested at least 30 minutes of their time. In the event that they were not available for the requested time frame we agreed to re-contact the person and perform the interview in two parts. We also informed participants about ethical and confidential considerations and we asked for authorization to record the interview. Each interviewee had full freedom to decide whether or not the interview could be recorded and whether or not it could be used as part of our thesis. Among all the interviewees, only one person refused this option: the interview was done via an online calling application and the person asked that the call not be recorded. This individual did, however, agree to allow us to use the information for our thesis. For this interview we made notes and highlighted keywords.

Fifth Chapter: Research Methods

In order to elicit a definition of risk culture and known day-to-day risk management (RM), we asked indirect questions. We did not directly ask the subject for a definition because that would be, as noted in Romelaer (2005), a representation of what the person believed rather than how it was in reality. So we oriented our questions towards company practices and asked for examples of these.

Our Interviewer Guide is based on different sections of our research such as Role & Responsibility related to RM, Formal Procedures and Coordination with the team, Perception of Risk Culture, Organizational Change.

The Interview Guide was systematically retailored throughout the fieldwork phase (Appendix 4C with different interview guide versions).

Table 24: Stages of guide evolution in 2016

Stage of guide evolution in 2016, (see extracts in Appendix 4C)	
Phase 1 February-March 2016	Programme (1 st guide): Work on Business Resiliency Programme (BR). ⁸⁴ We include in our guide questions related to the BR and its roll-out.
Phase 2 April –June 2016	Risk Management (2 nd guide + modified specific corporate guide) Focus on information, formal and informal practices
Phase 3 August – October 2017	Maintaining 2 nd guide and including interviewees related to Conformity workshops
Author: Marketa Janickova	

The Following table summarizes our interviews:

Table 25:List of Interviews

List of interviews				
PRIOR GUIDE (include business resiliency question)	Position	Date	Mode	Time
Phase one Interview 1	Regional Director	3.2.2016	by lync	93min
Phase one Interview 2	Regional Director	17.2.2016	face to face	36min21
Phase one Interview 3	Senior Vice president	24.2.2016	phone call	52min35
Phase one Interview 4	Vice president	29.2.2016	by lync	47min39
Phase one Interview 5	Director	29.2.2016	by lync	38min 45
Phase one Interview 6	Managing Director	3.3.2016	by lync	54min35
Phase one Interview 7	General manager	3.3.2016	by lync	no wish recorded
Phase one Interview 8	Risk manager	9.3.2016	face to face	95min
Phase one Interview 9	Senior Vice President	29.3.2016	by lync	45min53
Phase one Interview 10	Senior Executive	30.3.2016	by lync	30min21
Reviewed – Final guide	Position			
Interview 1	Executive Vice President	1.6. 2016 & 4.11.2016	face to face	61min58 + 30min21
Interview 2	Executive Vice President	2.6 & 5.10. 2016	face to face	18min22+21min33

⁸⁴ We do not mention the real name of the programme in order to avoid company identification.

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Interview 3	President	6.6.2016	face to face	51min07
Interview 4	Chief compliance officer	15.6.2016	face to face	56min07
Interview 5	Senior Director	9.6.2016	face to face	24min49
Interview 6	Senior Vice President (SVP)	14.6.2016	face to face	42min56
Interview 7	Senior Vice President (SVP)	14.6.2016	face to face	60min14
Interview 8	Executive Vice President	14.6.2016	face to face	38min35
Interview 9	Director, Corporate risk Manager	22.6.2016	face to face	40min50
Interview 10	Senior Vice President (SVP)	22.6.2016	face to face	53min52
Interview 11	Executive Vice President	10.8.2016	face to face	39min20
Interview 12	Risk Manager	12.8.2016	face to face	47min43
Interview 13	Executive President	25.8.2016	face to face	56min10
Interview 14	President	7.9. & 2.12.2016	face to face	26min59 + 23min26
Interview 15	Executive Vice President	13.9.2016	face to face	62min
Interview 16	Senior Vice President	16.9.2016	face to face	40min44
Interview 17	Executive President	16.9. & 24.11.2016	face to face	19min18+33min37
Interview 18	Executive Vice President	20.9.2016	face to face	
Interview 19	Vice President	22.9.2016	call- No possible to record	43min
Interview 20	Vice-president	23.9.2016	by lync	27min58
Interview 21	Vice President	29.9.2016	by lync	54min42
Interview 22	Sector Compliance Officer	30.9.2016	by lync	47min16
Interview 23	Vice President	4.10.2016	by lync	31min
Interview 24	Vice President	4.10.2016	by lync	38min18
Interview 25	Senior Vice President	7.10. & 18.10.2016	face to face	32min31+ 29min15
Interview 26	Vice President	13.10.2016	face to face	28min22
Interview 27	Vice President	14.10.2016	face to face	33min08
Interview 28	Vice President	19.10.2016	face to face	37min17
Interview 29	President Sector and Executive Committee	8.11.2016	by phone	27min10
Interview 30	President	8.11.2016	by lync	39min27
Interview 31	Director function	8.11.2016	by lync	36min34
Interview 32	Director function	18.11.2016	by lync	52min
Interview 33	Senior Vice President	18.11.2016	by lync	21min12
Interview 34	Director function	22.11.2016	face to face	57min44
Interview 35	Senior Vice President	23.11.2016	face to face	34min23
Interview 36	Vice president	15.8.2017	face to face	24min40

We took into consideration individual bias (Hoskisson *et al.*, 2017) while asking people to reflect on the past and compare it to the new changed environment (Gephart *et al.*, 2009; Meidell & Kaarboe, 2017). We are aware that human cognition and relationship to the retrospection may be limited. In order to reduce this bias, we triangulated information. Fortunately, we also possess enough retrospective date in order to validate the information collected. For this activity, our knowledge and previous studies on the organizational crisis were helpful tools.

All the interviews were conducted in English or in French language. In the quotes we will always use the English language. For the interviews in French we will not give the original French version to better prevent identification of respondents (the translation was verified by our thesis advisor).

V.2.1.b Direct observations and archival records

« *While tables, quotes, and additional exemplars may enhance, they cannot substitute for a powerful story.* » (Jarzabkowski *et al.*, 2014, p. 284)

Our interview is enriched by extracts from our observations. We observed organizational life at the corporate level for a span of 16 months. We carefully documented every day spent in the organization for our field work.

Over the course of 2016, we passed through different stages and followed multiple types of activities organized by the company and its various departments and units: risk workshops, risk assessment exercises, trainings, programmes and routines. In the following section, we provide a few examples of internal development related to risk management. These are the projects that we are aware of and in which we were directly or indirectly involved. However, we cannot say how many changes, programmes and practices are running in addition to these.

- Business Resiliency Programme (BR): Originally, we were assigned to the BR implementation. For two months we contributed to the preliminary stage of the programme (preparation and revision) and to the first stage of diffusion to a targeted public of regional leaders through trainings and presentations.
- During our 2016 fieldwork, the company was running a mandatory online Conformity training. Ninety-nine percent of employees completed the training.⁸⁵ The scope of the training was extended and when we returned to the organization in 2017 we were asked to complete the online training that was required of all individuals new to the company.⁸⁶ At this time we noticed that employees who had completed the mandatory training⁸⁷ had printed their certificates and posted them on their office doors. For example, each member of the Executive team posted his/her certificate of successful completion on his/her office door.

⁸⁵ The number 99% was presented by the Chief Executive Officer during the Annual General Meeting. We cannot give more details on that training because our access to that training was restricted due to our status being considered to be equivalent to that of a non-permanent employee.

⁸⁶We detected a connectivity error here which we reported to Human Resources. We were in touch with an IT operator in order to obtain access, however access was never achieved despite repeated efforts to correct this via various intermediaries. In fact, this failure revealed some lack of coordination between services and instructions.

⁸⁷ We cannot specify for what sort of Ethics & Compliance training the certificate was delivered.

- Another form of E&C training targeted managers that were directly related to operations. We were allowed to take part in the Conformity Training for managers who worked at the corporate headquarters.
- We were invited to observe the Travel Security Programme that was undergoing changes due to the new mergers and acquisitions.

Fieldwork notes: March 29th, 2016:

(Person Y) explained to us the objectives of the new programme called Travel.⁸⁸ Person explained the challenges and complexities of this programme that are (...)

This is necessary because the company has decided establish consistency and also has some level of control over recently acquire units regarding their travel expenses and security.

- Company had existing communities of practices but most of them were silos, oriented to specific function members. The existing practices were diffused through internal networks with very similar-looking patterns, but were established on the basis of voluntary participation, which later changed to mandatory training. Risk management did not have the same network of silos as other departments in the company during our fieldwork in 2016. The community was in fact very restricted and small when we were initially present in the company. Instead of an online community of practice, RM had what was called Knowledge Network, with a very restricted number of members, onto which different kinds of information were loaded, for example a manual related to risk management. However, in 2017, due to a corporate request, RM had to develop a community of practice based on the company pattern and to transfer its current database to that platform. We were in charge of the nascent stages of the transition between these two tools. We selected the documentation to be transferred from one tool to the other, as well as create the online group and list of topics for the community. These tasks were carried out in close collaboration with the Vice President of Corporate Risk.
- Peer Review Process: In 2016, we were invited to visit one project site that was targeted for risk peer review, but we were only able to attend the preliminary stage prior to the review. However, in the second part of our fieldwork we were involved in the development of the flowchart that was to be used as part of the peer risk review process. Parallel to that, there was also an IT programme being developed by the company that

⁸⁸ This is not the real name of the programme.

was to be used to assess risk on every project instead of using individual Excel spreadsheets. We were assigned to be the Corporate Risk representative to work with IT development, this IT development doing programme testing and developing a manual for future users.

- Unification⁸⁹ Programme 2017: The company allocates resources to one large general programme that brings together all organizational function and units. We were not directly part of this programme, but we had the opportunity to meet with the managing director and different programme actors who presented to us the content and gave us a power point (PPT) file to support our research.
- Risk Management Trainings: Each year, Corporate Risk Management organized different types of training. In February 2016 trainings focusing on Risk Management Tools were held. We were not present at this training, but we had access to the PPT presentation. In 2017 the same unit organised trainings for internal risk managers. Presentations were held in two parts, in two large cities. We attended a one-day presentation in this training. (see certificate in Appendix 5C with confidential content).
- We were also invited to observe the first Security training, called an Exercise,⁹⁰ in November 2015, and virtually sat in on an Exercise in December 2015 targeting the handling of emergencies in an extreme-risk country setting.

On a regular basis, we were involved in activities and targeted meetings and programmes related to risk culture:⁹¹ Risk Reviews, Risk Practices, Risk Assessments Workshops, Business Resiliency Programme, different types of Risk meetings, and so on. These activities were followed through observation protocols that change over time from open observation to a more specific observation guide (see stages below).

At the beginning of each activity, we requested and obtained permission from the appropriate Director or President under whose responsibilities the activities fell. Before each meeting, we confirmed our participation with the workshop/ meeting leaders and it fell to them to introduce us and explain our participation in the meeting.

⁸⁹ This is not the real name of the programme, but since its deployment is still ongoing we prefer not to give more details.

⁹⁰ This is not the real name of the exercise.

⁹¹ All real names were disguised.

Table 26: Primary data

Primary data from January to December 2016		
Description	Quantity	Purpose for analysis
Risk Assessment Workshops (btw 1,5-2,5 hours each)	10 workshops	Informal interaction, coordination mechanisms, formal process
Ethics and Compliance Risk Assessment Workshops (on average 3 hours each)	14 workshops	Different styles of group interaction (according to the workshop animator)
Interviews mainly with Leadership team, VPs, SVP, Sector Officers, Directors, Managers	Explanatory: 4 interviews	Formal and informal rules, practices, procedures in risk management related to their work, roles and responsibilities
	Phase 1: 10 interviews	
	Phase 2: 41 ⁹² interviews	
Report meetings, coordination meetings and observations of formation related to the risk management, Ethics & Compliance, Global Security (duration over 1 hour)	+ 42 meetings	Informal and unofficial exchanges
Report and discussion with Executive Vice President Integrated Management systems	1-2 meetings/month	Interactive co-development of the knowledge, practices and framework
Business Resiliency programme assistance (Business Unit Directors Trainings)	Duration: 1.5 months	Application for the formal request and interpretation of the programme, Formal procedures to apply
Site project visit (site visited 3 times)	1 site	Risk management practices in the field and on the operational level
Observation on Business Resiliency and Recovery Programme Table Top Exercise (2 hours each)	2 exercises	Simulation of emergency, informal and formal behaviours in a non-natural environment.
Working day notes (1/2 page on average per day)	+250 pages of notes	Back-and-forth in between field, practices, theories and concepts

⁹² In the Second Phase we interviewed 36 individuals and of this group five were interviewed twice.

Table 27: Primary data from May to September 2017

Major fieldwork involvements from May to September 2017		
Type of involvement	Duration/frequency	Note
Reports	2-3 times per month	To Corporate Risk Management
New project workshops	1	Discussion about the R-A formula at the beginning of fieldwork 2017
Knowledge network – Community of practice	3 months	From May to July
Integrity check process	2 weeks in May	
Peer review process chart and transition to project management IT tool	3 months	From June to August
Risk Management Awareness Training Programme	1 time	Date: 16.8. Duration 4.5 hours
Risk Assessment workshops	3 times	See calendar in Appendix

In order to be able to correctly use our notes from observations and reports we have applied different approaches from the Ann Langley qualitative methods classes that we attended in the summer of 2016. We can divide our observations into different stages and categories.

- Before the summer of 2016, we participated in meetings related to the Business Resiliency and Recovery Programme. We made notes related to thoughts about risk management and also information that was new to us in terms of practices and processes or planning.
- In the period of risk assessment observation, between the summer and fall of 2016 and in the summer of 2017, we first became familiar with formal procedures including risk assessment and workshops and we were able to observe some informal practices and other routines related to risk management and risk culture. At the beginning, we were not sure what kind of information we would be able to gather during our observations. Our first observations were made with only a limited knowledge of the internal functioning and we were following our instincts based on previous reading and our research experience from our Master’s study. At this stage we were open to new ideas and formulations.
- Once we were more comfortable with the risk culture component and the formula of the workshops, we were able to formulate categories and make our observations using a grid based on these items. (see Appendix 6C: Extracts of observations notes). Despite

having that guide we were still open to identifying terms arising from the discussions. We also noted the seating placement and attributed each person a number as suggested by Langley (2016),⁹³ in order to better structure our notes. (Also in our research limitations in Chapter IX, section IX.2.1 we describe some drawbacks related to the method of observation we adopted)

- We also observed Ethics & Compliance Risk Assessment workshops using the same format we had used in the preceding risk management workshops. Thus, we were able to develop more quickly the most efficient method for taking notes. Workshops took place in different regions according to the teams' geographic location. We had access to these conversations online. Due to different time zones we ended up attending some late-night and early-morning workshops. (See full calendar and extract of risk assessment templates in Appendices 7C and 8C)

In general, we were very well accepted in all of the risk management workshops with one exception where the participant who was conducting the risk assessment for his/her function asked that we not be present in the room in order to maintain confidentiality of information.

Even though we rigorously documented data stemming from our observations, during data analysis we were confronted with its inherent informality. We can use the description from Miles⁹⁴ (in Van Maanen, 1979, p.124): « *We also learned that much analysis was going on in the mind of the fieldworker.* »

V.2.1.c Ethical & Confidentiality considerations

Ethical values are the key aspects that guided our research. We were conscious of the risks that may arise, especially during the primary and secondary data collection inside of the organization. The empirical research was conducted in one private company, and we had access to internal data and people. We signed a confidentiality agreement and we agreed on terms for the publication of our thesis (see Appendix 4P).

⁹³ Qualitative Methods Classes, HEC Montréal, summer 2016.

⁹⁴ The name of the chapter is: Qualitative Data as an Attractive Nuisance: The Problem of Analysis.

Fifth Chapter: Research Methods

Some of the documents targeting risk management were identified as being for internal use only, and thus in our analysis we only use the sections useful to our research on risk culture, and we take all precautions not to reveal confidential information.

Other important precautions were taken for the interviews, such as « *personal and ethical obligations to the people you are studying* » (Rubin & Rubin, 1995, p.93). We protected their identity as much as possible by coding the names and their position in the organization. In addition, all records will be destroyed as soon as the thesis is validated and closed. To facilitate this, our records are saved on an external device and disconnected from the list of codes and names. That is also the reason for the fast transcription that we mentioned.

For the interviews we were extremely transparent with our interviewees to ensure that they were aware of the final use of the data we were collecting. We introduced our objectives and the purpose of our research at the beginning of each interview. Every person was given the opportunity to agree or refuse to have the interview recorded and no one was forced to agree. From all of our interviews, only one person refused to be recorded and only one person did not agree to meet us for an interview. Finally, we offered to sign a confidentiality agreement with each interviewee, but none deemed it necessary. The assurance of confidentiality was guaranteed mainly by the agreement that we signed with the organization regarding data usage. This agreement allowed us more time to access internal data for purely academic, non-profit research.

To decide how best to conceal the identity of the company and ensure its confidentiality, we had lengthy discussions with the department to which we were assigned. We discussed using the company name and the publication of information collected while at the company. We agreed that the version presented for the defence of our thesis may contain appendices and any information that is required for the defence. However, the final published thesis that will be available to the public shall not reveal any sensitive information or the name of the company. The published document that will be available to the public will include « Appendices with public content⁹⁵ » and « Appendices with a confidential content⁹⁶ » will be in a separate document that will be transmitted only to the jury members.

⁹⁵ Indicated with letter P

⁹⁶ Indicated with letter C

V.2.2 Secondary data

For the secondary data, we had access to the internal website and network created for internal communication, official documents and publications as well as documents in development. We regularly read updates related to the risk programmes and also analysed Standard Operating procedures that constituted the formal organizational rules.

We had access to internal sources of information (documents from meetings, intranet communications and information, organizational standards and formal procedure documents, etc...).

Table 28: Internal Secondary Data

Key secondary data from January to December 2016			
Internal (Functions)	Formal procedures	Quantity	Purpose for analysis
Investment		1	Formal design, structure and governance standards, procedures and hierarchical rules
Communication and marketing		4	
Conformity		9	
Finance and Legal		32	
Human Resources		3	
Management Systems		29	
Legal		3	

We had access to internal networks that regularly updated and communicated information to employees. We recorded information from internal networks that was related in some way to risk and culture.

V.3 Data analysis and research validity

In this part, we explain the methods used for the coding of a large amount of data and how we processed raw data to be used at the analytic stage. We concluded the data collection phase with a total of 51 interviews, including five interviews that were in two parts in order to add and verify some information. On average, the transcriptions average 10 pages for a 30-minute interview and 18 pages for an interview in two parts. We had eight (8) blocks of hand-written observation notes on A4 sheets; between 23 and 45 pages of notes on A5 sheets; and approximately 292 pages of notes typed in a Word document. For the internal sources we saved communications related to risk management and culture and Power Point presentations from different workshops and assessments. Following the data collection, we proceeded to coding and making a thematic analysis, and in the second stage we completed the analysis and then made connections between the different groups.

The initial step of our analysis was to listen to, and transcribe our interviews as well as re-read our transcripts, observation notes and targeted documentation. While we did this, we took some informal notes when involved in any activity where we had an impression that people can perceive risk management as a tool to transfer messages and communicate or hide some issues for instance from meetings on risk assessment. In addition to that, we also focussed on people's discussions and convictions about risk management, and what is actually being done. For instance, we noticed that some stakeholders maintain that there must be increased awareness of risk and culture within the whole company, but there were those who were not communicating and interacting with their team and departments. We also partially transcribed internal audio communications, such as the annual meeting diffused internally online, which we annotated with our comments. It is this step that is used to create an *a priori* analysis and about the basis for decisions about categorization and possible relationships (Maxwell, 2005).

V.3.1 Analysis

In our research we identified some components of risk culture practices. Once the components were identified, we adopted a thematic analysis by focusing on coding data into groups of patterns. The codes were completed during our studies, however the preliminary framework

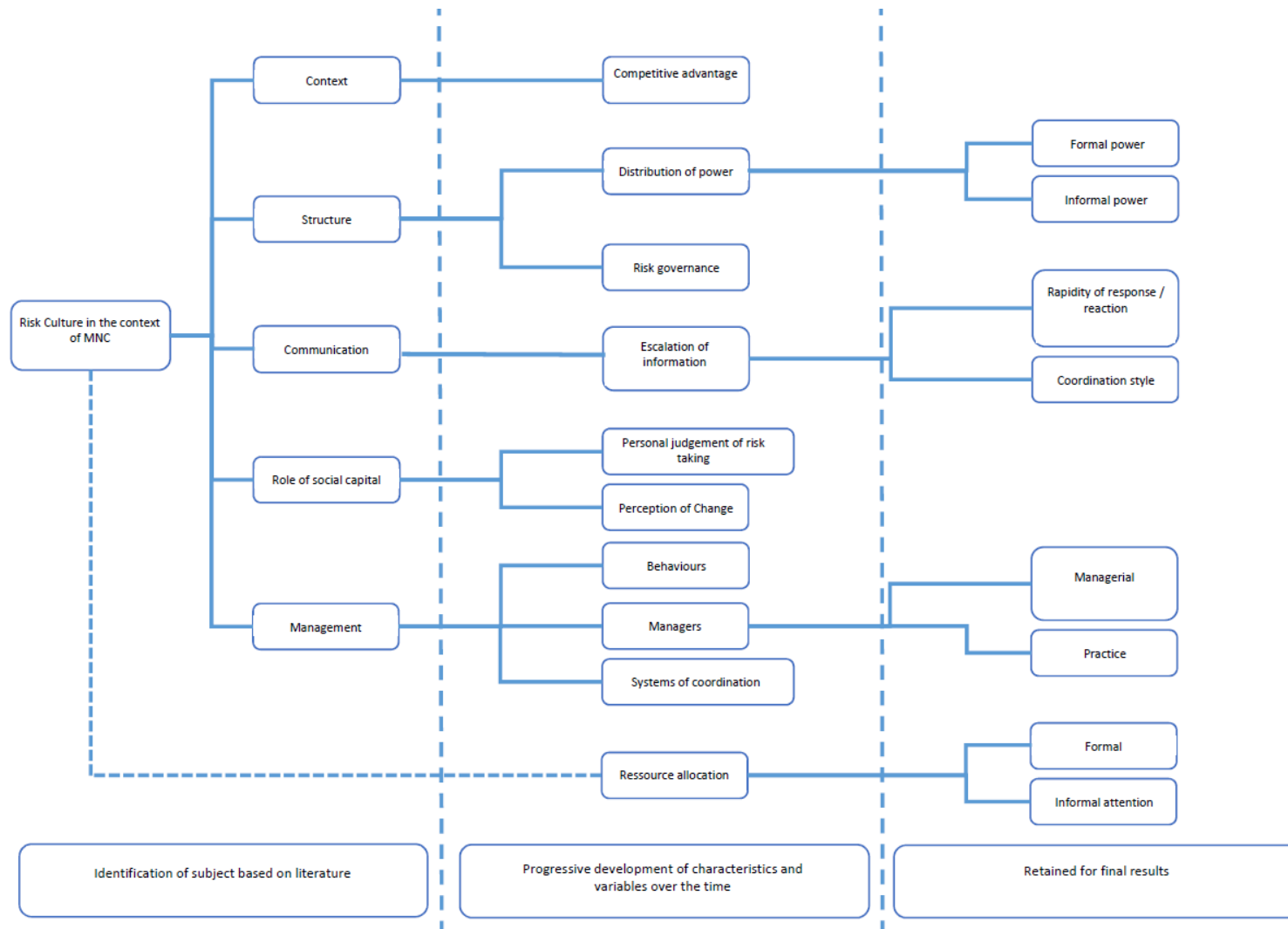
helped us to establish research boundaries. Our main groups of codes focus on risk culture as defined by the literature in different ways – thus our first objective was to find the appropriate clarification of different concepts. We analyse our findings in those groups and then create relations with the help of the NVivo program. In addition to Appendix 2C, Figure 12 below gives an overview of the evolution of different characteristics. We coded in themes and categories by starting with dimensions of each aspect.

Our thematic analysis and coding started during the transcription and reading data phases, as Patton (1990) suggests. As soon as we started to compile information we proceeded to the first stage of coding that identifies first observations on the topics and dimensions related to risk culture.

During the first stage of analysis we re-read documents that we had collected from the company. The most sensitive ones were in hard copy; i.e. the document outlining the Register with identified risks, dated 2013/2014⁹⁷. The presentation outlines all results from the risk assessments. Just by a simple observation of the classification of the risk we have no doubt that it was used in the workshops. However, we could see that it was a very subjective exercise. We could see the result as well as the assessment itself that gave us a larger picture on the whole process and the human subjectivity: Stage (1) functions / units assessment on rational basis; Stage (2) classification by third party risk management that may influence information; Stage (3) arrival to the ExCom (executive committee) and decision about further steps.

⁹⁷ For reasons of confidentiality we do not include any extracts in our thesis. Any documents and proof can be provided on demand.

Figure 11: Simplified evolution of risk culture characteristics and variables



Author: Marketa Janickova

V.3.1.a *Coding following abductive method*

« *Coding is analysis* » (Miles & Huberman, 1994, p.56)

Following our abductive approach, we started our research with large categories that outline risk culture while leaving space for new emerging categories and more detailed granulation. Following Eisenhardt (1989), we emphasize that case study analysis is often challenging due to the large amount of data collected. According to her methodology, the researcher has to explore cross-case patterns that lead to understanding and qualitative evidence of the study. And so this is how we proceeded.

Our case analysis followed the tactic of categorization, where we coupled dimensions to the categories as suggested by Eisenhardt (1989). This case study tactic requires that connections be made with collected data in order to identify convergences and divergences. We applied this logic to the formal versus informal dimension for risk culture. In addition to that, we also used Eisenhardt's (1989) strategy to divide data by sources before we analysed its reliability and interconnection on the basis of categorization. These steps helped us avoid being pressured to complete our analysis and becoming overwhelmed in the face of a large amount of data. Also, the categorization helps to better scrutinize, break data into manageable pieces, and delineate conceptual names to describe understanding. We class information according to how it is related to our subject.

In order to ensure that we do not omit any potential groups we have opted for **Open coding** that involves breaking up the data into blocks (Corbin & Strauss, 2008). In terms of classification, the information we collected represents potential conceptual properties.

We opted for **Axial coding** (Corbin & Strauss, 2008) with some pre-established categories related to formal and informal aspects, as well as organizational characteristics. This gave us preliminary guidelines that we were able to later transform into codes. For our theoretical sampling, we were also guided by previous risk culture definitions, and our codes are based on formal and informal characteristics, as described in section V.1: Operationalisation. Following the coding phase, we were able to progress to different analytical stages.

In the first stage we identified the organizational structure and management that were the starting points of the risk culture. In the second stage we set prior criteria for each element. We coded management under categories suggested in our operationalisation as indicated at the

beginning of this chapter. Furthermore, evolution of coding brought us to more granulated levels that are described in Figure 11: Simplified evolution of risk culture characteristics and variables.

Finally, we did **matrix coding**: We conducted coding queries and searched for intersections between nodes (see extracts in Appendix 9C). We used our three categories (formal, informal and manageability) and we related these to codes on risk culture listed in our table in section 1 of this chapter.

To be able to correctly analyse our data we first analysed our preliminary findings from the fieldwork and exploratory stage. Thus, for our analysis grid we began with pre-defined elements that were modified codes that emerged from the fieldwork. We applied the new codes and regularly updated our guide during our case study immersion. We started with the identification of management and structure and analysed some pre-established codes related to risk culture.

In order to undertake a continuous and regular review of our collected data we periodically scanned our transcriptions and added « marginal remarks » (Miles & Huberman, 1994). These remarks were helpful while we were coding and displaying our data.

V.3.1.b *Using NVivo as coding instrument*

In the deep analysis stage, we used the software NVivo 10 (and after its update in November 2017 we switched to version 11) that helped us to systematically code the information. We consider the use of a coding program to be almost indispensable in rich data analysis. We stand behind the fact that handmade analyses can miss methodological and consistent coding, which may lead to some data omission. Thus « *sometimes a more elaborate classification analysis than simple filing system is possible and desirable. This is particularly true of large projects where there is too much data for a single person to reasonably code, thus a more formal classification scheme must be developed (...)* » with the aid of computerised data-processing (Patton, 1990, p.383). We are not denying that some handmade coding can lead to a high-quality final result. Cusin (2008), for example, consistently reviewed coding in his thesis, which led to high quality results. In his critique on coding programs he argues that those kinds

of tools often lead the researcher to become too detached and to get lost in the text without seeing the scale of his analysis (Gilbert, 2002).

In response to that critique, we would like to clarify our use of software for qualitative data analysis. From among the variety of qualitative data software available (an example of another one is ATLAS TI) we opted for NVivo because we find it to be the most appropriate for data analysis as well as for design conception of results. Also, we would like to mention that it is not our first use of NVivo. We already used it during our Master's thesis in 2013.

For our NVivo familiarization, we used Edhlund (2007) and Bazeley (2007) as guidelines, and we followed online tutorials offered by NVivo. Please note that we did not blindly use the software without preparation or use of common sense. First, we proceeded with manual annotations of our primary data and we underlined potential codes and groups of codes with our comments in the first third of our interviews. Once we had set up the annotation and analysis routine, that ensured faster text and data marking; we proceeded to the incorporation and formatting of our data in the software and we re-did and continued our coding. We systematically readjusted and reviewed our groups of codes continuously. After that, we made connections between codes in nodes that helped us to probe deeper into research abstraction and allowed us to identify groups of risk culture practices and the relations between them.

V.3.2 Validity of the study

Following Yin (2003), we constructed our research validity by defining the concept that we studied. For our study we began with a preliminary reading of the existing literature and we outlined our research concepts around risk culture and Enterprise Risk Management. This deductive step was completed by inductive aspects coming from the field, managerial publications and existing, non-academic studies. We searched for reliability and validity through the consistency of the collected information. First of all, the selection of our case study is directly linked to our research subject. Once in the field we followed our objective to collect consistent (*cf.* Guba & Lincoln, 1985) and credible data. In the case of the interviews, we started with the appropriate choice of the respondents based on their profile and their capacity to give us detailed information on risk management. During the interviews, we followed our interviewer guide and used questions that were applicable to every person in order to obtain

consistent data for our analysis. To ensure the trustworthiness of our data, (Glesne, 2011; Guba & Lincoln, 1985) we tracked and noted every interview by notes, date, time and location. Our recorded interviews were transcribed less than one month following the interview. In the case of the secondary data, such as documentation, we chose and analysed documents that focused on our subject of risk culture (more particularly components of the culture by definition such as organizational values, symbols etc...). Those organizational documents were valid formal internal publications that framed the organizational objectives to communicate on the subject of risk management. For the analysis we followed our grid that included preliminary risk culture components, leaving space open to allow for new components. Additionally, we proceeded to data triangulation that validate informational cross relation and avoid random identification of studied aspects (Miles & Huberman, 2003).

As Maxwell (2005, p.108) mentions, a researcher has to deal with his or her « *perceptual lens* » and the issue is not to deny or eliminate it to make the research valid, but to explain and create an understanding of how the research is going to deal with the subject. Thus, in this section we explain our position regarding research, and how we avoided the possibility of research bias despite being embedded in our fieldwork, and how we maintained our research independence.

Drucker-Godard, Ehlinger & Grenier (2014, in Thietart *et al.*, 2014) set the main direction to follow in order to establish the validity of research construction. We also followed Patton's (1990, p.163) suggestion who says: « *Review of relevant literature can also help focus the study* » insofar as « *it is helpful to find how others have approached similar concerns* ».

We consulted similar works that were written by our peers that deal with similar concerns as ours. In terms of our choice of methodology, for instance, Maucuer (2013) addressed one case study of a multinational company. He studied GDF Suez – currently Engie Company. It was helpful to see his research approach. For the abductive approach, Cusin (2008) opted for a hybrid approach to go forward with his fieldwork and literature in order to leave space for new characterizations, but also established a solid theoretical background to understand commercial failure. Closer to our risk topic, Mayer (2017) also opted for abduction due to the fact that « *attention to risk* » is socially constructed.

- **Validity of the construction**

We are conscious that our research object represents multiple organizational abstractions and we find it important to describe them in order to help to establish validity. We consider the 14 types and sub-types of conceptual validity proposed by Zaltman *et al.*, 1973 (in Thietart *et al.*, 2014) when looking at organizational abstractions. We define risk culture according to the existing literature and we describe its characteristics. Following the literature and deductions, we divide risk culture into organizational levels as a part of the structure and its formal and informal dimensions. During our data collection we went through different stages and we updated the information according to new facts. Also, in our methodology we followed case study methodology as determined by Yin (2003). His book proposes a complete structure to follow for valid research method tactics and to validate research.

- **Reliability and validity of the instruments**

Our research is based mainly on qualitative methods. The reliability of the instruments that we chose among qualitative methods demands its justification and is proven through regular reviewing and updating. Our fieldwork length was 14.5 months in the company in two phases; the first lasting 10.5 months and the second 4 months. (This does not include the preliminary 4-month period). Thus, we had the opportunity to re-tailor our method in order to adapt it to future coding.

- Observation as one of the instruments of construction in our study represents a challenging step in its reliability. As a single person observing meetings and practices we established our observation schema according to Langley's (2016)⁹⁸ suggestions. « *Consequently, the only way some form of objectivity can be sustained is through critical reflection...If the researcher is aware of his or her viewpoint and paradigm, they may be more open to new possibilities and new explanations.* » (Patton & Appelbaum, 2003, p. 69). Indeed, we are aware that our research has limits vis-à-vis objectivity due to our fieldwork immersion.
- Interviews were preceded by the preliminary stage of selection of interviewees. Our selection criteria for interviewees were based on their relationship to risk management. Individuals that we selected for interview had some formal or

⁹⁸ One of the qualitative research method classes given by Langley at HEC Montreal, which we followed in the summer of 2016, focused on different methods including observation.

informal⁹⁹ role in relation to risk and risk management. We also went through different stages that are described in the interview section.

- Documentary and archive data sources consisted of officially released internal or external documents. Since the information was addressed to employees or accessible to external stakeholders, its trustworthiness was legally verified.

The reliability comes from the juxtaposition of evidence collected from across our case study.

- **Question of reliability**

It is commonly emphasized that a case study can make a rich contribution to the research when there is certainty that its methods were rigorously implemented and maintained during the research process (Patton & Appelbaum, 2003; Yin, 2003; Eisenhardt, 1989). In general, the reliability of research is dependent on the quality of data and information being obtained in a rigorous manner (Drucker-Godard *et al.*, in Thietart *et al.*, 2014). Indeed, the validity of instruments has a major impact on the research results as described in our previous point.

Strong embeddedness and interaction with the fieldwork is strongly recommended by Eisenhardt (1989) to ensure empirically and theoretically solid results. Both « *long-term involvement and intensive interviews enable you to collect rich data (...)* » (Maxwell, 2005, p. 110).

Throughout our fieldwork we had regular internal exchange meetings, not only to be able to allow the information to evolve for our research, but also to validate it through feedback (Miles¹⁰⁰ in Van Maanen, 1979). We discussed early iterations of our model with multiple people, both internal and external to the company.

- The components of the risk culture model were challenged bi-monthly in internal meetings and we considered and reviewed our components in terms of the suggestions coming out of the meetings.
- We presented the raw model, version 2, to the person responsible for risk management in the company. This person challenged us with comments on information and on model operationalisation. (See extracts in the Appendix 10C).

⁹⁹ In this instance, informal role does not refer to a written statement referring to a specific role within risk management, but rather to a role that naturally occurs when a decision maker has some level of risk responsibilities. For instance, the person responsible for a function does not have a formal prescription to manage risk, but it normally falls into his unit responsibilities.

¹⁰⁰ The name of the chapter is: Qualitative Data as an Attractive Nuisance: The Problem of Analysis.

(The usual exchange was defined by statements such as « *I do not think, I would say that it is inexact* » ...and at that time we would justify our position.)

- We also made external presentations (including all confidential precaution of case study anonymity) at the Annual congress of Society for Risk Analysis in December 2016. It gave us an opportunity to have feedback from the community of risk experts.

At this point we would like to address the possible danger of long-term fieldwork embeddedness that may be seen as leading to a loss of objectivity. Langley (qualitative research class, 2016) cautions that a researcher loses his/her objectivity after approximately 6 months of fully immersed fieldwork. Indeed, we admit that our relation to the fieldwork and proximity of the subject relatively changed between the beginning and the end of our fieldwork.

To conclude this chapter, we would like to outline the main points of our methodology.

To operationalize our study on risk culture we proposed a model built on pre-established dimensions, as well as those that appeared during our fieldwork. We built our operational model on structural and behavioural dimensions as well as manageability under formal and informal aspects. Also, we took account of the context in which the multinational company can be found, this is important to the company in question. Context influences the process that brings the dynamic to the culture as well as our level of analysis focusing on the top and senior management level.

In order to test and evaluate our model we collected large amounts of primary qualitative and secondary data during our 14.5 months' in-depth fieldwork. We attended multiple meetings, workshops, assessments and updates that were related to risks and risk culture. We reported our initial findings regularly to the head of Integrated Management Systems and Corporate Risk Management. Additionally, to understand the internal context of the company, we had informal exchanges with internal stakeholders. The open fieldwork opportunity also represented a unique chance to find appropriate people, such as managers, risk owners or decision makers, for our semi-conducted interviews. In addition to that, we recorded information from the internal intranet and we used standards, policies and the annual report to formally outline organizational statements on risk culture.

Our collected data was methodologically analysed through different coding methods. We started by open coding in order to get through large amounts of information. Then, we used the

coding tool NVivo to progress to axial and matrix coding in order to obtain information that is more granular.

Finally, we explained the pursuit of validity in our study which connected laborious preparation with the opportunities we created and were given in the company.

In the next chapter we will present the results of our analysis.

PART THREE: RESEARCH RESULTS

« *The research has measured [organization] in real organizational terms.*¹⁰¹ *Systematic does not mean detached. Probably the greatest impediment to theory building in the study of organizations has been research that violates the organization, that forces it into abstract categories that have nothing to do with how it functions.* » (Mintzberg, 1979b, pp.585-586)

In Part Three, we are going to answer our research question:

Under what conditions can risk culture be established in a multinational organization?

The Sixth Chapter gives an overview of the company's situation related to risk management and risk culture. We outline the context of risk culture in the multinational construction industry and we define its goals and properties in the company we study, based on the results of data collection and analysis. This chapter can be considered as a kind of introduction for the Seventh Chapter in which we answer our two research questions.

The Seventh Chapter presents our empirical results and answers our two questions:

- 1. Question: How do the formal and informal dimensions contribute to building risk culture?**
- 2. Question: To what extent can we manage risk culture?**

The First Section is about risk culture from a formal and from an informal point of view; the Second Section talks about management, practices and risk culture manageability.

Each chapter in Part Three includes content analysis and process study. The content analysis mentions formal as well as informal characteristics, and the process study talks about the evolution between organizational stages and the interaction between internal elements.

¹⁰¹ In this article, Mintzberg describes his research journey and he presents it in seven themes. This quotation is his fifth theme and the first sentence is a direct quote that represents its title.

Sixth Chapter: Global context as a driver of risk culture

In this chapter we present the context of risk culture in the Construction & Engineering Industries and in EngineerCo. Risk culture in the Construction and Engineering Industry will be presented in section VI.1 and illustrated with concrete risk assessment methods: all of this is important because it can influence EngineerCo. as an important part of its professional environment. In Section VI.2. we focus our attention on EngineerCo. and its internal change.

This chapter provides an overview of the contextual results and serves as an introduction to support the answers to our two research questions that are dealt with in the Seventh Chapter. Multinational companies are conditioned by multiple factors within their specific industry. We have noticed that those factors may influence internal organizational risk culture. Industrial tendencies can directly reflect on organizational behaviour, and based on those tendencies, we can easily understand what is happening inside an organization in terms of risk management. That is why we found it to be important to present the contextual part of our results, which we present in the first section. We have analysed 16 institutional documents -between 8 and 318 pages in total, with an average of 54 pages per document- with a focus on the engineering industry, as well as a review of a professional website: Construction Risk Institute. The documents are sourced from multiple areas: (1) those that provide an overview of the industry as well as its evolution published within an institutional background such as the World Economic Forum, trading agencies or similar regulatory world bodies. (2) We used material that indicates the state of risk management of multiple industrial players that were proposed during our field work as well as additionally completed by searches on companies' and institute websites'.

In the second section, we focus on an analysis of the specific context marked by an organizational crisis: the crisis the company has suffered led a number of its members to think that the company had under-estimated risks in and around the organization, and we can consider that changes in risk management were initiated as a result of this. We use our analysis from 45 interviews;¹⁰² more specifically, we asked questions about the organizational change

¹⁰² Among the 51 interviews we conducted with employees of the company, there was 1 that we could not record; on this we only have a limited amount of notes that does not allow us to fully use the information.

Sixth Chapter: Global context as a driver of risk culture

before and after a crisis: *What are the changes that have been made at your level and at organizational level over the past 3 years?* If the respondent was in the organization less than three years we asked: *How did you learn about how the organization functions and (company name) habits and past?* Also, we analysed formal documents such as annual reports. In our analysis, we also used direct observations we made during our presence in the company. These data enabled us to reach tentative -but well documented- conclusions on the impact of a crisis on an organization.

Finally, we create a direct relationship between this chapter and the Seventh Chapter that develops risk culture in more detail and more granulated organizational entities.

VI.1 Multinational Context of Risk Culture in the Construction & Engineering Industries

« Construction is a «horizontal» industry (like the Financial Services Industry), serving all industry verticals; in other words, construction has considerable interaction with numerous other sectors, since value creation almost always occurs within or by means of buildings or other constructed assets. » (World Economic Forum, 2016, p.11)

As the global focus is on technological innovation and the speed of change, the construction industry has begun to consider the digital revolution in their strategic models (World Economic Forum, 2016) that bring new opportunities and challenges. However, until recently the construction industry was considered as a traditional and conservative sector that is slow in innovative and risk management thinking (World Economic Forum, 2016). The risk culture in construction companies is often stuck on a very traditional approach to risk-taking.

In this section, we explore the position of risk culture in the Construction & Engineering Industry in terms of its evolution and how formal legacy concretely affects a company's risk management and view on risk. To this data we can add our observations in the company: we noticed a strong referencing of formal risk assessment and its application that seems to be mechanistic. This leads us to a more in-depth exploration of this understanding of the formalization of risk management by the Engineering Industry.

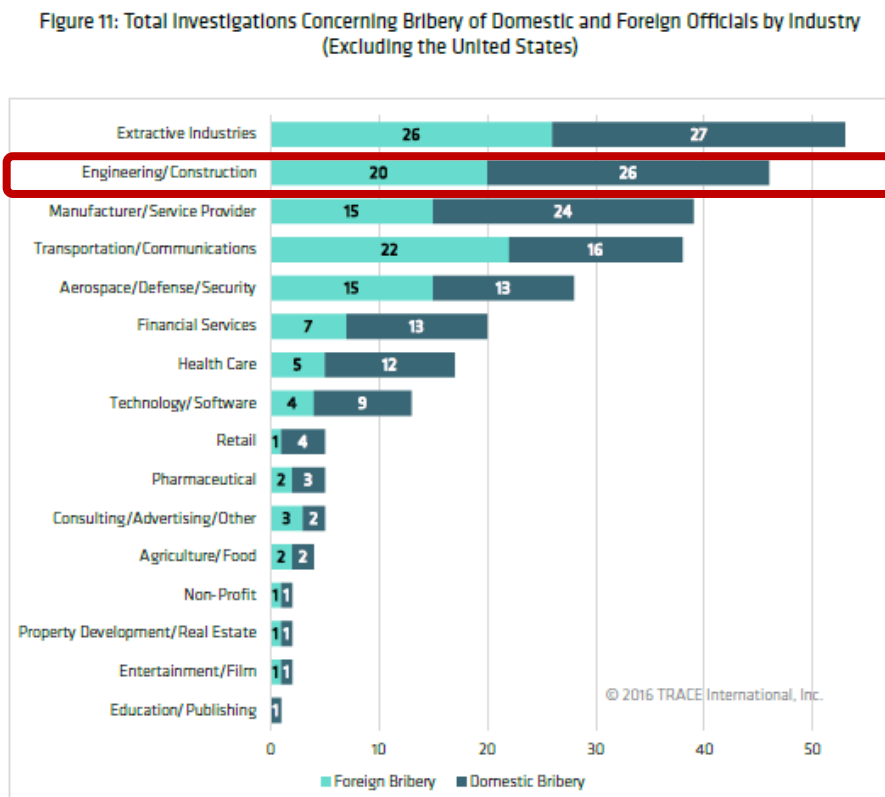
VI.1.1 Focus on Construction and Engineering Industry risk culture

In May 2016, the World Economic Forum (WEF) published the Report that analyses insights of the construction industry. In the parts on risk management and culture, the Report considers its practices as obsolete, and it says that this represents a potential risk for multinational companies that are operating within a quickly changing environment.

Construction is the industry with the strongest market exposure. As TRACE International (2016) demonstrates, the Engineering and Construction sector was the second highest with Bribery Investigations in 2015.

Sixth Chapter: Global context as a driver of risk culture

Figure 12: Number of investigations by TRACE international



Source: TRACE International, 2016, p.18

The infrastructure and construction industry is very political, and it is linked to public investment, especially where it concerns large and complex projects called public and private partnerships (World Economic Forum, 2016). Public and private regulators and policy makers enforce risk management prescriptions that serve as guidelines for multinational companies. In those guidelines, risk culture seems to be one of the milestones that should be attained in order to create construction industry renewal. Also, rating agencies like Fitch, Moody's, Standard and Poor's or DBRS, with a focus on construction, are including risk culture as part of their rating criteria (see Appendix 6P with General ERM rating criteria). Their assessment grid includes the creation of management risk culture as one of the conditions to attain high marks.

Figure 13: Extract from Standard & Poor's Rating Services

METHODOLOGY

The Subfactors Of Enterprise Risk Management Analysis

ERM analysis is comprised of five subfactors:

- Risk management culture,
- Risk controls,
- Emerging risk management,
- Risk models, and
- Strategic risk management.

The criteria in this article determine how each of these five subfactors is assessed and how the assessments of these five subfactors are combined to derive the insurer's ERM score.

Source: Standard & Poor's Rating Services, 2013, p.4

Figure 14: Extract from DBRS¹⁰³ risk management rating in the Engineering and Construction Industry

Engineering and Construction - Primary BRA Factors

Rating	A	BBB	BB	B
Risk Management *	<ul style="list-style-type: none"> • Risk-averse management culture, conservative practices and measured growth strategy. • Counterparties' (suppliers and subcontractors) non-performance and default risk always and extensively covered by surety bonds or contractor or subcontractor default insurance policies. • Strong internal capability to step in to complete work when needed. 	<ul style="list-style-type: none"> • Conservative governance practices and risk appetite, with growth strategy focused within core areas of expertise. • Counterparties' (suppliers and subcontractors) non-performance and default risks adequately (though not always) covered by surety bonds or contractor or subcontractor default insurance policies. • Some internal capability to step in when needed for certain types of work. 	<ul style="list-style-type: none"> • More aggressive growth targets, with material planned expansion in expertise and/or geographic reach. • Moderate coverage of counterparties' (suppliers and subcontractors) non-performance and default risks by surety bonds or contractor or subcontractor default insurance policies. • Limited internal capability. Company may have difficulty replacing suppliers or subcontractors without causing material project delays. 	<ul style="list-style-type: none"> • Highly aggressive growth and business expansion plans. Management is incentivized to achieve stretch volume or revenue targets. • Limited coverage of counterparties' (suppliers and subcontractors) non-performance and default risks by surety bonds or contractor or subcontractor default insurance policies. • Extremely limited internal capability. Company has suffered or will likely suffer material project delays should suppliers or subcontractors fail to perform.

Source: DBRS, 2016, p.7

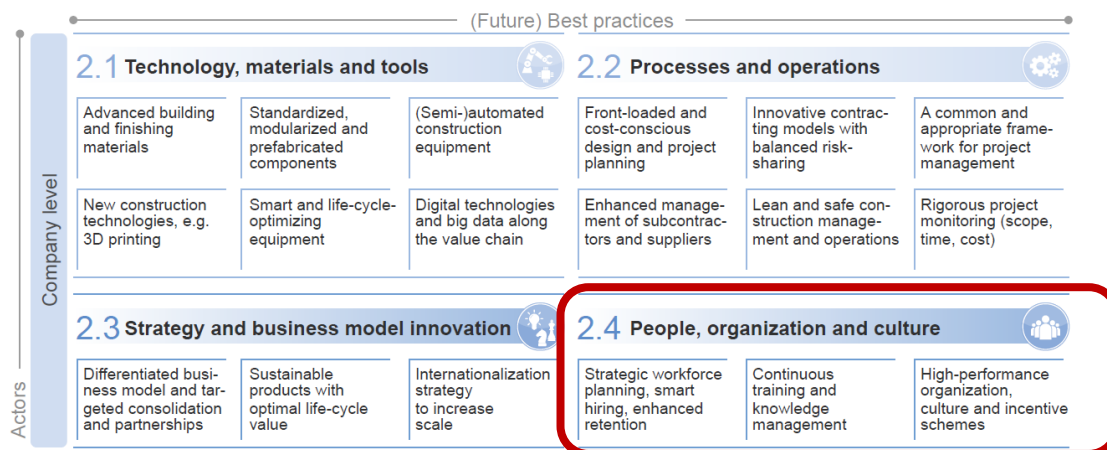
The World Economic Forum (2016) takes culture into account through the rating of « *People, organization and culture* » that exist on individual and organizational levels.

¹⁰³ Credit rating agency.

Sixth Chapter: Global context as a driver of risk culture

Figure 15: Extract from the World Economic Forum's model of the Industry Transformation

Figure 1: Industry Transformation Framework

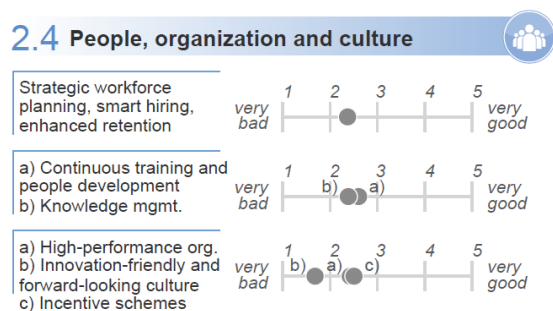


Source: World Economic Forum, 2016, p.9

The conservative attitude in the construction industry is considered as a driver of organizational inertia because they are not actively supporting the process of change.

However, people represent an aspect that can reinforce and create a culture with « *capabilities and roles, accountabilities and collaboration...that can energize the industry and create a transparent culture...* » (WEF, 2016, pp.39,47).

Figure 16: WEF Assessment factors in Construction industry



Source: World Economic Forum, 2016, p.57

Still, according to the same report, risk culture is established by trust and mutual respect at the individual level where the culture is established (WEF, 2016, p.28). « *Today, however, the issue of risk is everyone's responsibility, and a risk management culture must be engrained*

across the entire organization » (FMI, 2017, online).¹⁰⁴ Developing these two items (risk and culture) internally means creating a risk culture and developing it over time: culture starts at the hiring process and grows through continuous learning (as described in Crilly & Sloan, 2014).

Institutional reports do not suggest any specific insight on how multinationals companies have to deal with *soft* human aspects while they are potentially involved in projects. Projects are very specific entities that have limited durability and companies sometimes need to react quickly and contract hundreds of people in very short periods of time and they cannot afford to invest and train every single individual.

Observation from Risk Assessment Workshop number 9: During discussion in Risk Assessment workshop we could understand the complexity in transition of different project stages between proposal, bidding and that involvement into the project in which one has to hire an appropriate number of people for a limited time and in a short time period. (Team discussion between directors of operations)

Risk culture becomes a question of formalities that are left to be developed by external bodies, most often by external consultants, as demonstrated in the Smart Market Report (Bernstein & Jones, 2014). Then, the concrete risk management process is summarized with very similar standardizations within the industry as we will describe in the next point.

VI.1.2 Concrete projection of Risk Assessment in Engineering and Construction Industry

The specificity of the I&C industry, including our EngineerCo. case study, places a strong formal accent on risk assessment mechanistic procedures, and what is formal matters a lot.

¹⁰⁴ Source online: <https://www.fminet.com/fmi-quarterly/article/2016/06/engineering-construction-and-risk-improving-your-odds-of-success/> (accessed July 25, 2017).

VI.1.2.a Mechanistic and slow-changing aspect of risk management in the industry and in EngineerCo.

Having access to the Engineering & Construction Risk Institute (ECRI) allows for an overview of the theories of Risk Management from 27 companies.: AECOM, Air Liquid– EVENG; AMEC Foster Wheeler; BECHTEL; CCC; CHIYODA; CH2M; CIMIC; FLUOR; HATCH; HCC; ICA; JACOBS; KBR; Larsen & Toubro; Lend Lease; Linde; NPCC; Parsons; SBM; SKANKA; SNC-LAVALIN; TECHNIT; TECHNIP; Tecnicas Reunidas; Tecnimont; Worley Parson. In addition to that we could analyse data, more specifically assessment matrices (below) from other large players thanks to access to their public presentations:¹⁰⁵ Agrium; Alcoa; Arcelor Mittal; Anglo American; Rio Tinto and Saudi Aramco.

From the accessible data we could conclude that:

- Risk evaluation processes follow formal standard procedures based on ISO.

Extract: ECRI Criteria for a Risk Management Process, Document 001.¹⁰⁶

Format: The process should include a Policy (or Practice) mandating the use of the risk management process and a single Procedure detailing the methods. Users should not have to go to several sources for RM methodology. Revisions and issue of both documents must be controlled (ISO standard).

- Risk technique is outlined by a traditional matrix. The analysed companies are using a 5x5 (or similar dimension) risk assessment matrix for qualitative risk rating. The matrix is used in different variations, colour and eventual different rating.

¹⁰⁵ In our 2017 fieldwork we had the opportunity to work on the Risk Management Knowledge Network of the company and to access documentation about risk management from approximately the past 10 years. We have also had access to the presentations and practices from companies in auxiliary industries or the same industry.

¹⁰⁶ The real number of the documents is hidden.

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Figure 17: Generally adopted risk determination matrix

	Most serious consequence			
	V. Low (VL)	Low (L)	Moderate (M)	High (H)
Highly Likely (HL)	Class II	Class III	Class IV	Class IV
Probable (P)	Class II	Class III	Class III	Class IV
Unlikely (U)	Class I	Class II	Class III	Class IV
Very Unlikely (VU)	Class I	Class I	Class II	Class III

Figure 18: Extract of modified version of risk matrix

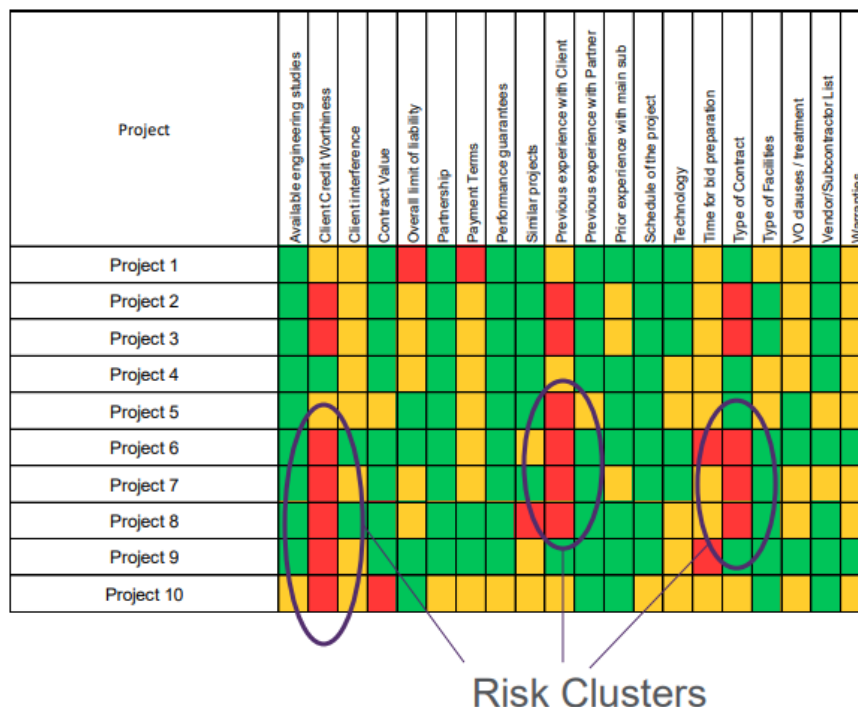
Consequence	Likelihood				
	Rare E	Unlikely D	Possible C	Likely B	Almost Certain A
5 Critical	Medium	Medium	High	Very High	Very High
4 Major	Low	Medium	High	High	Very High
3 Moderate	Low	Medium	Medium	High	High
2 Minor	Low	Low	Medium	Medium	Medium
1 Insignificant	Low	Low	Low	Low	Medium

Source: Company Alcoa, 2010¹⁰⁷

The following example demonstrates concrete division and focus on some specific matrix results. The extract comes from the Engineering & Construction Risk Institute Meeting held in December 2017.

¹⁰⁷ Source: ECRI, not publicly available.

Figure 19: Integrated Portfolio Risk management



Source: ECR Institute presentation, 2017

- Mitigation strategies are a core aspect in risk assessment (see Berstein *et al.*, 2011; International Project Risk Assessment, 2003). EngineerCo. requires mitigation plans during Risk Assessments.
- Project-focused companies take risk management as a best-practice-oriented model that increases project performance. For instance, the Construction Industry Institute Best Practice guide (2012) proposes guidelines for project risk assessment that focus on the different stages, individually or as a whole, of project execution in order to mitigate risks.
- We noticed that Saudi Aramco, which is the Oil and Gas market leader,¹⁰⁸ communicates that they support research on « *managing risk across boundaries* » as part of their reflection on risk culture in 2015. In a similar vein, FLUOR, endorsed by KPMG consulting group, presented their commitment to Enterprise Risk

¹⁰⁸ Oil and Gas is one of the businesses in which Engineering and Construction companies are often involved.

Management. Those are two multinationals examples where risk management may focus on more detailed risk culture.

Figure 20: Extract from presentation FLUOR, ECRI Conference

What is ERM?

Components of an effective ERM program

Risk Strategy and Appetite	Risk Governance	Risk Culture	Risk Assessment and Measurement	Risk Management and Monitoring	Risk Reporting and Insights	Data and Technology
Linkage to corporate strategy	Board Oversight and Committee	Knowledge and Understanding	Risk Definition and taxonomy	Risk Mitigation, Response and Action Plans	Risk Reporting	Data Quality and Governance
Risk Strategy	Company Risk Operating Structure	Belief and Commitment	Risk Identification	Testing, Validation and Management's Assurance	Business/Operational Requirements	Risk Analytics
Risk Appetite and Tolerance	Risk Guidance	Competencies and Context	Assessment and Prioritization	Monitoring	Board and Senior Management Requirements	Technology Enablement
	Roles and Responsibilities	Action and Determination	Quantitative Methods and Modeling	Risk in Projects/Initiatives	External Requirements	
	Decision Support		Risk Aggregation, Correlation and Concentration			
			Scenario Analysis and Stress Testing			
			Capital and Performance Management			

Source: FLUOR, ECRI Conference, December 2017¹⁰⁹

During our fieldwork we noticed a very strong influence of formal models and assessment tools on risk management. In our interviews we oriented our questioning to browse the risk management situation in the company as it is perceived by our interviewees. *As far as you know, does your company have something specific and special in terms of risk management?* This information was correlated with information we collected about practices from the industry.

¹⁰⁹ Source: ECRI, not publicly available.

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Based on what I have seen ... I think all our processes and procedures are probably similar [to those of our competitors, note from the author] (Interview 33)

Some would even say that that EngineerCo. is even more formalized than the average, but that is due to the prior crisis (as we explain in II. Section of this chapter):

We are more bureaucratic than our competitors, very much more bureaucratic than our competitors. (Interview 3)

The EngineerCo. risk management strategy reflects the industry tendencies in which there are very few variations in formal risk management approaches. However, we had access to external data on the above-mentioned companies and we cannot describe any significant difference in day-to-day practices or internal dynamics. Indeed, what can make a difference among those unified and standardised approaches to risk management and risk culture are the informal practices.

We believe that the standard industrial characteristics that we define above reflect a traditional and slowly adapting industry practice that is less open to a fast pace of change.

VI.1.2.b Competitive advantage that risk culture is supposed to bring

The next perspective that we would like to discuss regarding the risk process is related to competition. After our previous findings on risk assessment formalization, we would like to examine the question of how risk culture can contribute to competitive advantage. From the analysis of the literature we undertook, we have formulated a hypothesis saying that risk culture might be the source of competitive advantage. We wanted to test this assumption in order to understand the different models and statements from the professional literature which assumes that risk culture brings a competitive advantage to companies (see for instance Deloitte, 2012; Institute of Risk Management, 2010). Indeed, by addressing distinctive organizational culture traits we can see how this operates to a company' benefit (Cameron & Quinn, 2011). Risk culture as competitive advantage has to have some characteristics that allow the company to achieve an advantageous position on the markets and through competitions. Beasley *et al.* (2017) believe that holistic risk management is the source of competitive advantage, even if they do not find a very relevant correlation in their survey. They believe that

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risk culture is a part of the competitive advantage of organizations, but they say that companies have not yet understood its potential.

In those terms, and by the definition of competitive advantage, we see from our research that risk culture as a formally set asset has specific characteristics that do not distinguish one company from another. Instead of considering risk culture as having competitive value, it seems to be more of a necessity in the I&C Industry. As Smart Market Report notes « *Good risk management is a business imperative in construction* » and risk control is « *an important way to STAY competitive* » (Berstein *et al.*, 2011, pp.4,7).

We have arrived at the following results:

- Formal aspects of risk culture are most likely not a source of differentiation: if a company only follows the prescribed and mandatory rules regarding risk culture, there is a high probability that they will not be unique in the market on this point. This statement seems to be obvious, but most of the publications that relate risk culture to the competitive advantage do not mention this fact. Companies can only rarely use risk culture for their competitive advantage because it is based on formal criteria and as such is similar throughout the industry.
- However, we found that eventual contributors to competitive advantage (Hall, 1992) can be attained through informal aspects of risk culture. Informal aspects of risk culture can eventually bring diversity into risk management and risk culture that are between practices, learning and people:

I think some of this is just intelligence, if you think about, there are fabulous entrepreneurs around the world and they have no college education so, I mean you are doing a Doctorate, I do not need offend you, but you know, you do not learn everything by studying, sometimes you learn by doing it, some people have common sense and a lot of intelligence and they can just immediately identify business risks, how do you get to be a billionaire, as self-made person... (Interview 1)

We have a good market surveillance, we have competent people who look at regulation changes, and as while regulation change we have a quick perspective on this and we can quickly evaluate the impact. (Interview 8)

The table (Table 29) below summarizes our findings on competitive advantage and shows what was in the literature and what we found during our fieldwork. We cannot completely confirm

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the literature, and we are proposing additional findings on competitive advantage that can be realized only if risk culture is considered informally.

Table 29: Findings about competitive advantage

Key statement & References	Finding	Verbatim
Risk management process provides a strategic advantage to companies (Beasley <i>et al.</i> , 2017; Braumann, 2016)	⇒ It is not confirmed for formal aspects	<p><i>I had a discussion with (Senior VP) on the procedures of business continuity, it is set on ISO basis. (Fieldwork note, 1.3.2016)</i></p> <p><i>So I think all our processes and procedures are probably similar and I think (as that of competitors, note from the author) ... (Interview 33)</i></p>
	⇒ RC can contribute to competitive advantage under certain conditions that are rooted in informal aspects.	<p><i>...we are now implementing and we are saying that we do not like certain things, we are also now looking at how we streamline certain things. We are trying not to be overly bureaucratic, because this causes us to be less agile. (Interview 17)</i></p> <p><i>There are opportunities, and plenty of work, but there is a concern that we do not have enough good people, so the issues are not with our procedures. (Interview 13)</i></p>

To conclude, we confirm that risk culture as a source of competitive advantage cannot be formally delivered, but in the case where we considered informal systems and people there can be opportunities to change risk culture.

VI.2 Effect of context that becomes part of organizational change

The context and structure are two antecedents (Romelaer, 1996) that can help understand strategic direction. This section describes the context of EngineerCo. and the main changes in structure that directly impact risk management and risk culture.

In section (VI.2.1) we see that the company has experienced a major crisis that has arisen internally because of improper practices - such as corruption and bribery. Multiple interviews repeatedly demonstrated that risk management before the crisis was almost non-existent. In section (VI.2.2) we see that following the crisis various positions related to risk management were created (Conformity, Health & Safety, Security, etc.), however, there are consequences arising from this brusque reaction. From practically zero, it seems that there is now an excess of formalization. This reinforces the logic seen in literature on crises where, following a major organizational event, one tends to formalize and centralize in order to control. Also, in the past, the company's structure was divided into units, and each sector operated separately, and these sectors saw themselves in competition with each other. There was no exchange, circulation or upward passage of information, and according to the interviews, each sector, unit and project worked as a separate company to develop its own formalization.

VI.2.1 The process of Internal Change

The Burns & Stalker (1961) models of organic and mechanistic structures operate on the conditions of organizational adaptability and reaction to change. Indeed, the organic structure is presented as more flexible and innovative than the mechanistic approach. These two types of structures are not mutually exclusive and stable, and there may be different criteria for formal and informal characteristics that are overlapping and contributing to performance and flexibility as demonstrated by Sine *et al.* (2006). According to its characteristics, the I&C industry operates with a more mechanistic structure that also approves the legitimacy of a company's cultural assessment. Characteristics of culture from the survey results are very predictable in terms of the organizational behaviour within a mechanistic company that swings « *back to the centralization* » (Power *et al.*, 2013, p.5) after a major crisis (attitude to the rules, very timid but starting cooperation, reporting systems, etc...). In fact, we confirm that some

level of formal organization, carried by a mechanistic structure, facilitates organizational stability and gives the time necessary to adapt to the changes.

Question: « What are biggest challenges according to you? »

Interview 33: « The constant change in the organization, the chart of personnel and leadership structure leads to...and you know we talk about my general expectation, I do not wanna be surprised,¹¹⁰ well, surprised ... »

We use a description of the company's past in order to explain the present situation. Historically, we have to consider the company's background and evolution in order to understand the wholesale changes in the company's risk management and focus on its risk culture.

The company was historically very fragmented as a result of the merger of two companies with very different cultures, «~Traditional and Cowboy~»¹¹¹ (external source, conversation with a journalist). Later, in the 2000's, EngineerCo. had a great deal of success and its «~aggressive way of doing business~» and high risk-taking culture appeared to be a successful strategy. In terms of structure, the company was working in silos where each of the sectors was considered «~literally as an independent and self-operating enterprise~» (Fieldwork note, Informal conversation). In some cases, «~people were not even allowed to communicate or collaborate with each other. It was either prohibited, or the hierarchical supervisor had to emit and sign the transfer of the designed person to another unit for a specific task. Also, people were in competition with each other ~» (Fieldwork note, Informal conversation). At the same time, every «~enterprise has its own rules that was very accommodating in some cases. Also there were less directions and formalization during different business stages ~» (Fieldwork note, Informal conversation). People had the freedom to interpret instructions in their own way, and that resulted in a limited level of documentation and escalation of information. In essence, the rule was advancing the business and increasing financial turnover.

This situation lasted for more than 10 years, and the company's business was flourishing. Moreover, the «~cowboy~» culture took over, and due to the successful rise, we dare say the company felt « *too big to fail* ». As a result, practices such as bribery and officers' payment to win projects became common behaviour in the company and had no geographical limits. The

¹¹⁰ This expression means « *I do not want to be surprised* ».

¹¹¹ Every approximate quotation is designated by the following sign: ~ and refers to the informal conversation annotated in our research notes.

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company also became involved in a scandal concerning a big project in its own country. From late 2011 to the beginning of 2012, the company was examined by multiple controls and investigations, and later in 2012 key members of the leadership team were arrested. For the organization and its employees «~it was not easy and it was quite a heavy period to live, they did not know what is going to happen from one day to another and who will be next to be arrested. People did not know what they are allowed to say. Some people were dismissed and there were some cases of whistleblowing. ~» (Fieldwork note, Informal conversation). The crisis evolved through different stages including governance renewal and involvement of an external team for the restructuring and creation of the basis for ethics and compliance. This event resulted in the company having governmental sanctions and restrictions on operations in multiple projects throughout the world as well as supervision from the World Bank for 10 years. The company hired a « *Chief Compliance Officer and is working closely with recognized independent experts in compliance, anti-corruption and governance. The Code of Ethics and Business Conduct has been updated, as have training and certification programmes* » (EngineerCo., 2013, online document).

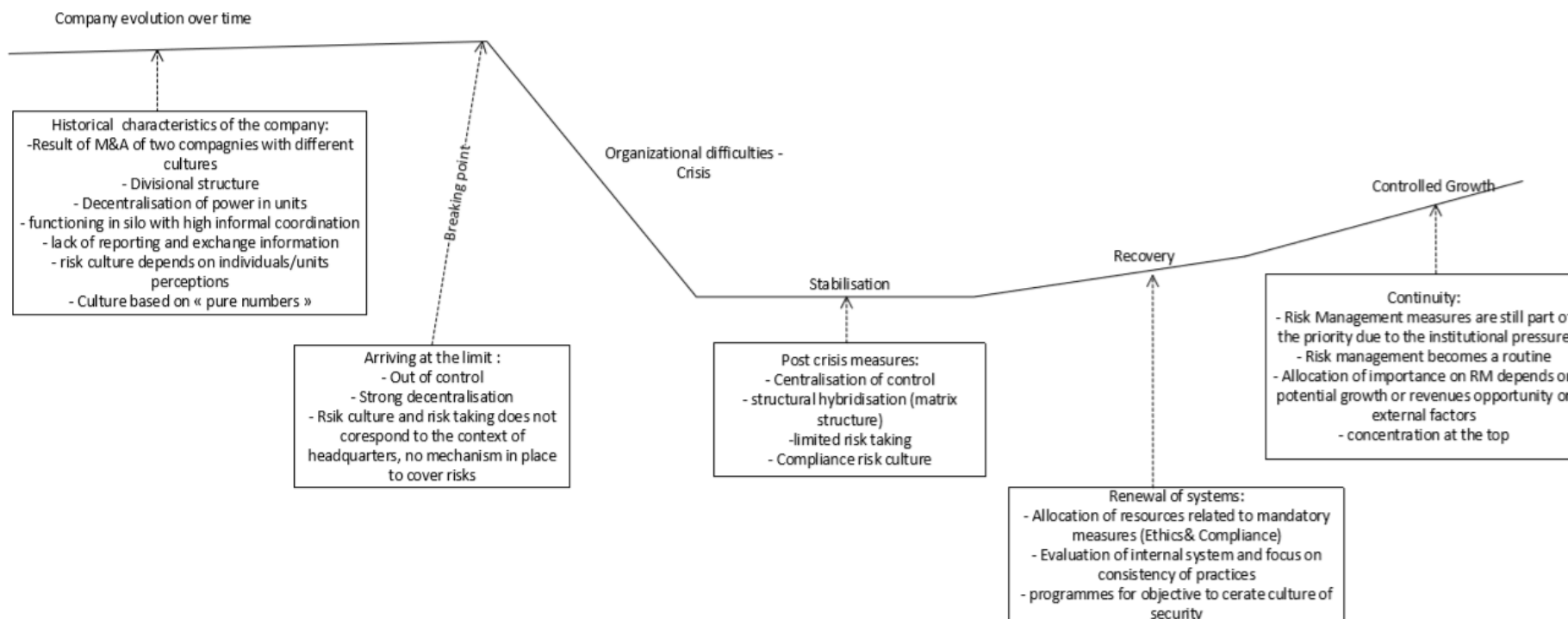
The process of the evolution of the company can be associated to different stages.

We have divided the curve of process change into five (5) different stages that we call: Evolution over time, Organizational crisis, Stabilization, Recovery and Controlled Growth. We identified these stages according to changes in the organization, from a decisional point of view, according to the governance and allocation of resources to different risk managements. The situation that we just briefly described in the previous paragraph is attributed to the evolution over time: the company did not set risk limits, did not allocate enough attention to risk management, and as a result was not able to manage and control different units. All this led the company into an organizational crisis. From this time onwards, they were on a downward curve in terms of strategic objectives and revenues. We identify a period of stabilization where the company could ensure its survival but was very strongly harmed by the crisis. Thus, this stage is characterised by the use of a strong control of activities, and at this time risk culture is targeted to Conformity. As a result, the culture is focused on legacy and respect of legal restrictions. The culture is more about respect of rules and regulations, the driving factor is a fear of error and of breaking the law. The top management team has to focus on very clear and measurable ethics practices rather than on performance. The Transition to the Recovery stage has its departure point when Governance decides to make changes in the

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top management team and the CEO position. From a previously strong compliance focus the companies' owners are calling for a return to business performance. This stage calls for more structure and consistent practices, and also covers large risk holes by new forms of risk management such as security units. Risk culture is still very formal, but it is extended to different risk management responsibilities and does not only focus on E&C. Finally, the Controlled Growth stage appears as the latest stage in our identification. Different forms of risk management have become part of the regular routine, for instance risk assessments on an annual basis, those routines are already accepted into the organizational systems and there appear to be some initiatives to make it progress. For instance, the risk assessment team tends to create a more collaborative formula and more regular review of risks. In the same way, the people having responsibilities in risk management see their progress as «*~fairly quite mature~*» (Risk assessment workshop introductions) and they feel confident about its evolution over time. We do not consider that this is the final stage, but it is the latest phase that we were able to observe in the last portion of our fieldwork.

Figure 21: model with key process stages



Author: Marketa Janickova

VI.2.2 Concrete Internal projection

Differing from the more generic overview of the company's situation, this section describes the statements on the company's risk culture. More specifically, we consider the Recovery and Controlled Growth stages, which we were able to observe during our fieldwork. We begin by associating the crisis to organizational risk management and to internal structure, and then we outline concrete information related to the organizational culture initiated by the company.

VI.2.2.a Imperative changes

Some antecedent research considers an organizational crisis as an opportunity to change, to modify and transform an organization into a resilient entity (Roux-Dufort, 2009). « *The crisis can be the place where change happens that aims at getting the organization become more resilient* » (Altintas & Royer, 2009, p.217).¹¹² We did not encounter such a vision within the organization. Interviewees' discourses describe the organizational crisis more as « [...] *an extraordinary condition that is disruptive and damaging to the existing operating state of an organization* » (Snyder *et al.*, 2006, p.372).

Ok, lets start from highest level of assessing risk, right, because ...when I become those (executive position of person), 18 months ago, the financial performance of the business had been very poor for several years, right, now some of that was a result of the crisis. (Interview 13)

Once it explodes, so it explodes (...) you know at the crisis moment you are down, and in reality you need to be in a better position than that and eventually you will come to the original position. (Interview 22)

The perception of the crisis by individuals was not that there was a positive outcome. We did not receive positive feedback on the crisis, but we could notice that the event was not surprising for most of the interviewees that were there before the crisis. However, the only way to obtain this information was from the interviews with members that were present during the crisis. The number of interviewees that joined the company after the crisis, or less than three years ago, is

¹¹² The quotation is translated from French: « *la crise peut-être le lieu de changement visant à rendre l'organisation plus résiliente* ».

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20, compared to 21 people that have more than 3 years of experience in the company (we have no information about the length of employment from 5 interviews) out of 46 internal interviewees.

I would say that at the time, before everything arrives, we had certain...I would say lack of maturity...There were lack of knowledge. (Interview 30)

As soon as the situation stabilised, the company began the process of internal change. Formalization and increased control is very logical as a post-crisis reaction, and we noticed that the organization proceeded with multiple changes and actions.

From a structural point of view, companies in the construction sector are driven by projects. Thus, a multinational in this sector is holistically driven by projects and they are typically matrix structures. EngineerCo. changed from the divisional and ad-hoc model to a matrix company with formal purpose, and this change follows what some scholars have written (Langley-Laporte, 1986). Matrix organizations are characterized by a web of functions that are related to each other and supporting business sectors are divided into business units. Functions are seen as those «~who are resources consuming parts and should endorse and help sectors in creating business and bring clients and markets. ~» (EngineerCo., communication annual meeting to the employees, 2016).

Multinational structures driven by the Matrix approach are those where members report to their function as well as to the business to which they are allocated.

Question: How do you report to 2 heads; you have two bosses...

Interviewee 33: It is not always easy ...

I have been here 2 years and I had 8 different bosses. For general concept I try to be transparent and share information as quickly as possible, I try to make sure that any time I inform (one boss) on something I inform (the other boss) on something and vice versa... so there is equal access to the information. From a practical standpoint there is sometimes logistic issues that may be hard but that is the general approach.

The principle is about internal reliability

I have a weekly direct report with each of my directors and also every one of my directors' report once per week (...) You know what, it is very easy (to report). When the senior management is aligned and they are supportive to each other. And I am here for 8 years and I always had different bosses and never actually find that in any different

form they gave me different directions or put me into the different situations. (Interview 35)

The company was not only dealing with crisis through structural changes (as described in Table 30: Introduction of functions & units related to Risk Management), but also through the support of risk management within an Integrated Management System function. Specifically, that enforcement resulted in the creation of a new Department called « Global Security », and the reorganization of Corporate Risk Management, Health & Safety and the creation of a new function called Conformity that reports directly to Legal and to the Board.

Table 30: Introduction of functions & units related to Risk Management

Objectives & Purpose of different departments
<u>Corporate Risk Management</u>
Key Activities:
Governance of risk management framework and systems company-wide. Pre-award oversight and coordination of risk reviews and project approvals. Post-award project and peer reviews and project performance monitoring. Oversight and reporting on company and portfolio risk exposure. Monitoring and reporting on performance of risk management systems. Development and sharing of best practices and learnings at all stakeholder levels. Risk management training and user support to sectors and business units.
Current Priorities:
Enhanced risk management across full project life cycle. Integration of risk management requirements and considerations in enterprise and project workflows and processes. Continued development of company's ERM program. Effective support to sectors and business units.

Global Security

Our Mission

The mission of Global Security is to drive security into every phase of our business operations (from the proposal stage through project completion) and in all locations, instilling a culture in which:

People are never knowingly put in harm's way
Vulnerabilities are relentlessly driven towards zero, and
We are able to respond swiftly and effectively to threats anytime, anywhere.

What We Do

As part of our Global Security Policy, we assess security risks confronting our employees, facilities and/or property. We establish appropriate control measures to identify and evaluate risk, as well as to mitigate the risk to an acceptable level according to our duty of care.

Security risks are defined as:

Criminal Acts such as theft of property or information, extortion, sabotage and kidnapping;
Political Risks such as activism, insurrection, instability, civil disruption and war;
Industrial Espionage;
Terrorism;
Other Risks, whether man made, natural or a combination thereof, such as Acts of God, fire, explosion, flood, disruption of utilities or other essentials.

Information Technology risks will be now under Global Security.

Security Risks however exclude Health & Safety risks which are covered under separate policies.

Health & Safety

Our Mission

Health and Safety (H&S) presents significant risks to EngineerCo.— both to individual groups and to the entire organization. To address these risks, Global Health and Safety (GHS) develops policies, strategies, standards, internal controls, performance indicators and targets, along with technical systems and tools in order to centrally help manage risk and improve the H&S performance across the company.

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Global Health and Safety has an advisory role to the EngineerCo. senior management team, therefore there is an executive expectation that all business units meet the same **H&S standards**.

(The EngineerCo.) expects business partners, such as associate companies or joint ventures where we do not have prime contractor responsibility, as well as principal contractors and suppliers with whom we have a substantial involvement, to conform to equivalent **H&S management standards**. (The EngineerCo.) will inform business partners of these standards, protocols and policies, and work with them where appropriate to support their adoption of practices consistent with our own.

(The EngineerCo.) goal is to **achieve and maintain H&S excellence** by incorporating strategies, policies, and standards that promote the safety of our personnel, contractors, and the general public throughout all our business activities.

Ethics & Compliance introduction

Maintaining a reputation of integrity depends on the actions of everyone in the organization. By adopting positive behaviors, we send a strong message that our company is an upstanding organization, worthy of the trust and respect of its stakeholders.

Source: EngineerCo., Internal

The work of those functions and the role of risk management was addressed at different levels though different forms of risk management development, programmes, training (as described in the Fifth Chapter, section V.2: Data Collection; and completed in the Seventh Chapter).

VI.2.2.b Internal interest given to Risk and Culture

As a result of the indicated changes, the post-crisis evolution of risk culture starts to slowly appear as one of the topics that has to be considered by the organization and by risk management. «~Risk culture is something in which EngineerCo. would like to get involved. It is something we consider to develop~» (Report meeting, 14.4.2016). The assessment of the culture was one of the actions between the transition from the Recovery and Controlled Growth to the early Controlled Growth stage.

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The company assessed their culture with external stakeholders in 2016 and they made the survey results accessible as of January 2017 on their internal website. (See more results in Appendices 11C and 12C). The assessment of the culture was made on the basis of « *Organizational Culture Inventory* » that appears as a clock divided into twelve styles and three groups and is tailored on the basis of value statements proposed by an external evaluator. This type of evaluation corresponds to a connectedness between individual identity and social meaning that humans relate to their organizational affiliation (O'Reilly *et al.*, 1991). Thus, the first objective of this assessment is to have an overview on organizational values from employee feedback. Second, it gives feedback on the agreements and disagreements between the organizational and individual perceptions of organizational values, preferences and its spreading. Finally, the organization has to have as its goal the desire to assess its own culture (Schein, 2010).

We noticed that the methodology of cultural assessment follows a traditional model on organizational culture evaluation according to the methodology seen in 1990, as in O'Reilly *et al.* (1991). Using this individual-organizational cultural fit assessment results in a general profile of the company situation in terms of culture. As Schein (2010) emphasizes, there has to be a strategic reason to make an evaluation of organizational culture. The objective of its evaluation is also what drives attention. We confirm that there is a strategic purpose related to its evaluation. In our research case, we have identified the following events with a strategic purpose that may have as an objective the use of a risk culture assessment.

There can be multiple reasons why an organization looks at the question of risk culture. Previous literature has already identified three main goals that we could confirm: control, compliance and consistency, and all three are formally based reasons. While compliance can result from external pressure, control and consistency are complementary and allow the organization to monitor the risk situation by having control over operations. This is especially true with respect to policies and procedures. In addition to that, we have identified one additional goal, which is the growth of the company. While an organization has as its goal to get larger, a cultural assessment serves as a tool to have an overview on the current culture situation and to estimate its tendencies while the company will be transitioning to its new size.

Table 31: Goals and purpose of risk culture

	Statement	Example / Verbatim
1. Control	Risk Culture is a tool of control of what is going on internally. (Zhivitskaya, 2015; Power <i>et al.</i> , 2013)	<i>We have to control every potentially risky path. There is 0 error permitted because it «~can cost (us) a lot~» ...»~the day it happened [some big problem, note from the author] I would just switch off my phone and close the curtains of my office~» (Observation Risk Workshop 25-Senior Vice President)</i>
2. Compliance	The objective of risk culture is to respond to the regulatory pressure on Compliance (Palermo <i>et al.</i> , 2017)	The company is under World Bank review conditions and they have an internal representative for World Bank that supervises actions. (Information comes from RW12 and from discussions with function R-E) <i>I was there especially for systems included World Bank (Interview 22)</i>
3. Consistency in system building	We confirm that the possibility to formalize risk is given by the impulse of consistency in systems. (Rittenberg & Martens, 2012; Mikes, 2011)	Main message from AM 2016: The objective is to establish consistency (Annual Meeting 2016)

+ additional

4. Expansion objective	Observation notes: The risk culture assessment happened during Q3/Q4 2016 before acquisition in 2017. Also, the company made one first big acquisition two years after the crisis. Their priority was not to assess the risk culture situation in the company, but they realized after the acquisition that there are lots of disparities in risk management that had to be aligned because of cultural differences. In case of the second acquisition, there was more involved interest in knowing the culture in advance in order to get better prepared transitions between both systems.
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Sixth Chapter: Global context as a driver of risk culture

This chapter introduced the company as a whole and presented its context within the Construction Industry. This overview was important to create an understanding of the actions of the organization and the formal and informal characteristics of risk culture that we are going to analyse in the next chapter. However, the next chapter is not simply an analysis, as it will also look at risk culture in a detailed and granular way.

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This chapter answers our first research question:

1. Question: How do the formal and informal dimensions contribute to building risk culture?

The Seventh Chapter presents the results of our analysis regarding risk culture through formal and informal aspects. These aspects were previously identified and progressively established throughout this thesis. Risk culture seen through formal and informal lenses proves the existence of a link between organizational structure and risk and sheds a light on the risk culture's structure. We show (VII.1) the results on every dimension of formal and informal aspects and then (VII.2) we propose a holistic view on the relationship between dimensional aspects. We determine the robustness of formal aspects in corporate risk culture, as well as the fragility -but importance- of informal aspects. The formal structure has a legitimate and important place in organizational life, as it gives a direction to the informational flow, communication, decision and control (Langley-Laporte, 1986). We would like to emphasize that the formal portion is strongly visible in every mentioned aspect; it appeared very clearly in the beginning of, and throughout, our observations. From our external view as a researcher, it seemed at the beginning of the study process that the formal aspect of risk structure was overrated as a concept. However, over time, as we moved between different units, we were able to identify informal ties. Therefore, our results also demonstrate that, even if informal aspects receive very little attention within an organization, risk culture would not work without them.

The following extract from our observations demonstrates our thoughts after one month of observation in the company.

Observation from fieldwork about risk management programme, 3.3.2016:

I noticed some gaps in the programme deployment. In the definition of the organization there are human beings. But I have the impression that everything is considered very mechanistically and is strongly bureaucratic. According to me it is not great for the programme success... There is a very present bureaucracy and sometimes I think that it is not requested at right places. We ask for something very specific from people, but sometimes there are not yet any written guidelines from upper levels.

What does the data we gathered bring to our analysis and what does it tell us? Our analysis reveals that risk culture is explicitly mentioned in approximately ten percent (10%)¹¹³ of formal documents that target risk management within our case study. The total of four documents that associate the word risk and culture within a maximum 10 words¹¹⁴ focus on three organizational levels. Specifically, the commitment to corporate risk culture relies on the risk register of top company risks. The risk register is software that is used by EngineerCo. to assemble all the risks that were identified by the company, and corporate risk management uses this software as their source of information to select the main risks that can affect the corporation. The presentations to upper management will include up to 20 risk items, and from those items the leadership team will select what they feel are the most important items that can have an impact. It is projected through written documents that delegate the power of control to senior and middle levels and is applied in the form of risk peer review, health, safety and security indicators that create the « safety » culture. The bottom level procedure focuses on operations and project risk management where the culture and risks are related to a defined context and to more external factors of the various countries where operations occur.

This chapter has two main objectives. First of all, we want to understand what risk culture looks like internally. Second, we attempt to create connections between the various dimensions of risk culture. Following our exploration of the two objectives, we synthesize the data in order to present our conclusion based on our research findings.

¹¹³ 4 out of 35 risk management standards and procedures.

¹¹⁴ That means that we choose to make an analysis of the text about risk and culture where the two words are separated by a maximum of 10 words.

VII.1 Emergence of risk culture through formal and informal aspects

« To increase effectiveness, improve efficiency, gain market share, or simplify the organizational design, managers are constantly creating new programs, streamlining procedures, evaluating proposed courses of action, and encouraging new opportunities in their organizations' environments. »

(Glick *et al.*, in Huber & Van de Ven, 1990, p.127)

In this section, we present the components for risk culture analysis that we have previously identified from existing literature in Chapters Three and Five about risk culture, and also those that emerged during our fieldwork. For instance, the literature speaks about risk culture from a behavioural perspective, where actors interpret the context according to formally set rules and they enact and build the culture in this way. However, we have also identified the important role of informal behavioural characteristics that naturally emerge as interactive practices, such as the conversations that occur as a result of a more formal activity like training. The role of the informal in risk culture components was missing in the previously built risk culture model. We used organizational literature related to actors' power (Mintzberg, 1983; 1979); systems and regulation (*cf.* Crozier & Friedberg, 1982; Crozier, 1964) and especially those that impact on organizational behaviour (Cyert & March, 1992; March & Simon, 1958). The role of informal practices represents behaviour that results from either naturally or formally set human initiatives.

We note that the propositions based on literature considered the formal part of organizational risk structure. Formal aspects of risk culture are key factors for risk culture, and it is especially true within large and complex structures like multinational companies. Even if scholars caution that risk culture cannot be established only formally (Power *et al.*, 2013), our ideas cannot be based on a large selection of research about the informal aspect of risk culture due to the lack of available empirical data. Even researchers admit that there is an informal part of risk culture that is missing details, that in fact have not been studied in any detail. We can see the importance of advancing the study of the informal aspect of risk culture because large organizations such as multinational companies cannot dissociate the internal formal and informal conditions in their organizational structure. Due to the interconnectedness of formal and informal aspects, we were able to move our proposition forward by looking at informal practices and risk culture description. While informal aspects are more difficult to observe and quantify, our deep embeddedness within the fieldwork was rewarded by providing us with a

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large amount of detailed data on informal practices. We feel that the only way to truly study informal culture is to observe practices from within, and to witness the evolution of the corporation first-hand. We had the opportunity to live through the evolution and development of risk culture within our case study.

This section is presented as follows: in the first subsection (VII.1.1) we describe every component of risk culture related to the structural characteristics of a multinational company, such as the structure of power and governance, and then we extend it to other levels. In the second subsection (VII.1.2) we discuss dimensions that involve behavioural integration such as communication, social capital and risk culture processes.

The following table summarizes risk culture conceptual categories¹¹⁵ and findings that we have observed.

<i>Table 32: Extracts from analysis to demonstrate our findings</i>		
Concepts	Note - Description	Example of Verbatim
Formal and Informal	Beyond the formal procedures we notice that the leaders strongly emphasize the notion of « ~having right people on right place and there people have to do right things~ » (Risk Workshop 27, Senior Manager) The informal exchanges are vector of distribution of the information and create interconnection between levels.	(About importance of formal but also informal) <i>I think that the larger and complex is the organization, you have to push some decisions down and you have to say what should be dealt with and how can I make the difference and it is not micro management. It is too big for micro management, you know you have to give up and let it on certain staff and trust people (Interview 1)</i>
		(About risk culture as informal element) <i>We make ourselves available, and we talk a lot to people and they are starting to have more and more of a reflex to come see us if they see something, and this is for all projects regardless of the size. (Interview 31)</i>
Functioning of internal systems and practice	We have noticed that formal aspects of risk culture take a central role with respect to the procedures, however there is stronger accent on soft power.	<i>...we have to establish rules basically and that you have to hold people accountable to the rules and we are trying to do that ...gain interaction is part of setting up the rules it is having a system underneath and the system is not only the mechanics of the computer system but it is also what everything surrounds it, the policies the procedures the practices that surround the box. (Interview28)</i>
		(About the fact that formal procedure was slower than informal)

¹¹⁵ Term is used by Glaser & Strauss, 2008, p. 159, who describe « *Characteristics that define and describe concept* ».

		<p><i>So those risks were addressed before the bid went out by the team, mostly project managers and bid managers need that, they address to us into my desk to the approval all those risks were already mitigated. (Interview 3)</i></p>
		<p><i>If an exchange of information is not officially recorded it does not mean it is not efficient ~It is about communication with their team for example (names) talk to them (their teams) but without doing lot of memos and there is good turnover. ~ (Risk Workshop 25- Vice-President)</i></p>

VII.1.1 Structural character of risk culture

« *We do not know what we don't know* » (Risk Workshop 25 – Vice President)

This point describes risk culture in the company from a structural standpoint.

The following aspects (VII.1.1.a-b) represent two (2) main characteristics of risk culture structure, but have different weight when observed from the formal and informal perspectives. Some informal aspects can question the authority that is formally established, and can do the same for the authority that comes more informally.

VII.1.1.a Consolidation of structure

« *We have to be more agile. We need decentralization. We really need decentralization.* »
(Interview 22)

Structure is related to strategic orientation that influences the process of decision-making (Miller, 1987). Centralization and decentralization are two traditional structures of control in multinational companies, and the level of centralization demonstrates the « *extent to which the locus of authority to make decisions affecting the organization is confined to higher levels of hierarchy* » (Child, 1972, p.164). Erkan (2006) emphasizes an important question of how risk management is approached in global firms. Risk management is very often translated to a centralized form of control from the top in order to deal with larger and more complex systems.

Well the corporation has set a robust set of policies and procedures, the Level of Authority and all of the, you know, individual policies and procedures that go along with that whether it is (list of activities, bid process and risk) there are desk top menus and how do you do things so that's communicated from the corporate entity down and that is reported on the...on the project level it is theoretically reported on daily basis with the weekly to monthly summary. (Interview 8)

However, Erkan demonstrates that some form of decentralization brings about the dynamics of Enterprise Risk Management. Decentralization is, in fact, crucial in terms of the circulation of

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information: « *Decentralization among the divisions requires a decomposition pattern that would also reduce the number of the steps required for the convergence to the centralized one* » (Erkan, 2006, p.80). Decentralization also means that there are additional forms of coordination that act in favour of communication. Traditionally, decentralization was the method used by multinationals to adapt to different regulations.

Based on the available data from research on the industry that we study, there is no doubt that the organizations are quite strongly centralized and mechanistic. This occurs as a result of too much liberty as a product of an excess of decentralization that in turn becomes the source of risk that caused the crisis. A large company such as EngineerCo. has tendencies to become more centralized and formalized after an internal crisis.

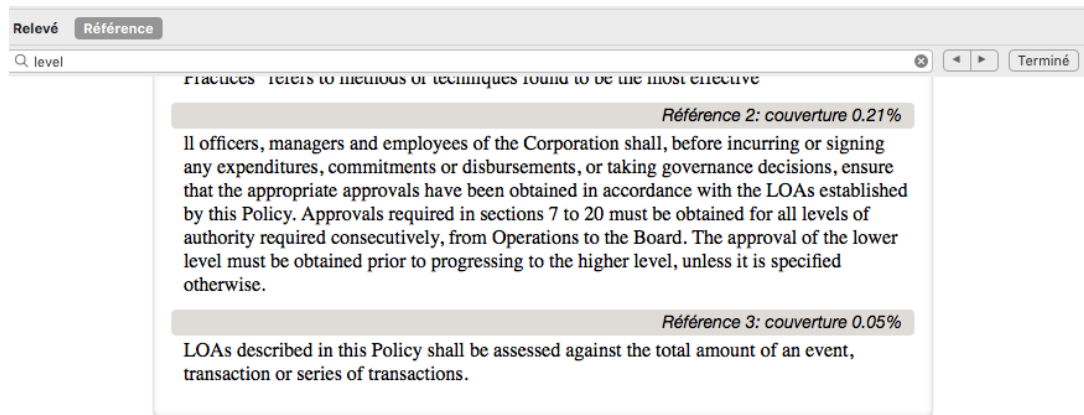
Question: What are the biggest changes that you have seen since you have been in the company in terms of RM?

Intevew 33: So the Level of Authority becomes much more robust. Before (documents name and number) there was very little guidance and it was required in terms and conditions. Now there is a much more formalized process that I think is much easier to access to understand.

The company possesses a main formal reference that summarizes the delegation and centralization of power. The Level of Authority (LOA) represents a written organizational structure, and reporting between levels. It also describes the conditions in which -and how- each unit and part of the organization should report the information related to business decision- making as well as risk management. The organization uses the formal document in order to formalize the different reporting lines. The following figure (Figure 24) is an extract of EngineerCo.'s LOA document that details expected behaviour, and relevant policies for employees to refer to. The references below were chosen because they are typical examples of instructions from the LOA, while at the same time they do not breach our confidentiality agreement with the corporation.

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Figure 22: Extract of the NVivo analysis – part of the LOA



Formal rules, such as Level of Authority (see more below) and other policies, shape the organizational thinking and build the perception about organizational risk attitude. The main goal of the LOA is to create a single thought process for the corporation, and to have a homogeneous decision-making process. This also ensures that every employee who is in a position of authority sufficient to make decisions has the guidelines that are required to make an appropriate decision. Thus, people’s behaviour pursues « one » organizational thinking because of their embeddedness into the organizational system. The above-mentioned document is not a direct guideline on risk management, but it is the major instrument that every individual has to consider. References to the LOA were raised in 38 out of our 46 internal interviews.

The LOA is also the major entity that is referenced in risk management documents as an indirect control procedure that has to be considered if applicable. We built the following table to identify the relationships between external standards and internal policies. The documents listed in the table all have a direct impact on the LOA.

Main external references	Policies, Codes and Standard operating procedures related to Risk management	Corporate Reference
ISO 27001 Information Security Management	Code of Ethics and Business Conduct	Level of Authority
	Travel Security, and Health and Safety	
	Business Resilience and Recovery	
	Information and Data Security	

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	Procurement, Transport, Storage, Use and Disposal of Explosives	
ISO 31000 Risk Management Guidelines	Risk Evaluation and Monitoring	
	Project & Investment Approval	
	Cost Risk Assessment	
ISO 31010 Risk Management Assessment Techniques	Corporate Project Risk Management Procedure	
	Risk Management Requirements for suppliers	
COSO	Proposal and Project Peer Review	
	Enterprise Risk management Policy	
	Risk User manual	
ISO 9000 - Quality Management Systems - Fundamentals & Vocabulary	Global Health & Safety, Security and Environment Policy	
	Project Management Policy	
ISO 9001- Quality management systems - Requirements	Project & Investment Approval	
	Project Risk Management	
ISO 10006 - Guidelines for Quality management in projects	Project Peer Review SOP	
ISO 19011- Guidelines for auditing management systems		

The references in Table 33 above show the structure of the formal risk management rules, and centralized risk authority, and give comprehensive information about the risk approach. Furthermore, these reference documents are completed by specific forms that managers are requested to fill in as a part of their formal reporting. For instance, the « Risk Checklist » is an eleven (11)-page document that has to be submitted in regard to the delegation of authority and escalated according to formal lines (see extract below).

Figure 23: First page of Risk Check list

The image shows a 'RISK CHECKLIST' form. At the top left, there is a large black redaction box. The title 'RISK CHECKLIST' is centered at the top. Below the title, there are five input fields, each with a label in a grey box: 'PROJECT NAME :', 'EMPLOYEE NAME :', 'EMPLOYEE NUMBER :', 'REFERENCE NUMBER (BWS+) :', and 'DATE :'. Below these fields is an 'Instructions:' section with a paragraph of text. Following the instructions are two sections: 'Section 1: Required Approval Level' and 'Section 2: Base Risk Score Matrix'. Both sections are followed by large black redaction boxes covering their content.

Source: EngineerCo., internal document

There are limits in this form of official -and very often written- escalation. «...with escalation there is selection of information » (Risk Workshop 9 – Director). A privileged and ad hoc form could keep a more complete record of information because it is in the form of conversation. There is also the voluntary limit to not formalize every aspect of risk management, this could include the part of risk culture's structure that is quantified through risk appetite.

Fieldwork observation from August 29, 2017: *during the fall 2017 Executive Committee, a new Risk Appetite project was proposed and discussed. Shortly after this, I had a discussion with the President who was in charge to present the project.*

MJ: ~So you are going to introduce risk appetite?

Person: ~come with me and I will explain it to you.: ~

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In the office the person explained to me that the project is not the same as that of the previous year (2016). The previous project was something too rigid and boarded. The current project is more flexible and will be only a generic outline that establishes some indicators and will apply to some cases. The objective is to keep some space for an enactment and not prescribe everything. As soon as it is prescribed the Board can ask for verifications.

According to Mack & Szulanski (2017), if a company chooses not to formalize some specific rules, it can be part of a strategy and can also mean lower transparency for company members and idea sharing. In fact, once rules are adopted they become a reference to control and limit the space for human enactment; this phenomenon is only desirable up to a certain point. It was the same with the risk appetite project, the company top management did not want to have strict quantitative limits of risk.

So we have auditors, and once policies are adopted it become auditable so it is an advantage but it is a little bit dangerous to make random policies because we can do audits, it will be in audit annual report, it will go to board and it will go to shareholders. (Interview 22)

This reflection on centralized and decentralized structure demonstrates the concentration of decision-making and allocation of authority to the top. Even if we identify the company risk structure as centralized, there is not a single uniform centralization throughout the internal systems. In other words, it is the level of centralization that determines the level of stakeholders' inclusion in the internal hierarchy, and it can also vary through different units and functions. We explain more about dimensions and factors in the next point and in the next section.

VII.1.1.b *Hierarchy, distribution of power and Scope of Risk Culture Governance*

We will begin this section with a graphic that shows an analysis that we ran in the NVivo database. The figure was created by incorporating criteria of Hierarchy from formal and informal aspects of risk culture. This analysis assembles and displays the words that are most commonly used in official company documents to describe the formal aspects within an organizational hierarchy such as level, procedures, and approval. We can see that the majority of the analysis points towards formal elements, this is somewhat expected given the materials that were analyzed. When referring

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to corporate documents on hierarchy, it is almost certain that the tendency will be towards the formal. The fact that the reader can see some informal tendencies in the graphic is due to the fact that the material used for NVivo was a mix between internal documents and the interviews that were a part of our research. The model is designed to present in a simple visual manner a complex analysis in a simple graphic format that makes it much easier for the reader to analyse.

Figure 24: Word frequency in the NVivo obtained by text analysis



Source: Extract of NVivo on Governance and hierarchy word frequency query

In this point we analyse data about risk culture related to the power in the organization that is handled by the executive level corresponding to the governance. The primary information that we used for the analysis on governance was the interviews of 46¹¹⁶ managers/senior managers and top executive profiles during our case study fieldwork. Of all the interviews, a large proportion were with people who have an executive profile. We interviewed 36 people with the status of President,

¹¹⁶ This number does not include our 4 exploratory interviews that took place before our case study fieldwork and it also does not include 5 interviews that we did two times with the same 5 people. Thus, the total of all interviews is 61.

Vice-president or Executive (Vice) President that have executive power related to some level of governance. Executives are in charge of concrete risk for their function or sector, they are called stewards, they delegate owners in their units to take care of risk. The remaining 10 profiles are managers, senior managers, directors and senior directors. As a percentage, our interviews consisted of 78.26% with executive profile/president and 21.74 % people with profiles of senior/upper middle level. Everyone that was interviewed has some responsibility in risk management as a risk owner, decision maker or project control responsibility. That primary information is completed by internal documents, such as rules and procedures, that give us information on the concrete application of governance thoughts.

- **Formal setting**

From the formal perspective, corporate governance¹¹⁷ as an official entity is also a main actor in risk governance that can make decisions in terms of the organizational direction and in the risk orientation. Risk culture can therefore take the form of strategic orientation and is articulated through formal rules that are supposed to apply to every member of an organization and are mechanistically applied.

Following the verbatim demonstrates an interesting view on risk management. While the interviewed person was not involved in risk management by title, they had the same right to decide that some presidents have in other sectors. This interview also confirms that the tone from the top is dominant in terms of the tone of risk culture.

To me, risk management takes multiple forms within the organization, there is a tone from the top, ah, generally set by the board of the directors, going through the CEO, CFO and the management team down through, you know organizational hierarchy, through to me, and I drive that tone down through the organization. (Interview 28)

¹¹⁷ Charreaux (1996) defines corporate governance, « *gouvernement d'entreprise* », as organizational mechanisms that limit the power to influence decision-making: « *Le gouvernement des entreprises recouvre l'ensemble des mécanismes qui ont pour effet de délimiter les pouvoirs et d'influencer les décisions des dirigeants, autrement dit, qui « gouvernent » leur conduite et définissent leur espace discrétionnaire.* » From a general perspective, « *Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined.* » (OECD, 2004, pp.11-12).

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In addition to the narratives expressed in the interviews, formal documents detail the delegation of authority and the responsibilities of different actors as well as demonstrating that the tone from the top dictates the major decisions in terms of risk attitude.

The Levels of Authority - Executive policy sets forth the Levels of Authority delegated by the Board of Directors to certain executives of the Corporation. (Extract from the procedure, Interview 19)

Every risk category (see list in Communication VII.1.2.a) is formally described and is based on the decisions of the Board and of the President of the company. The specificity of risk responsibility is described in the specific procedures and is distributed to the actors for every risk and decision-making opportunity as shown in the structure of the following figure (Figure 27). The extract shows the outline of the decision-making hierarchy, Executive Vice President, Sector President, CEO, Board. The figure also shows that every level has a specific function in the decision-making process, and at what point the decision needs to be passed to a higher level, or can be delegated to a lower level.

Figure 25: Extract of delegation of Authority

Criteria / Risk Level	Approval Level	EVP	Sector President	Sector President	CEO	Board
	Review Requirement	Level 1 (BU Review ¹)	Level 2 (Sector Review)	Level 3 (Corp. Risk Review)	Level 4 (Follows Level 3 Review)	Level 5 (Follows Level 4 Review)

Source: Extract from the procedure 19

By definition, the formal part of risk governance guarantees risk control through explicitly outlined procedures and clear boundaries that define what the company expects in terms of risk culture and behavioural practices.

- **Informal power from units**

It is also important to consider that the structure relies on horizontal pathways that are flatter and, as our research demonstrates, are based on unit groups that can initiate more informal ties. What we call horizontal is the interconnection between levels which have hierarchical proximity, and that lead to actions that facilitate the proliferation of risk practices.

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We use this part of our analysis in terms of governance because it is a practice that helps to facilitate decision-making.

From our observations, we identified informal risk culture proliferation through linear structural disposition of some company units. In fact, we claim that the notion of risk governance as formal should be extended to a more informal construction that reinforces the structure of risk culture.

I try to be informal, by you know, not really having things that are required by policies. Every week I have a call with these two (show on the chart) and they update me and you know on every aspect of the project that they are responsible for or on the other issues we need to catch up on. (Interview 28)

Our research also points to initiative in the restructuring¹¹⁸ of risk systems by senior actors that have decisional power, but do not belong to corporate governance. Their profiles correspond to risk owners, and they have some level of responsibility in risk decision-making. As the following example demonstrates (Table 34: Assembling notes from observations), one organizational function has changed their formal setting in order to promote a horizontal exchange between members because they are interconnected with other sectors, regions and functions as well as internal and external activities. This function has indicated 67 positions and responsibilities in their corporate diagram. Instead of being divided by sector representatives they divided their diagram by responsibilities. The objective was to create easier access to information about potential risk, and to allow the group to react horizontally instead of taking the longer bottom-to-top process. We call this form of influence *linear* because the influence usually remains at the same level, does not smoothly go vertically in both directions, and it will block at some point.

- **Informal initiatives may lead to internal restructuring**

Once there was an informal initiative from senior level actors, their influence led to a functional restructuring. We noted that one function changed its reporting structure in November 2016, before we completed our first one-year segment of fieldwork. The structure of this function became flatter

¹¹⁸ Please note that we also describe the aspect of the restructuring of units in terms of the informational flow in point VII.1.2.a about Communication.

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and vertically aligned¹¹⁹ in order to make it easier for people from the same function to collaborate even when they represent different sectors. The result of a flatter structure is a grouping of similar functions in a single unit, this results in a streamlined process as the groups can collaborate more easily and use a wider base of experience to more efficiently achieve their goals.

When we came back for the second part of our fieldwork in 2017, we had the opportunity to again meet the leading person of this function. We were able to engage in an informal conversation and ask how the new structure was working and inquire about the positive and negative outcomes of the change. The person explained to us that the structure works well, and it allows for easier and quicker access to team knowledge on specific information and it helps in the case that they need to react quickly. In terms of collaboration, the restructuring improved the speed, but it does have the drawback that there are some stakeholders that do not directly belong to the function. In addition, some actors do not understand the advantages of a flatter structure. When this occurs, the communication becomes unilateral from one side, and without any feedback from the other functions there is not any creation of interconnection across functions/businesses.

The following notes aim to demonstrate that if the middle level initiative does not meet a circular process, and feedback from a third party, then it is better to coordinate with formal support. In addition to that, we have noted that communications supposed to support the initiative that aims at simplifying the structure were endorsed by the top management team.

Table 34: Extract from observation narratives

Assembling notes from observations, December 2016, and observation Risk Workshop 25, 2017

As every morning when I arrive at my office, I connect to the company intranet and I browse news and messages for employees. One market announced new diagrams of « Function Corpo »¹²⁰ that has as their objective to maintain relationships with the internal and external environment as well as to support all of the company's business units. When I saw the

¹¹⁹ For reasons of confidentiality we do not include any extracts in our thesis. Any documents and proof can be provided on demand.

¹²⁰ We have disguised the name of the corporate function.

communication, I realized that it is not just a minor change in the names on the chart. It was a very different structure compared to what I saw in previous diagrams.

This is how I discovered that « Function Corpo » was restructured. It had moved to a flatter structure that had more characteristics of a network structure. This new structure appeared to be designed to facilitate the flow of information and was very interesting in terms of proactive behaviour towards risk, as I had previously identified the communication channels they were creating as an integral part of risk culture. Since I know the director of the function I emailed straight away to ask if I can discuss the restructuring with him/her. The person was available immediately, and I went see him/her. In the meeting, the person explained the objective of this initiative. First, it was their idea to initiate this change because they were having problems receiving information in a timely manner. By restructuring, the goal was exactly what I initially observed when I saw the communication, that is to facilitate communication through a flatter structure. The fact is being connected with pairs from other sectors and also exchanging information internally, within « Function Corpo », on a more effective basis. Indeed, they would like to do the maximum to avoid surprising situations, and also react as fast as they can to potential threats.

On a personal level, the idea intrigued me. It made me think about small entrepreneurial cells within a large system.

...

We sat in a meeting room on the floor where one part of risk management is based.

During my second field intervention nine months after I had discovered this organizational phenomenon, there was a new session of risk assessment. I was invited to those risk assessment sessions during which I was able to meet the same unit director during the risk assessment workshop.

I could not miss the opportunity to ask about the progress of their project of restructuring. The director told me that with their project of restructuring they noticed a better level of reactivity and they could obtain better results and exceed corporate expectations thanks to that. However, there was resistance to the way they were delegating power from people outside their business

unit. Since this was a result of an internal initiative, and not a directive from the corporate level, there was no formal mandate to request official reporting and thus some people were ignoring their requests for information.

In fact, the example above was a restructuring that led to further changes. In addition to that, the organization communicated culture as an element for future strategy.

Table 35: Extract of internal communication

*Communication on internal network, Dec. 2nd 2016*¹²¹

... our medium-term growth strategy, which focuses on four key priorities:

1. Streamlining our structure;
2. xxx;
3. Building a performance-driven culture; and
4. xxx

We can confirm that formally set power gives the tone from the top that structures risk-behaviour and risk culture. In fact, a proactive initiative from senior directors and managers increases risk awareness and develops a form of informal accountability.

- **Other levels and responsibility in risk culture**

Formal risk culture is ultimately dominated by the top, but, based on my observations, there is a strong concentration of formalities at the top that are not going down to lower levels.

I think that the executive management team understands all of these other elements of risks but I do not think that the average person working on the project or working in the business unit is really thinking that it is a risk. (Interview 7)

¹²¹ Please note that information that is not necessary for our case is hidden by xxx in order not to communicate internal informal that can be sensitive in terms of the company's vision.

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Also, some discussions revealed that the company needs to place more emphasis on risk culture at the project level and risk management needs to « *bring it down from that [corporate level] to field level* ». (Interview 3)

There are multiple paradoxes that originate at the top level and cascade down through the organization (Lim *et al.*, 2017). On the one hand, the top level sets rules to control and monitor organizational risk culture very closely, but on the other hand, the top level expects that operational levels acquire -or have already learned- risk culture from their previous experience. Even if the executive level makes risk culture very formal, they expect that the operational levels (1) learn from experience and from practice (2) or associate risk culture with the project level.

Risk culture concerns projects and so people who work on projects are dealing with culture on a daily basis. As a result of the constant need to prepare and analyse, they are able to assimilate the lessons from risk events at a faster rate than corporate:

I am a believer that perhaps we have too many procedures, and we need to simplify and for us when it comes to risk management it comes very, very simple. It starts with projects, you know, if we have no projects we can have the best risk management procedures and systems in the world but at the end of the day you cannot get projects because we are sort of risk averse, it does not matter what our business is, so this business has risks and our job is to make sure that we understand the risk, and we can manage the risk. ...I am not a believer that we need additional staff responsible for risk on the projects we have, because the reality is that if project managers do not understand the risks that are involved in our projects, and manage those risks, then he is not doing his job. (Interview 3)

Also, another executive also supports project-oriented risk culture:

MJ: My work is on risk culture ...

Vice President: What do you mean by risk culture?

MJ: It is one of my research questions. I look at it within your sector of activity and it does seem to be a well explored topic.

Vice President: I think it exists at the project level. Because while we execute an engineering project we estimate commercial offers, we define part of the contingency and part of the risk. ...and so (personal example of the calculation of contingency vs risk) it is the opposite, I think that in project management we are all managing risk all the time and

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we always need a plan B and C... (other explanations follow in the direction of calculation of financial situation of project, partners, ventures etc...)

MJ: So, this is project level, and what about your whole company. According to you, how can a company acquire risk culture?

Vice President: I think that most of our employees are employed on projects...so most of our people are embedded in that kind of environment very quickly and you [speaking of employees] are very quickly in contact with risk culture. I think most of our people know it [Risk Culture]

It confirms that « *projects involve risk by nature* » (Zwikael & Ahn, 2011, p.31), but we think there is an imbalance between formal responsibility delegated from an executive and what the organization considers as a deliberate risk culture acquisition on the operational level.

Due to the content and focus of our research we cannot undertake a detailed explanation of project level risk culture. We are focused on the top and senior levels and we have only limited data from operational levels. Based on our research, we cannot claim full reliability about risk culture and its full integration in operational procedures by people on projects. The table with our findings can be consulted in VII.3.

VII.1.2 Behavioural character of Risk Culture

This point describes risk culture in the company from a behavioural view. Behavioural aspects (I.2.i – iii) demonstrate the more human aspects that represent a continuous search for an optimization and adaptation to different tasks and situations (Gravetti *et al.*, 2012) related to risk culture.

VII.1.2.a Communication

As in the previous point, we are using an NVivo analysis to demonstrate the frequency with which specific words appear in a query. This graphic demonstrates the words that were used most often

in formal and informal documents that we analysed. We can see that the five most commonly used words were: review, risk communication, proposal and information. Even if our analysis expresses both formal and informal, we can see that control –in the form of « review »- is a top priority. However, communication is also about information that can take a formal and informal direction, and that point will be discussed in more detail in a later section VII.2.

Figure 26: Extract NVivo on communication word frequency query



We begin this section with a quote that shows the importance of communication:

MJ: What could the company do better?

Vice President: I think communication...I think we have some good messages, but I just think we do not communicate well enough.

MJ: You have explained to me that some people report, how do you concretely interact with people who are reporting to you and how do you report?

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Sector President: We communicate, we communicate on a weekly basis with our managers, we make a weekly report on main activities, on key areas, it is the same what I do with my boss, I report to them. ...And I report to the CEO.... Not lateral reporting, I report to the CEO and to my peers ...but I do not report laterally to my lateral peers.

Thanks to the deep embeddedness during our case study we were able to observe formal and informal communication, its different forms, flows and processes. For us, the communication of risk culture consists of diffusion of information within the organization. The form of communication is usually related to the message. The message could be transmitted through different channels, although there are formal and intentional communication channels (for instance recently studied by Mayer, 2017) and informal social settings and exchanges.

We have also run a matrix coding query in NVivo which allows us to cross-populate overlapping terms within particular groups. We crossed Horizontal rows (1,2,3) with all research categories so every row adds up to 100% when you combine the vertical A., B, C... items. The second figure presents an additional option in which there is only one column (A: Communication) and that column adds up to 100% when counting the analysed categories.

We use the following example to demonstrate that communication is one characteristic of risk culture that appears in almost equal proportion for all three studied aspects of risk culture as well as being one of the most relevant among all characteristics (Figure 29). However, when examining the proportion between formal, informal and manageability (Figure 30) the formal aspects of risk culture are dominant (over 66%). This dominance is due to the strong formalization of both risk management and risk assessment. We were able to gather our information regarding both the informal part and manageability through observations and interviews. The interviews specifically included questions on how people communicate and how they receive information on risks. The results of the informal provided information that we were able to analyse to determine that one third of risk communication is informal. This means that a relatively large percentage of communication is not captured or written anywhere. Additionally, we showed that only 12.7% of communication would be manageable, and that means that it is very difficult to control.

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Figure 27: Extract from NVivo Matrix coding and place of Communication with other analyzed characteristics

	B : Behavior	C : Communication	D : External - contextual ...	E : Hierarchy	F : Practices
1 : Formal	3.08%	25.39%	3.32%	12.48%	13.9%
2 : Informal	8.03%	20.56%	2.89%	9.32%	31.89%
3 : Manageability	7.61%	20.59%	0%	3.13%	37.17%

Figure 28: Extract from NVivo coding Communication distributed between formal and informal aspects

	A : Communication
1 : Formal	58.21%
2 : Informal	29.09%
3 : Manageability	12.7%

Literature about risk culture already clearly demonstrates that communications play a crucial role in risk culture setting. Written information and official data that cover formal communication outlines the way that organizations consider risk culture (Power *et al.*, 2013). We have also identified that communication methods are strongly related to the message that companies diffuse through formal channels such as intranet, written documents and policies. Concrete formal applications are communicated through multiple programmes with the objective of diffusing the message across the company. A large amount of information is released through the internal network or training with the intention to create a common understanding. The further goal of this commonality is to establish an informational consistency through all levels. In order to have this consistency, organizations focus on communication related to different forms of risks. Formal communication is also related to the way the company tends to control and structure diffusion and escalation of information. By centralizing and structuring communication to official channels organizations acquire the feeling of control.

So, I think it is a condition of few things, I think it's initially training, or ...maybe initially it is actually organizational structure, so it has been important to us to organizationally have some level of standardization that recognizes that to communicate all these things we need somebody in each business unit and sector who is responsible for risk. (Interview 2)

- **Different forms of risk as object of communication**

We would like to clarify what organizations mean when they discuss risk that is formally communicated. There are different formal tools to communicate (documentation, setting, mechanisms, policies, way controls...) depending on what form of risk is being discussed.

For instance, document PS19 that we have already outlined in the governance part is the main reference for the organization in decision-making for risk communication. It also indicates the level of risk and what decisions each level is able to take. The risk is classified under different forms related to the level of risk which comes from *finance and legal functions*, but is applicable to all departments and is a key document for the organization in determining responsibility and decision making. The different forms of risk are as follows:

- corporate risk
- cost risk
- counter party risk
- country risk
- environmental risk
- ethics risk
- exceptional risk
- performance risk
- project risk (schedule risk, brown field¹²² risk)
- security risk
- technical and commercial (process risk and risk allocation)

The list gives an overview of risk categories and also outlines in which domains of risk EngineerCo. established a formal construction of risk culture. Formal communication goes through a determination of modalities regarding the role and discourse (Steyer & Laroche, 2012). For instance, as we describe later in this chapter, the company is strongly focused on certain specific risks relative to the environment. We noticed a strong formal accent on two categories of risk:

¹²² Infrastructures project are divided in Green field projects and Brown field projects. Green field means projects of new constructions and Brown field means renovation, extension or refreshments of already existing constructions.

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Health & Safety and Ethics & Compliance. The company also tends to make security aspects more formal by ordering specific programmes and deployments related to projects and individuals' security.

- **Communication related to control**

During our research, we were able to identify that the way risk is communicated is directly related to our case study. It became clear that, as a result of an organization such as multinational companies being publicly rated, and because they have multiple public and private shareholders, they in turn have to report risk on a regular basis to their board of directors, and as a result that can lead to preferences on risk (Pan *et al.*, 2017).

...There is tone from the top, generally set by the Board of Directors... (Interview 28)

Formal communication gives instructions to internal stakeholders on risk behaviour.

All (EngineerCo.) Personnel must strictly comply with this Policy and all applicable (name) laws and regulations.

(Extract from policy, PS 32)

In addition, communication as a part of the formal tools has as an objective to raise red flags (Power *et al.*, 2013) on company risk situations (as incidents)

All employees are expected to report all incidents utilizing the Incident Investigation (number of forms) form.

(Extract from policy, PS 15)

A demonstration of formally organized communication is the information that must be communicated whenever the company makes any internal presentation. The beginning of a presentation is the reading of the minutes of security: as an example of an internal routine related to risk we note that every company presentation (online or in the room) had to start with the security moment that corresponds to the story or narrative used to recall the importance of security. There were stories from day-to-day life that had the purpose of showing that risk exists in all areas and situations. As risk exists all around us on a day to day basis, it is important to be ready to observe it in your own or someone else's function. (Example from one training where the

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presentation started by calling attention to the use of barbecues in a garden as noted in our observation on risk security training).

...the safety moment is about leadership and leadership in safety, ahhh, quite often on the project side or whatever it is in an office or at home there are maybe hazards, or unsafe situations, and we can choose to do two things about those. We can walk by it and think somebody else must know about it and somebody else must be taking care about this and I am kind of the hurry, whatever the case, or we can do something about it. And you know, it is really taking on that leadership and sometimes, sometimes it is courage, sometimes it calls courageous leadership to do something about it, because if you don't do something about it you kind of accept it and that becomes your standards and people see walked by as leader and you know you are sort of condoning some of these unsafe acts. (Interview 2)

The following extract also demonstrates that safety moments are officially included in the meeting programmes and internal presentations. We have chosen different types of presentations to demonstrate that a safety moment is a routine that is incorporated in the meeting agenda of different types of functions. There is a strong organizational push to sensitize all people to risk, and the fact that every situation has a varying degree of risk.

Figure 29: Extract Corporate programme 2017

Agenda

- Safety Moment
- Introduction
- Program Context & Objectives
- Business Capabilities Model
- Governance, Leadership Team, Guiding Principles
- Program Delivery Alignment: Architecture Phase
- Workshops Approach
- Workshops Schedule & Logistics

Figure 30: Extract number from Working group Kick off Meeting: March 2016

Agenda

Item	Topic	Speaker	Time
1	Welcome and Safety/Security Share		2 mins
2	Program Review Introduction		5 mins
3	Introduction of Participants		10 mins
4	Mandate / Background		10 mins
5	Overview of Workshops		5 mins
6	Two Questions		20 mins
7	Homework		5 mins

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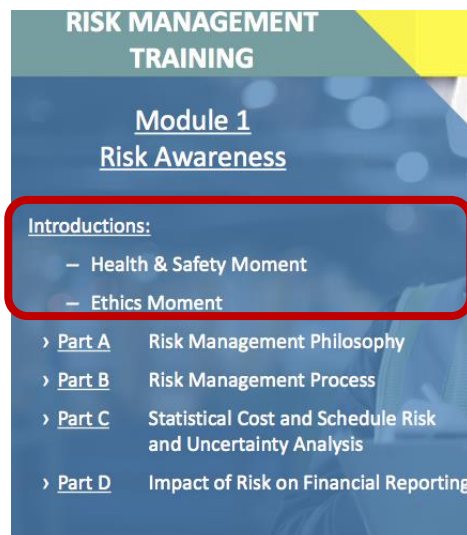
Figure 31: Extract from Programme of Security Meeting, March 2016

Title of Meeting:	Global Security – Weekly Ops Meeting
Date of Meeting:	March 16, 2016 09:00 -10:00 (EST)
Moderator:	[REDACTED]
Location:	[REDACTED]

AGENDA ITEMS

Item	Topic	Speaker	Time
1	Introduction & Attendance	[REDACTED]	1 min
2	Safety/Ethics/Security Share	Open	2 mins
3	Update on Deep Dive Security Review – Mali (O&M) –	[REDACTED]	3 mins
4	Mail Cart Security –	[REDACTED]	1 min
5	Update on Physical Security SOP –	[REDACTED]	2 mins
6	Project & Investment Authority (PIA) (formerly REC) – Update by [REDACTED] –	[REDACTED]	5 mins
7	Status of Security Investigation Reports –	[REDACTED]	2 mins
8	Update on BRRP Roll-out – Regions	[REDACTED]	5 mins
9	KPI – Country Security Briefings (key performance indicators)	[REDACTED]	3 mins
10	Travel Security Update (Support Team)	[REDACTED]	5 mins
11	Other Issues from Support Team	[REDACTED]	
12	Roundtable - Varia	[REDACTED]	10 mins
13	Next Meeting: Wednesday March 23, 2016	[REDACTED]	1 min

Figure 32: Extract from risk management training



The company emphasizes their ideology about risk through communication in order to reinforce the message and concerns about security. The goal is to establish good habits by issuing formal statements with the aim to attain safe days. The initiative is designed to keep people out of danger on the project and to keep them safe.

We are regularly informed about what can happen, what the safety policies are (...) but really everybody, everybody has to complete [Health & Safety, note from the author] training...the company really cares, because they can win prizes for it. (fieldwork note, discussion, 20.6.2016)

There are also declared days with zero incident on projects called *Perfect Days to support our goal of zero incidents* (EngineerCo., Annual report, 2016).

That has been pursued since 2016: New in 2016 was the introduction of « Perfect Days », an account of the days where Company projects and operations were incidents free. First year results varied considerably across the four business sectors from a high of 357 days to a low of 76 days. In spite of these results the Committee is encouraged by how employees have embraced the new measure as a way to enhance even further the Company's safety and overall performance. (EngineerCo., Annual report, 2017)

And also we have Perfect Days, this is something that we are rolling out. So, what is it, it is tracking the days where we have no safety, environment, security incidents at all, it is a, a perfect day. So, we wanna (sic) focus on, we wanna (sic) motivate people. Even if there

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was some sort of an incident that happens one day on a small project that can really statistically affect the project, we want people focus on, let's make next day the Perfect Day. And also, we harmonized [Name of the Policy that includes initiatives on perfect days] policy and it is on info zone and also one-page statement for all offices. It is great to put it in the proposal...(Interview 2)

As noted in the Sixth Chapter, the accent on safety is directly related to the fact that safety can be controlled, and a high level of achievement can bring about a reward. The industry as a whole focuses on measurable risk and security, and this allows a comparison between departments and competitors. These elements combine to create the contextual conditions that we originally explained in Chapter 6.

I have created an analogy to safety. In our industry, safety and security was at a high in the end of years, let's say at the beginning of the 80s maybe the end of 80s.. and we can see that the previous CEO based everything on safety culture, and we followed the same with Ethics & Compliance. (Interview 22)

- **Informal communication in risk culture**

What we learn from informal communication is that there are individually driven projects and initiatives that create a « *collective mind* » (Weick & Roberts, 1993). The main factor to observe in the informal aspects of communication is awareness. The informal portion strongly supports the formal part of organizational communication.

My only concern is awareness. It is across the industry so the practices are acquired but I do not remember any training about it. (Observation, Risk Workshop 18). People need to learn to call and get information and check information. (Observation Risk Workshop 19)

Even more than we heard comments on formal communication, we were constantly met with the opinion on exchange of information that Power *et al.* (2013) call « *open communication* ».

It is important to have the information...Because it is there where we can avoid traps. And a trap in communication is essentially to misunderstand the content and create the wrong interpretation.... (Interview 5)

In regions we try to keep communications together and we communicate between offices, it is critical internally to have knowledge of these countries. (Observation Risk Workshop 16)

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In general we have to follow this politics, but that is separate from the approval process, for instance if there is a specific project that arrives, I can informally decide to have a review with the group (of the sector) and say that I would like to better understand, and so I will sit, it can be very informal, I will talk to (a person holding a responsibility is his function) what do you think about the project, the level of risk at that level, are we really going to be able to manage this level of risk...(Interview 11)

The informal aspect challenges formal communication, but the formally set communication may limit¹²³ the actions of operations:

~...Some procedures are difficult to apply on a project and there is no way to explain to corporate that it makes no sense~ (Fieldwork notes, informal discussion, 16.6.2016)

When I arrived (to my function), I was looking for things, there were contradictory things, there were all those things. Information, SOP [standard operating procedures] were contradictory, there were everything like that...so we did some cleaning and we put some marks. (Interview 11)

Our results focusing on communication clearly show that the formal and informal aspects of risk culture cannot be considered separately. Risk culture in a multinational company requires a formal communication of risk behaviour and outline of organizational expectations. However, if the formal is taken by itself, there is a large part missing which is represented by humans and their practices. Also, formal aspects of risk culture add time and complexity to the communication that can be important in the outcome reaction and in decision-making in risk management.

VII.1.2.b *Character of the social capital and actors' role*

For this part, the word query, we can clearly distinguish that people are key aspect in social capital. People are the significant and predominant key word in the analysis of social capital and actor's

¹²³ We also noted from internal documents (from which we cannot quote extracts here) that there is also mention of some kind of risk related to the agency responsibility at governance level.

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role in risk culture. Other words -but significantly behind- are review, risk, level and proposal, which signifies that monitoring aspects stay present.

Figure 33: NVivo on social capital and actors, word frequency query



In our proposition (Fifth Chapter, V.1) we have anticipated that authority, rules and regulation identify formal aspects, but those aspects have to be considered with caution and in relation to social capital (Gooderham *et al.*, 2011). Our fieldwork confirms the strong formal emphasis on risk management actors and on actors as the following extract from NVivo demonstrates. With our analysis of the groups, we wanted to show the proportion of the actors' social role and behaviours within formal and informal aspects of risk culture as well as manageability. We can see that an actor's social role is most relevant when looking at formal aspects. We attribute that to the fact that almost all formal documents describe roles and responsibilities that are projected in the analysis. We can still see that informal behaviour occupies more than twenty percent and we were able to show this in the analysis. When it comes to behaviours and how people have to behave, the proportions are more evenly distributed among the three aspects of formal, informal and manageability. This means that behaviours incorporate all the different aspects of risk culture and shows the reality of risk culture.

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Figure 34: Extract NVivo Matrix analysis

	A : Actors - Social Role ▾	B : Behavior ▾
1 : Formal ▾	64,98%	37,83%
2 : Informal ▾	16,29%	21,74%
3 : Manageability ▾	18,73%	40,43%

Actors' roles and responsibilities related to risk and risk culture are formally prescribed most of the time. Initially, we identified hierarchical roles in risk management, this means that individuals have a specific directive related to risk management.

The CMT (continuity management team) leader must appoint the CMT members, both primary and alternates, to fill the following mandatory roles. (Extract from Business Resiliency document)

The roles and responsibilities in risk management are formally assigned and do not go beyond necessary involvement. ...*Basically, we follow the business structure.* (Interview 4)

The role of risk management is to report, coordinate and manage risk functions and control the application of risk management deployment. It is in the description of risk manager's responsibilities to create an energy around the topic of risk and establish a risk-compliant culture.

Our Expectations of Our Managers: They are responsible for promoting a culture of compliance and integrity [...]...safety and security ... as well as ensuring a positive working environment in which people are treated with dignity and respect. (Internal Document on Conformity)

~In order for risk culture to function, there has to be reporting, visibility and risk recognition put in place ~ (Observation notes: Risk group meeting, April 2016, Director)

We could also observe the informal social role of actors that was revealed in our analysis. The informal section of our results demonstrates the unofficial input to risk management and every actor's responsibility towards risk. Following the knowledge base approach (Gooderham *et al.*, 2011; Foss, 2009; Eisenhardt & Santos, 2002) we were able to identify the traits of individual good will that is beside the hierarchical role of risk culture development. Social capital has a positive impact on risk culture transfer through informal flow.

Well, it is about people, you cannot come so far with a programme (on risk management), it is about people it is about people imputing. It is getting into the culture where people are continuously looking at how we can improve it. (Interview 14)

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However, the informal assumption that actors are constantly looking to improve risk management is widely supported. The informal part regarding social capital and thus social responsibility outside of the directive is weakly supported. Our main observations show that organizations are not focusing on people and on the behaviour that can emerge through informal methods. However, the organization is improving the focus on risk management and imposing tools to assess risks.

It is delicate to get this information from people (on risks), so there is a relationship that has to be built in order to be able to benefit from this information. It does not come immediately. It has to be built; building links is an effort. (Interview 12)

Based on our informal results we can develop the discussion based on Zhao's (Zhao *et al.*, 2014, p.827) assumption: « *A risk-aware culture can be created across a construction firm through instituting clear accountability for risks, thus making staff at all levels have risk awareness, and should be incorporated into the corporate culture. To sustain a strong risk-aware culture, the expected behavior within the organization should be explicitly expressed.* » However, the expression of risk management also has some flexibility:

The composition of the ERT¹²⁴ may vary according to local circumstances and resources. However, the following roles are mandatory and must have one or more alternates: (...)
(Extract internal documents number 24-4)

At the same time, depending on the units, there is trust towards actors that are aware enough of risk to be able to develop risk culture outside of their formal role: « *So you need both the right individuals in the oversight function, and also the right individuals on the receiving end...* » (Power *et al.*, 2013, p.39). We would add to that statement that there are also individuals that have to be informally involved in all lines, not only in risk function and the bottom receptions.

Observation 20.9.2016

We have no real process to identify the (specific risk) but we have no process to do it. We have employees with very good eyes to flag it. (Interview 22)

To conclude, we wanted to demonstrate that even if the formal is strongly supported in our results, some actors' informal behaviours were identified and should be considered with a degree of importance by the company. The informal roles of actors have an important role to play in

¹²⁴ Emergency Response Team.

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gathering key information and ensuring that risk culture is correctly embedded in the internal systems.

MJ: How do you control the risk factors on a project?

...It is really delicate to get the information from people, so there is a relationship that has to be built over time that gives me the capability to get that information. (Interview 12)

VII.1.2.c Processes and procedures

The introductory figure (Figure 37) shows that main key words from our frequency query analysis are related to processes and procedures and formal aspects that we include in the process of decision-making, such as, for instance, approval, review and level.

In the section on process and procedures, we see that in the NVivo diagram beside risk there are several keywords in the analysis plan, business, incident and management. We were expecting a more formal designation at the top, but they are only seen outside of the top 10 positions. These formal designations include -but are not limited to- following, supporting, plans, or templates. This shows that even formal actions have room to include informal enactment. It shows that many of the processes are informal, even if the company has multiple documents that detail how people have to behave.

Figure 35: NVivo Process and procedures word frequency query



Earlier in our results we discussed situations where we noticed risk culture through formal and informal lenses. With hierarchy, communication and actors, we described different conditions of risk culture, now in the process dimension we bring a different dynamic to risk culture. Process in risk culture literature is described as part of the change initiatives that are realized through formal methods as programmes and assessments. However, by looking at the way that organizations approach risk culture including planning, preparing and executing, tracking and monitoring, we can see a new dimension to risk culture.

As we have already introduced in VII.1, large organizations, such as multinational companies, only engage in organizational change -and obtain control of activities through the implementation of- formal procedures. Aside from a formal reporting structure, organizations also focus programmes and implement different processes in order to advance risk culture.

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Risk management creates a risk culture footprint that is seen in the organization through processes and procedures related to risk. We already saw this in detail above. Here we will detail how this formal aspect plays its role within a global risk culture process that also includes informal aspects.

In the case of communication, we can say that there is a strong formal component emphasized in the control.

So, organizational culture is through training of those people, and also making them familiar with our levels of authority and so on and also auditing against those processes, and the auditing is our internal audit team so if there are any results from those audits the findings go to our board of directors through our audit committee. (Interview 2)

The company also sets up guidelines where individuals have specific and assigned roles and responsibilities to accomplish, and they have to behave a certain way in certain situations. There is a conscious effort to move away from subjective and individualistic risk evaluation to an organizational level evaluation. In order to clarify the company's direction on risk attitude, the company puts in place different procedures, process and trainings.

Feedback from the report person 24.8.2017: *~We wish to clearly define the rules on how to recognize risk ~*

Risk Management must be actively and continually applied to all parts of the organization. Risks are to be identified, evaluated, mitigated and monitored as early as possible. Company procedures and software, created for this purpose, must be used at all times. Risk Management must become part of each employee's DNA.

(Extract from internal document number 22)

Also, reporting systems that are regularly controlled and verified result in concrete surveillance on the procedures.

As a result, completion of the Risk Checklist is highly desirable ...

(Extract from the control report 64)

Based on the observations we can see that formalization and organizational centralization can have an impact on the organizational dynamic of innovation (Romelaer, 2014)¹²⁵ and therefore influence risk culture. Formal procedures may have a passive effect on social capital and limit slack, but

¹²⁵ Revised version from 1999.

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they can in turn contribute to natural increased awareness of risk culture. While previous procedures might appear as strongly official, we also identified punctual involvement in the risk decision outside of formal directives.

Risk culture calls for an inclusive process that seems to exist inside the organization, but, as they are not oriented towards a risk culture construct, there is more of a focus on business risk. Culture is represented by more informal initiatives in which different units need to adapt risk management to their business realities. We identified that those processes came from a lack of tailored support from corporate procedures.

From the risk perspective, we went above and beyond the corporate, we adapted to our sector, because again it was not adapted to (their business.) ...it is tighter.... People do not understand, ok, big risks we know them but this is how you manage this (regarding smaller ones). So this is why we created this process (their adaptation to the « reality »). (Interview 15)

Especially in processes and procedures we noticed the importance of informal aspects.

Director 1: We have no real process to identify the conflict of interest, we have no process to do it. We have employees with very good eyes to flag it.

Director 2: I think people are currently aware and they are doing their best.

(Observation Risk Workshop 22)

Decision-makers are confronted with a large amount of information that they must handle and transform to appropriate processes. Even if formal processes and procedures help with informational selection and limit saturation; our research emphasizes the informal informational channels that give information on potential risks. The knowledge can be a source of awareness that can lead to recognition of the potential source of risk (Kumar, 2013; Cyert & March, 1992). The knowledge transfer between team members is related more to informal communication that is more narrative and cognitive than based on written documents. We wanted to know more about the dynamic of procedural and informational channels.

MJ: How do you get information?

Executive Vice President: well, let's expand on that question a little bit, the message I have with my staff, it is always one team, one team, one team (shows on the chart), we are all together, ok, the message that I give to my team is, my door is always open. I am always

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accessible to people, my doors are open, it means if I am not in a meeting you can come in, you are welcome, we can talk, ok. We are very aligned as a business we are managing professionals. We need to be aligned; we have the same vision.

In fact, the informal involvement of actors develops organizational knowledge.

MJ: How do you exchange information

Senior Vice President: There are different ways. There is formal written communication, for example when we are talking about bid review and bid proposal there is a section that requires us to provide you know documentation, provide legal advice and risk associated with those things. On top of that there are formal meeting sessions, there is also lots of informal dialogue, so you know...there is formal communication that is required by the process but there is the relationship built on communication whereby built by you know the very nature of working with the people on the basis you exchange on risks.

Informal innovative practices rely on communication, and the insertion of social capital into the procedural flow. Risk culture, taken as an innovation process, cannot take over the formal organizational initiatives. Especially in the case of risk culture, innovation has to go through open and inclusive practices that create the dynamic between individuals and units. Therefore, we did not identify any relationship between formal, deliberate innovation and risk culture.

We were involved in the development of communities of practice and its transition to knowledge networks for corporate risk management. We had to analyse existing communities inside the organization that are grouped through the internal online hub. During our research in 2017, the company had twelve official networks that were communicating through their internal online hub. It was the internal intranet that allowed for exchange and communication between community members across the world. In some cases, this online hub served as a library for the storage of documents (such as brochures, articles, sheets, press releases...) but without generating any interaction or communication. In comparison, there were active networks that had live exchanges about topics related to their community. Members actively discussed questions raised in forums, or they made regular updates. In the case of risk function, there was a very small community, and that is why risk management has decided to make a transition to the corporate format. However, according to our analysis of existing communities, we can emphasize that the internal hub is the only formal instrument that does not lead to interactive and innovative thinking on risk culture unless they are actively involved in the discussion.

VII.2 Relational nodes between formal and informal aspects of risk culture

This section demonstrates the different nuances between formal and informal aspects and connects risk culture dimensions in the integrative model. We are aware that some dimension that we presented in previous sections sometimes overlap. In fact, the richness of our materials and its presentation was very problematic because there are characteristics that apply to multiple elements of risk culture, and we present some such characteristics in this section. At the same time, it allows us to conclude our research findings.

Some aspects from the analysis in previous sections do not exist in silos and are related through different practices that create the dynamic in the risk culture structure. In this subsection, our objective is to relate risk structure aspects to each other according to the procedural characteristics that go hand in hand with social interactions, communication and attentional engagement (Ocasio *et al.*, 2018) on risk culture.

VII.2.1 Allocation of resources through attention

In our research, we considered resource allocation to risk culture as part of the attention towards the development of risk culture. In total, we have identified three different types and outcomes of resource allocation to develop risk culture. Those three ways are divided between the different stages of our fieldwork, and thus the cycle of company evolution. We have identified two methods of resource allocation that play a role in risk management programmes within our first fieldwork that was in 2016. In fact, there is both formal and informal resource allocation. By formal we mean to say it is tangible and officially supported with appropriate resources (financial and human) in order to accomplish the deployment of the risk management programme as an instrument. In the second instance, there was an evolution of resource allocation and a mix of formal and informal that allowed for knowledge-sharing and an extended informational horizon, while at the same time making an informational selection. It was a shared knowledge allocation that at the same time used formal resources attributed from the top.

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Thus, resource allocation is governed by the tone from the top and the decision to set up instruments of risk culture. It is projected through the company in the form of corporate training and processes that we constructed as a whole package; the package is referred to internally as a programme. The tone from the top supports this decision by the nature of the resource allocation.

The first opportunity in which the company allocated resources to risk culture or risk management came when the leadership team gave their attention to the subjects in question, and saw that there was a possible performance outcome.

The starting point for me is about a performance culture that just says that we are going to do a good job today and we are going to try to do a better job tomorrow. I know it is difficult but if we can get that sort of culture. (Interview 14)

In this case, attention to the specific subject of risk management had its starting point from industry and external factors. As a concrete example, Health & Safety programmes had support from the top management with financial as well as human capital. Also, their evaluation grid was based on the industrial standards in Health & Safety that are common practice in the industry. Those standards had a positive impact on the programme deployment, because the top management was endorsing the process while at the same time they were able to control and evaluate it periodically (see Perfect Days project in VII.1.2.a: Communication).

As soon as the programme had top management attention and resource allocation with financial and human capital, it had a much easier time to gain human acceptance, and at the same time other levels could create mandatory obligations. For the programme leader, the risk programme deployment was facilitated by proper resource allocation.

However, we also identified some drawbacks that can arise when the programme subscribes to the bureaucratic process. In this case the example that we are discussing are programmes related to the Business Resiliency Programme:

Fieldwork note 17.2.2016

While (the animator) presented the programme and mandatory responsibilities to regional leaders; the (continent) filial raised the problem of the strong bureaucracy of the programmes where they have to spend a lot of time to complete documents and files, and being controlled like that without having extra budget and time for doing the paper work.

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Also, the mechanistic approach was similar in risk assessment workshops. We noticed that the majority of the assessment processes were about entering information into the forms and risk assessment software.

While the second type of the resource allocation also comes about due to the tone from the top management, it is more verbally supported by the top. Also, this programme does not benefit from a strong interest which is reflected in the financial resource allocation. There are human resources allocated, but there is less attention to control and less interactive feedback from the top level. The reason for that is that this type of programme does not have any comparatives in the industry or is not considered to be valuable among the competitors, and this is the case for the One Travel project. It was built more for the internal necessity to unify internal systems in order to have a view on travel expenses and travellers' security. There are no industrial practices that outline the structure of the project or the expected outcome. Thus, when the programme leader asked for the extra financial resources there was not a positive answer from the top level. This type of programme was one of the responsibilities attributed to one leader who had to convince and handle regional leaders to adhere and collaborate.

Fieldwork note, informal conversation, 1.3.2016

The TRAVEL programme Responsible confesses that he/she has trouble to get (specific) leaders around the table. The person just does not accept any of those implementations and (the person holding responsibility) has no power to do more.

The programme success was tied to managerial style and motivation more than on the formal structure. Also, we noticed that it was harder for people to accept someone in the position as the programme leader if they are not at the top level of the unit team. Thus, the programme that was primarily based on informal motivation passed through the hands of 4 different bosses during our 2016 fieldwork because they left or gave up their task.

We identified a third type of resource allocation that aligns with the last company stage and our second fieldwork portion in 2017. This type also falls under the collaboration between formal units and mandatory risk assessment programmes. This third type, in fact, represents a mix between formal and informal aspects of risk culture. There is resource allocation and support from top corporate levels, that represents characteristics that we have described as control, and obligations to assess risk. At the same time, there is an informal mutual agreement between different units that

collaborate together in order to save time and to have increased access to information. This informal initiative is validated by the presidents of both functions, as was the case in the preceding informal description of the less successful case. We see in this instance that formal and informal resource allocation lead to cross-unit cooperation (for more information see VII.2.2: Interactive search for knowledge).

We can therefore say that, in terms of organizational resource allocation to risk culture influence, the future outcome can contribute to profit if both formal and informal aspects are strongly present.

VII.2.2 Interactive search for knowledge

« *What is important is having information, it is there where we can avoid traps.* » (Interview 5)

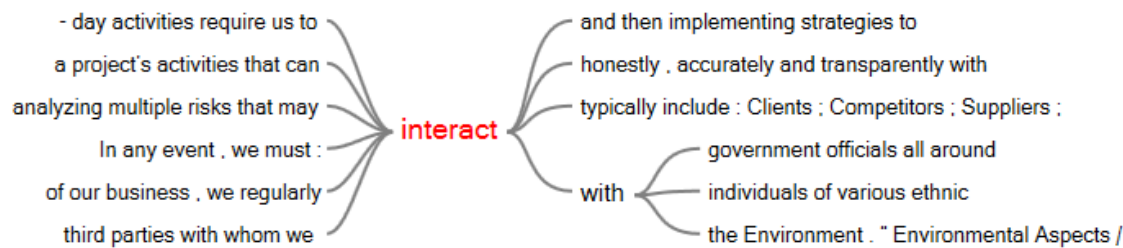
Interaction and human collaboration are nothing new in organizational studies but, in terms of risk culture, Power *et al.* (2013) emphasize that in large corporations the role of interaction is very often designed through organizational hierarchy. Risk management is developed as a technical aspect applied through the formal process of risk evaluation assessment and decisions, but it neglects more informal parts, such as human interaction. However, what should be encouraged is open communication and relationships between people. The dimension of interaction is specifically a concept that is oriented toward informal risk culture practices. The interaction is not about quantity, but about the quality of the informational flow. The fact that interaction should be applied to the static models on risk management and risk culture building is discussed by Power *et al.* (2013). It is emphasized in the study that establishing risk culture is not done only through designing formal programmes that surround risk management and those who are accountable, but also through the frequency and quality of the interaction between humans.

Even if current research stands behind human and informal interaction (Palermo *et al.*, 2017) it is still very limited in the way that it is considered by organizations in risk culture building. For instance, Mikes (2009) proves that risk culture is more oriented at hard science calculations and numbers than it is about soft skills.

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The following figure represents the query that shows the relationship that is created around interaction in key fields, and how they relate to the analysed content. It shows that the word « interact » appeared in different instances, as described below, and defines cooperative action that affects risk culture. We found it important to show that both practice and action are processed through human linkages and natural spillover to the practice of risk management.

Figure 36: Extract from prescribed documents



Source: NVivo analysis, by Marketa Janickova

In our research, we confirmed the role and importance of interaction within risk culture integration and we outline its formal and informal aspects.

From the formal perspective, while the formal and prescribed meaning of interaction appears written in internal documents, we identified that interaction was related to three situations: relation to the external world, an instrument to fill a check list, and ethical behaviour:

(1) The first instance is the interaction with external stakeholders as government officials. It is the instruction of what kind of interaction has to be adopted with stakeholders who are not part of the system (as well as clients, suppliers...).

Rules that apply to interacting with such governance (Internal document 225)

(2) The second instance is interaction as an instruction in the manual for operations and control of projects and during the peer reviews.

The (name) Checklists are designed and tailored to a specific stage (intervention point).

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They include a variety of objective questions (see figure 37 below).

The figure below is another example to show that even formal documents prescribe interaction between humans. To us it seems to be a little contradictory because interaction should be encouraged by the formal but it appears to be difficult to dictate to, or mandate somebody to interact with somebody else. To us, interaction is difficult to prescribe and make mandatory, to make it work there needs to be willing participation from actors that can help to build the desired risk culture.

Figure 37: Extract of Resiliency Programme

1. [REDACTED]
2. [REDACTED]
3. Question - There are interactive questions defined for each sub-category.
4. [REDACTED]
5. [REDACTED]
6. [REDACTED]
7. [REDACTED]
8. [REDACTED]
9. [REDACTED]
10. [REDACTED]

(3) The third instance is interaction with respect to ethical behaviour. It appears most often in written documents. Indeed, one form of risk culture was previously named in the literature as « *ethical culture* » (e.g. Arena *et al.*, 2010) that shows respect toward ethical issues within the organization.

We consistently demonstrate respect for all our stakeholders. Our day-to-day activities require us to interact with individuals of various ethnic backgrounds, cultures, religions, political convictions, ages, genders, disabilities and sexual orientations. (Internal document 103)¹²⁶

In order to understand informal interaction and collaboration in practice, we asked during our

¹²⁶ The real number is disguised.

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interviews how people interact with each other and how they collaborate (teams or individuals). Aside from the collaborative aspects we discovered the mix of both formal and informal interactions. Our results demonstrate that human interaction is perceived as a participative way to exchange with people, but at the same time the informal supports the formal.

...gain interaction is part of setting up the rules it is having a system underneath and a system is not only the mechanics of the computer system, but it is also everything that surrounds it...

MJ: And how did you coordinate with all the people?

It is interesting you ask that...I was giving them in my presentation. It is not easy, ehm, because, you might think that [name of the country] is one country, [city A]¹²⁷ is extremely different than [city B], which is closer but different than [city C], so as a country it is fairly diverse, you know I am from the US and so I know in the US it is somewhere you know West Coast is different from the middle of the country is different from the East Coast is different from the South, is different from Texas. So there are different cultures and different understanding and the way that the company had grown in kind of silos and [city C] guys stay in [city C] and never wanted to interact very much with [city A] and the way that the company was organized, [city A] was the hub and you had silos of organization that were sprinkled around the world and they didn't necessarily talk to each other and what [city A] did they set [city C], [city C] deliver x\$ and as long as [city C] deliver x\$ on their budget, happily let [city C] do whatever they want. That's why there were some problems. ... But now I am trying to change it. (Interview 28)

To extend the concept of interaction as an informal aspect we classify it through collaborative characteristics and human collaboration. Fjeldstad *et al.* (2012) mention that collaboration goes hand in hand with some motivation to start informal involvement in which the objective is to gather information and exchange different perspectives.

We are not there yet [on the whole company collaboration, note from the author]. Not a long time ago we had had a workshop with our President and the theme was how we work together in engineering...it was fascinating... (Interview 21)

Our opportunity to make direct observations allowed us to observe *live* changes in risk management. [We observed the risk assessment process through formal forms of workshops in

¹²⁷ For reasons of confidentiality, the names of the cities are not indicated.

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2016 with different units' (see also VII.2.1, Allocation of Resources) functions on two sorts of risk management: corporate risk management and ethics and compliance.

First, we would like to explain the nuances between the two units since the dimensions of organizational risk management can present some distinctions and we will describe the form of collaboration at which both units arrived.

The two units adopted two different approaches to assess risks, and we show the comparison of the two Risk assessment formats in (Appendix 8C: List of ERM Workshops). The Risk department approached the workshop as more of a presentation and a formal meeting, with small groups (maximum of 8 people, but with an average of 3 people) composed of risk overview from different functions, but mainly those at the level of directors in the middle or upper level. The workshop animator also played the role of a guide who sometimes influenced the public through questions *~are you sure it is important ...I do not think it is relevant...it has to be reported...~* (notes from Risk workshops, 2016). In addition, the workshops emphasized only corporate risk and high risk. On the other hand, it helped to capture general tendencies without going into too much detail. The final risk register from those sessions had approximately 200 risks and 64 identified in 2016 were considered as important for the business, and then the top ten was escalated to executives (Source: Phase one, Interview 9).

The Risk assessment driven by the Conformity department was slightly different. Groups of people were invited and had on average 10 to 15 participants with different titles, but they were usually from the middle and project level as well as heads of regions. There was a workshop animator, which was usually the Conformity Officer for the region. The main role was that of a facilitator of conversations about listed risk on the pre-established list. The workshop was in reality more of a discussion to assess risk targets. There was also one corporate analyst who was filling the risk register and after that analysed all of the workshops results. Even if the workshops were more interactive, they were going to a deeper level of risk granularity. The internal person told us that they usually finished with 3500 to 4000 risks to be analysed at the end of all workshops.

After the 2016 sessions, Risk Unit function and Risk Conformity began to collaborate (on a voluntary basis) in Risk assessment works for the 2017 session. We had the opportunity to observe some of the 2017 workshops (see workshops calendar in Appendix 8C) and this allowed us to

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understand the new dynamic of the Risk assessment workshops due to the inclusion of two functions in one task. The process of collaboration in this case corresponds to the « *business-unit-centric process* » (Martin & Eisenhardt, 2010). The Risk department initiated a collaborative assessment that allowed for the sharing of information and experience on the management of risk from different perspectives. This specific workshop regrouped regional directors and business unit leaders. There was one workshop animator, but the presidents responsible for the Risk department were also present. These workshops were regulated by an animator and his/her role was to ask more open questions *~explain why do you think that~* (Observation note Risk Workshop). Participants were still risk owners from the preceding Risk assessment workshop, but there were also appointed actors that had a direct relationship with projects. The objective was to set a common objective for each persons' responsibility in each specific risk that was newly appointed. The procedure follows the formal guidelines of Risk assessment but was enriched by more interactive ties. We were not able to observe the conclusion of the evolution and concrete extension of this collaboration because our fieldwork stopped before the end of all workshops. Typically, outside of those workshops, there is a formal reporting on risk and the cycle is reproduced over time.

After the three examples we just described, we will first quote one specific practical conclusion drawn by the actors.

Extract from introduction letter, Risk Workshops, August 15th, 2017.

We would like to inform you of the rollout of the Enterprise Risk Management and Compliance Risk Management reviews for 2017.

...

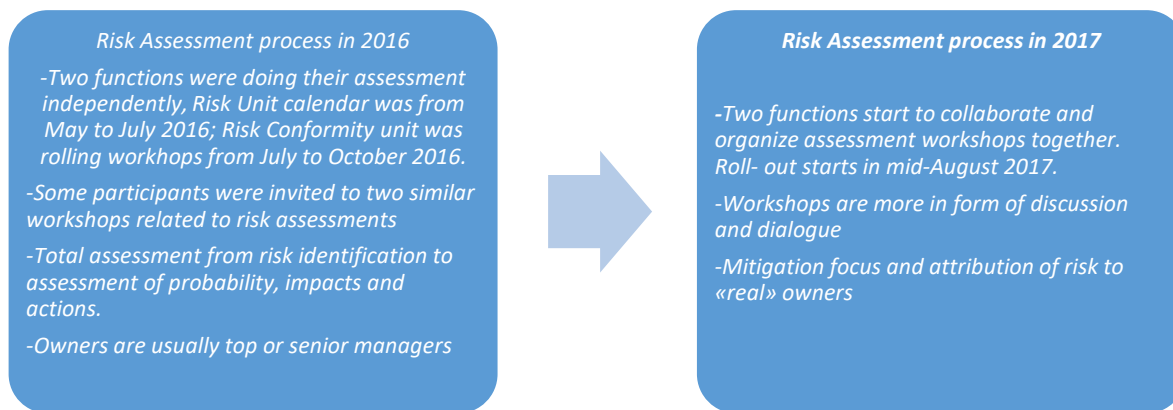
The functional workshops will be grouped by risk theme, with representation by Risk Owners and key stakeholders. The purpose of these workshops will be to review and update the assessment of current top enterprise and compliance risks, evaluate proposed changes to the top enterprise risks, and ensure that effectively mitigate strategies are identified and in place for each of the top risks.

We created the following figure to demonstrate the main differences in the risk assessment processes we observed during our fieldwork in 2016 and the changes seen in the second portion of fieldwork in 2017. We can say that the activities in 2017 were geared toward more

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interconnected practices between different risk management units. During this period of time, we were able to see changes and the evolution within risk management, and these observations are very valuable for our research. We can say that development of risk management does not happen only on paper, but also through collaborative practices between different risk units.

Figure 38: Evolution in Risk Workshops Assessment as two points in time



Author: Marketa Janickova

The summary of this chapter can be found in VII.3.

VII.2.3 Finding Formal Balance

Our findings strongly endorse formal¹²⁸ risk management and risk culture, and we would like to feature this point through reflection on two aspects of the formal effect.

We have identified some outcomes that are strongly aligned to the formal.

¹²⁸ However, as we will see in the next chapter on management, informal practices are those that make risk culture happen.

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In the case of ethics & compliance programme the company was asking employees to complete an ethics survey. During the annual meeting in May 2016, it was announced that 99% of the employees had answered. At the same time, during the year, the company reinforces the certification by giving a kind of diploma with people's names who sign to the certification. In 2017, the company attained 100%. (Observation and notes from the field, annual meeting 2016 and 2017)

A very similar approach was adopted by Health, Safety & Security with the days without accident, or 100% clean days.

During the 2016 annual meeting, integrated management systems outlined objectives that reduced potential accidents and allowed to maximize possible days without accident:

We have a culture of zero harm, of zero harm on the projects. (Interview 3)

In terms of training, there are multiple « rounds » of Ethics & Compliance training in order to respond to institutional obligations, but also to implement a strong Ethics & Compliance Culture and ensure that there is a minimum of gaps for inappropriate behaviour.

« ~Target audience had to have ethics training provided on a mandatory basis for a designated group of people (in the company). It means a job classification is equated to certain criteria, and when that criteria pops up in the system that means that you are going to do training, So it is tracked internally and there is a due date. ~ » (Risk Workshop 23 – Senior Vice President)

The density of the trainings and multiple employees' involvement in risk management activities is driven by the search for consistency.

Already having a common basis would be good, I am not convinced that neighbours from other business units use this form because it is not widely known, and it is not very often used even if it is corporative formality ... (Interview 21)

There are some significant changes in leadership that I think made risk management become a priority, and I think there is a general push toward a uniformity approach. (Interview 33)

Developing Ethics & Compliance in a very strong manner became part of the organizational identity, especially during our observations in 2016.

We have to never have any relapse in Ethics & Compliance. We made the choice to roll deep. We would become an industrial model. (Phase one, Interview 9)

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In opposition to that, the landscape had changed in 2017. The desirable outcome on strong risk management deployment (in this case Conformity) led us to identify an opposite consequence. We had observed an unexpected effect; the organization was choosing a focus on strong risk culture, and they thought that a strong risk culture would lead to profitable business.

While the organization was considering that, by choosing a focus on strong risk culture they were going in a profitable direction. The observation showed that a process that is too formal can slow down desired risk culture development and also have an opposite effect than what could be desired in risk culture. To be more specific, by addressing a strong Conformity culture, EngineerCo. aims to control the undesirable effects of unethical behaviour. There are some people who are starting to voice the opinion that they are concerned that by having too much training, constant communication and messaging, there is an information overload and the positive learning effect is lost. By inundating people with information, organizational stakeholders may wind up losing attention to a subject that is being forcefully pushed by the company.

~People have enough to be over tracked and in the final it does not help.~ (Risk Workshop 26)

We call this the « *unexpected effect* »; it occurs when the company achieves the opposite outcome of the one they desire in terms of risk culture results. A very strong effort to create a high pace of change also means instituting a great deal of formalities in a very short time, which may kill the positive effect of risk culture creation.

VII.3 Juxtaposition of the empirical findings with what is found in the literature

To conclude this chapter, we would like to summarize key observations from our case study. Each characteristic of risk culture that we studied has both formal and informal parts which we present in the following paragraphs.

To show the structural part of risk culture, we are able to produce the following table (Table 36: Risk culture structure) that summarizes our conclusions related to our empirical findings:

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Multiple sources have noted that risk culture is conventionally built at the top of the organization and its tone cascades down through processes and procedures (Richter, 2014; Frigo & Anderson, 2011; Rittenberg & Martens, 2012; Richardson & Fenech, 2012; Farrell & Hoon, 2009). Our findings do not disagree with these statements, but they can only be partially confirmed. It is true that the tone at the top sets the direction for formally prescribed risk culture, but if we look at risk culture from the informal point of view, it does not emerge only at the top of the organization, but also from other different levels, and not only through procedures established at the top. We therefore confirm the statements from Lim *et al.* (2017) and Röschmann (2014) who already established this theory in the context of risk management, we are transposing it into risk culture.

The second part of our findings on the structure of risk culture will show that a structure that is centralized and creates consistency allows for a better control of risk culture (Palermo *et al.*, 2017; Pan *et al.*, 2017; Vakkur *et al.*, 2010). We understand that risk culture needs to be a unified vision of what the organization wants to attain, and our findings confirm that centralization is the best way to have consistency in how the organization sees risk culture from the formal perspective. However, we cannot confirm that it will create more efficiency in the overall risk culture. In fact, central and consistent does not necessarily mean that risk culture would be beneficial for the company.

Table 36: Risk culture structure

Key statement & ref.	Finding	Verbatim
Risk Culture is established by the tone from the top and is deployed by formal procedures to the bottom. (Richter, 2014; Frigo & Anderson, 2011;	From the formal perspective, YES, it is confirmed. The tone from the top is the major aspect in formal risk culture	<i>I think the larger and more complex an organization is, the more you have to push some decisions down ... (Interview 1)</i>
	⇒ From the informal perspective there are other influences on the risk culture structure. Indeed, it is not only the top that establishes the risk culture (Lim <i>et al.</i> , 2017; Röschmann, 2014)	<i>I do not think there is ever any single procedure that can deal with all risks. First of all because it is difficult to read the future and understand how things are going to change. (Interview 33)</i>

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<p>Rittenberg & Martens, 2012; Richardson & Fenech, 2012; Farrell & Hoon, 2009)</p>	<p>⇒ The senior management¹²⁹ (directors) is an important vector to disseminate organizational risk culture in both sense from top and down as well as within linear levels and operations.</p>	<p>~.... <i>There are many parts of the culture message that are not going down. It stops at some level ...~ We have lack of training with our middle managers ~ (Observation Risk Workshop 25)</i></p>
<p>For the ends of the control there is centralization and consistency of information through formal procedures. Procedures are part of auditable models that could be reported and outlines risk culture.</p> <p>(Palermo <i>et al.</i>, 2017; Pan <i>et al.</i>, 2017; Vakkur <i>et al.</i>, 2010))</p>	<p>Verified from the formal perspective</p> <p>⇒ But the information that is formally centralized is not always a sign of risk-control efficiency</p>	<p><i>...maybe initially it is actually an organizational structure, so it has be important to us to have some level of standardization...(Interview 2)</i></p> <p><i>Formal helps to the objectivity (Observation Risk Workshop 26)</i></p> <p><i>But the reality is that formal politics developed here (in the headquarters) , its implementation can be almost impossible somewhere else (in the company) (Interview 22)</i></p>

The following table summarizes the main findings on risk culture communication.

We can confirm what Palermo *et al.* (2017) and Pan *et al.* (2017) previously suggested: internal communications, such us policies and publications on risks, establish the risk culture footprint. In addition to that, our findings put forward an extension of those statements, which says that open communication, interaction and informational slack increase the efficiency of risk culture in practice.

¹²⁹ Middle management is more widely described in the following section on analysis about management.

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Table 37: Risk Culture communication

Key statement & ref	Finding	Verbatim
Risk communication is an organizational footprint raised from effect to corporate policies (Palermo <i>et al.</i> , 2017; Pan <i>et al.</i> , 2017)	Verified from the formal perspective	<i>So the level of Authority becomes much more robust... (Interview 33)</i>
	⇒ Formal control is not always the synonym of fast execution = Open communication and interaction increases risk culture communicational efficiency (Power <i>et al.</i> , 2013)	<i>...All the issues come across my desk for me to address, but since immediate action was required, action was already taken before I had a chance to give my approval and all those risks were already mitigated. (Interview 3)</i>

On the findings on social capital we conclude and summarize that risk management has a formal role in establishing organizational risk culture (Power *et al.*, 2013). At the same time, other organizational actors are important influencers of risk culture.

Table 38: Risk culture social capital and managers

Key statement & ref	Finding	Verbatim
Risk managers have a role as facilitators in the dialogue and management of risk (Power <i>et al.</i> , 2013)	⇒ Validated from the informal perspective	<i>(one of the roles) is to force everybody to discuss, think, understand beyond their function and their Department, to think of the other Departments that are involved. We have to ask challenging questions. (Interview 12)</i>
	⇒ Not only risk management functions create an atmosphere that contributes to risk culture embeddedness	<i>I try to be informal, by, you know, not really having things that are required by policies. Every week I have a call...and they update me. (Interview 28)</i>

Our findings on social capital confirm the statement by Power *et al.* (2013), who think that organizational stakeholders do not take actors interaction into account enough when it comes to the subject of risk culture. We can say that actors' motivations to interact and be involved in risk should be the key factors to studying risk culture.

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Table 39: Risk culture interaction

Key statement and reference	Finding	Verbatim
Human interaction is an element that is not taken into account enough and yet, it is an active element of risk culture. (Power <i>et al.</i> , 2013)	⇒ Validated	<i>I have to say that we talk a lot (to each other) (Interview 30)</i> <i>...the only way to intervene upstream is having a real understanding of what we do (Interview 22)</i>
	⇒ There are also different extended forms of interactions <ul style="list-style-type: none"> • Based on formal basis • Based on informal basis • Mix of interaction based on collaboration (Fjeldstad <i>et al.</i>, 2012) 	<i>...we have a monthly collaborative meeting (Phase one, Interview 9)</i> <i>In my opinion, the best way to manage risk is through upstream preparation (Interview 22)</i>

The next characteristic was identified during our fieldwork, and it focuses our attention on resource allocation for risk management and risk topics that design the internal perception of risk culture. The following table shows that when the organization has the intention to implement formal risk culture programmes, the programmes need to be supported by the appropriate resource allocation.

Table 40: Risk culture resource allocation

Key statement	Finding	Verbatim
Our finding (not in the literature): Attention from the top to specific concerns is interpreted by the allocation of resources to risk culture. More attention means more formal allocation.	Two programmes supported by resources had a larger reach through the company than the one that was only mutually supported. (analysis about programmes related to different forms of risk management)	<i>~Health and Environment have a lot of resources because we are able to compare our results with other companies. In our case of (other risk unit) there is no comparable, so there</i>

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		<p><i>are no reference indicators and so we receive less resources. In our case, the company has no choice but to have this type of risk management. ~ (Fieldwork notes, Informal discussion, 16.3.2016)</i></p>
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Our findings also reveal the effect that the level of risk culture maturity can have on its perception by individuals. The evolution of risk management and its implementation took on a very fast pace after the organizational crisis, which also means that inside stakeholders were embedded in the strong and compliant risk culture created by the organization for more than 3 years. The overdose of the formal aspects of risk culture started to be perceived as too much by organizational actors. This finding was not identified in the previous literature and we would call for additional validation of this statement.

Table 41: Risk culture evolution

Key statement	Finding	Verbatim
<p>Our finding: Excess of different forms of risk culture can create unexpected effects</p>	<p>The way the company's stakeholders were overloaded by Ethics & Compliance can result in a loss of interest and a loss of attention on the subject.</p>	<p><i>~People have had enough on the question of ethics and compliance risks. It can have the opposite of the desired effect. ~ (Observations Risk Workshop 25 – Vice President)</i></p>

In our study we partially verified what was previously said by Power *et al.* (2013) and Ashby *et al.* (2012). They mentioned that change programmes in risk management have as an objective to create the footprint of what the organization would like to internally create as their reputation of risk culture. From our perspective of formal and informal aspects of risk culture, we can say that

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this statement is incomplete. Yes, change programmes that focus on any type of risk management communicate some kind of vision that can be interpreted in risk culture, but this is only if we look at them as formal elements that constitute risk culture. Otherwise, the process of establishing risk culture follows behind the formal change programmes.

We found that a more voluntary and organic human construction can also contribute to risk culture. Elements such as communities of practice that have as their objective to discuss risk management on an informal basis contribute to risk culture. However, we would like to emphasize that these attempts to develop the idea of communities of practice can only work under certain conditions: « *The functioning of communities of practice is effective only if each member can locate the relevant expertise required in a specific context in a timely manner* » Chauvet *et al.* (2011, p.328). We can call those groups enablers of risk culture.

Table 42: Risk culture process and change

Key statement & references	Finding	Verbatim
Change programmes are instrument of communication to establish risk culture across the organization (Power <i>et al.</i> , 2013; Ashby <i>et al.</i> , 2012)	⇒ It is partially verified from the formal perspective. Those are programmes that have to be intentionally created for risk culture and to be informally supported	<p><i>... in the end, they create a lot of power points, but nobody is taking any responsibility to implement anything. (Interview 28)</i></p> <p><i>For general concept I try to be transparent and share information as quickly as possible (Interview 33)</i></p>
	⇒ The additional piece to that is informal risk management that is through non-prescribed practices that develop knowledge through	<p><i>We make ourselves available, and we talk a lot to people and they are starting to have more and more of a reflex to come see us ... (Interview 5)</i></p>

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	informational richness	
Additional finding: In regard to innovation risk culture needs active informal processes and exchanges on regular basis	<p>Methods and communities can contribute to risk culture if there are informal ties.</p> <p>Informal aspects of risk culture can lead to better concretization of risk culture.</p>	<p><i>It [Partnership] helps to build relationships between us. You say listen, it does not work like that. (Observation Risk Workshop 13)</i></p> <p><i>We work less in silos than before, so we can better control what happens in some regions. (Interview 20)</i></p>

Since most of the previous studies on risk culture focus especially on its formal aspect, we would like to indicate the main informal dimensions that we observed. Some previous authors have already shown the strength of informal organizational aspects, but in contexts other than risk culture (e.g. Gulati & Puranam, 2009). From their article, we can understand that informal organizational aspects have a compensatory function in situations where there is space to take over the formal aspects of risk culture. We incorporated aspects about durability of human relationships between actors from their articles on risk culture.

We would like to emphasize the importance of unofficial relationships that are not set anywhere and are created by natural human interaction and behaviours. We are particularly referring to casual relationships and the exchange of information. Those human interactions can help to detect potential risks and help to improve the quality of risk management as well as shape risk culture.

Finally, risk management values and beliefs also represent the informal part that contributes to risk culture. Not all top management decisions are transposed to procedures and organizational standards. Top management can also influence risk culture by their individual behaviours and attitude toward risk and risk culture. Top management values and beliefs are something that is also related to individual attributes. Some top management roles can have visions of leadership that

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include other individuals in the organization, and it allows them to be in direct contact with the source of information, and also be able to transmit the message more informally.

Table 43: Model of informal aspects of risk culture

Informal aspect	Description	Verbatim
Unofficial relationships	These relationships were related to the operational level (construction projects) and corporate function (e.g. communication, legal, ethics & compliance...)	<i>I met people that are specialized in anti-bribery. I went to see the new director. ... I wanted to meet and discuss with every function related to that, it is just to give a reminder about potential risks. (Interview 22)</i>
Informal organization	We observed the creation of informal relationships. The reorganization within one department does not affect existing informal relationships between individuals that were distributed to different departments and they maintain their connections.	<i>After the major change and restructuring of the risk¹³⁰ department, different people were sent to other units (finance, internal audit) in order to keep this department smaller. However, all those people were still invited to participate in informal team events such as lunches or other events. They all (approximately ten people) kept in contact and maintained friendships for the duration of our stay in 2016. (Observation notes, December 2016)</i>
Casual discussion	We observed that ad-hoc and unplanned exchanges of information can potentially indicate some future risks. Those are usually useful to know in advance of potential risks that are not written anywhere.	<i>~I can already say now that they will have problems to deliver that project. They do not have the capacity to do it [...] And from day one of the delay there are going to be penalties.~ (Director - Risk Workshop 20)</i>

¹³⁰ The Risk Department is actually very specialized and is split into multiple units. For reasons of confidentiality, we are going to call all departments and units that are under the banner of the risk group (such as environment, ethics, security, corporate) the risk department.

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		<i>Note: When the animator asks if somebody is aware of the situation the Director answered that nobody communicated it, but it is evident for the team working on the projects.</i>
Informal roles	Roles that are not mandatory and are spontaneously generated or taken on by participants	<p><i>I have conversations everyday with the assistant of the department. It is very informal, but she gives me updates and news about what is happening. (Fieldwork notes 8 February 2016)</i></p> <p><i>~ On a regular basis we had discussions with people as well as receiving information from different people regarding updates on the situation within the company without even asking them, they feel this is their responsibility. Also, some people proactively came to see us as they noticed some risk situations. ~ (Risk Workshop 25 – Vice President)</i></p>
Top management values and beliefs	In operational terms, risk culture became one of the top items on the corporate agenda.	<i>We have, again, the distributed leadership, we have open communications, if we have any issues people call and say: look, we have to take a decision, we will work together to solve it. (Interview 3)</i>

Our analysis in the Seventh Chapter divided different risk culture characteristics into formal and informal aspects, but this division demonstrates a type of paradox. The informal aspects of risk culture are a social construct that creates a bridge between organizational coordination and behavioural readjustment. Both of these elements combine to make the informal a major element

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in the creation of risk culture. This is in opposition to McDermott (2007); McDermott *et al.* (2009) who employ informal aspects as an alternative in the event of a lack of resources; we had demonstrated that the informal needs to be supported by formal resource allocation from the top in order to give the legitimacy to the risk culture construct. At the same time, the advantage of the informal network may be smothered by formal procedures and methods (such as programmes, politics or training) that are slowing down the rapidity of processes. Risk culture is about the application of the process that goes beyond a formal basis. Instead of proposing new programmes and formal procedures, an organization can think about building communities and sharing information. However, even communities may remain inactive and limited if they are not empowered by human interaction.

Aside from the informal acquisition of information and the shaping of critical knowledge that is necessary for risk culture building, we do not deny the importance of the formal structure, especially for multinational companies, but we are trying to demonstrate the multiple ambiguities that happen throughout the process. We consider that an alliance between formal and informal aspects of risk culture brings flourishing potentials, and the informal creates a synergy with the formal.

(1) The objective of informal aspects of risk culture are the simplification and facilitation of the process of informational flow. Using a chart as an illustration of the organizational structure only makes sense if they are approached with dynamic visualization (Bizzi & Langley, 2012). Not only hierarchic, but also horizontal relationships between risk programmes, units and functions may help in network representations that help to create risk culture.

(2) Formal aspects of risk culture give legitimacy to managerial roles & responsibilities (this goes in the direction of Mintzberg, 1979). That means that the creation of interactions happens mostly at the management level, and that actors can have temporary informal roles within risk management. For instance, during evacuation training there are those that have an attributed role in the security team and there are those who naturally enact and take on a sudden role in which they create interactive ties and engage in entrepreneurial behaviour.

The combination of strategic thinking with formal structure and informal space to action is the key to creating risk culture. Once rules are in place, and actors have a mission, culture can then filter

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down through the company. This leaves a space for the creation of new types of networks and relations. It can potentially also give an access to new openings and acceleration of the risk management process, and at the same time create risk culture.

We discuss and reflect on our results in more detail in IX.1.

Eighth Chapter: From bottom to middle - Managers as key actors in the creation of risk culture

In the first section of the present Eighth chapter (VIII.1.1) we present findings that describe risk culture governance, which includes the role of management in risk and risk culture. In section VIII.1.2 we present some managerial competencies that we identified during our research and that help to understand risk managers' behaviour. The degree of internal coordination is presented (VIII.2.1) through an analysis of internal systems in which we identify three objectives of informal coordination in risk management. In addition to that, one of our hypotheses -and research questions- focuses on risk culture in which we explain the degree of risk culture manageability (VIII.2.2). To answer this question, we have studied risk and cultural practices at the top senior management level and its lateral levels.

This chapter answers our second research question:

Question 2: To what extent can we manage risk culture?

I am always very hesitant about any question that has culture in it because you know you can spend three days talking about culture and can have three different answers or lots of different answers. So it is about experience. I think what is really important around all of this is if you believe in that and it is good practice and something that will benefit the business the most with our succession planning and people development so you can do the same thing all the time, it is risk management in a different form and is that constant and it is about developing people. Lots of our people come as engineers or something and automatically and because you are an electrical engineer it does not mean you want to do it forever. And it is very important for us to identify their skill set needed for something else... (Interview 14)

...

Plus, every week I am having a chat, sometimes it is only for 15 minutes, sometimes it is for an hour and half, and I am just talking to my managers about a whole bunch of things, informal conversation.... (Interview 17)

Written documents are one way to give shape to and transmit guidelines, but formal structure of risk culture does not always reflect what the organization does in day-to-day activities. Even

though the organizational crisis forces the company to formalize more practices, we wanted to know what happened apart from the introduction of formal structure. During our interviews, we were questioning how people communicate, how they collaborate, how they manage specific situations, and how things happen in practice. The questions were designed in order to understand informal practices and responsibilities that can relate to risk management and are not formally prescribed. We already described some results on management in the Seventh Chapter, but in this chapter, we would like to investigate further by focusing on different aspects of risk management.

VIII.1 The Role of management in building risk culture governance

~.... There is a large part of the culture message that is not going down. It stops at some level ...~ [because] we have a lack of training of our middle managers ~

(Observation Risk Workshop 25)

While we focus on risk governance, we cannot neglect the definition of governance that covers organizational mechanisms setting power, decision-making and agency relation in the organization. (Charreaux, 1996). In fact, risk governance refers to actors who have formal roles in risk management and who are driving the organization by formal control interpreted as three lines of defence defined in the Second Chapter (Zhivitskaya, 2015; Power *et al.*, 2013; Ashby *et al.*, 2012). However, as we have already mentioned in the Seventh Chapter, the risk culture governance appears to be more extended than in the original model. It also includes middle levels that can proliferate risk culture practices. In this section, we focus on the middle management's role and competencies that contribute to developing risk culture and can be in some way part of the informal risk governance. We wish to emphasize the middle management's role in risk culture governance because, as our results below show, they are strategic agents that can acquire important formal and informal authority based on informational, relational and decision-making skills.

VIII.1.1 The Middle management's role in carrying and developing risk practices

« Organizations don't have tops and bottoms. These are just misguided metaphors. What organizations really have are the outer people, connected to the world, and the inner ones, disconnected from it, as well as many so-called middle managers, who are desperately trying to connect the inner and outer people to each other. »

(Mintzberg & Quinn, 1996, p.5)

Roles that we define as middle management in our research are *« functional managers of operating and support staff area and their subordinate managers »* (Langley-Laporte, 1986, p.107). Glaser *et al.* (2016, p. 1341) indicate that middle managers may benefit from taking the initiative by

engaging in proactive behaviours, such as seeking feedback and building networks, which help to reduce uncertainty and increase control at work (Frese, Garst & Fay, 2007). The idea is that middle managers can cluster and engage in soft power.

Table 44: Middle management in research literature

Concept	Definition	Main references
Middle Management	« Middle managers serve as organizational linking pins who are often expected to proactively identify new opportunities emerging at lower levels and overcome obstacles by mobilising support for initiatives from top managers. » (Glaser <i>et al.</i> , 2016, p.1341)	Glaser, Stam, Takeuchi, 2016; Ahearne <i>et al.</i> , 2014; Mintzberg, 2009; Pappas & Wooldridge, 2007; Mintzberg & Quinn, 1996, Mintzberg, 1983; Westley, 1990; Burgelman, 1983

To be more specific, in our research we have had access to the senior middle managers who belong to the headquarters' offices, as well as middle managers in different units across the world. Observations of Risk Conformity workshops from number 11 to number 23 (list in appendix 8C) appear to be relevant to demonstrating the middle management's role and empowerment in practice. Animators of risk assessment workshops were senior middle managers overseeing some regions or sectors of activities. Every animator had previously received results of risk assessment from people who were invited to participate in a workshop. During the workshop, every animator had to follow and fulfil a list of topics to be discussed. In addition, there was always one person serving as a facilitator representing the headquarters. Apart from the formally prescribed list of topics, animators were given a free hand in creating workshop dynamics and interactions in order to involve participants in the workshop. Thus, we were able to observe nine different animators (some animators were responsible for 2 or 3 workshops). Also, we were able to compare and see different dynamics between two types of workshops (that we call List of ERM workshops in the Appendix 8C). In the Risk assessment workshops, the animator was always the same person for

the entire process in 2016. In the Risk Compliance workshops, animators varied according to the geographic location. (See the comparison in the Appendix 8C and also part of the description of the workshops in the second section of the Seventh Chapter)

In addition to that, several interviews proved that the proactive role of middle managers contribute to the informational transparency that leads to the creation of risk culture. Middle managers are those who through their attitude represent the corporate message. Their direct link to the top functions allows them to carry the formal message into the field, to projects or to different geographical locations. In addition to that, they can potentially point out possible risks, and report to those higher in the hierarchical line. We can call this position middle out information vector:

...all information is consolidated in the same place and it is the same group who manages this information, it is shared among teams and teams give their input and it is interesting that I contribute to that. So if I see some red flag in terms of compliance that is the moment to raise it. (Interview 22)

The following example demonstrates that managers in charge of specific high-risk regions can promulgate the corporate message through informal behaviour and by proactively seeking information:

It is a very nice factory (place), when I went there I met the management team, I met team (name), I sat down with the new project manager (name) who is French and joined their team. So I did all the training for the team. Then, I discussed with everyone from different functions to assure me that all our procedures are really respected in reality and if there are any difficulties with respecting those procedures. Sometimes it is just a reminder of risks, it is good for them. And then, it is really about one to one discussion in order to try to understand if there are any particular risks...if there is really something particular on that site that we have to look at, and if...so we come back to what I said at the beginning, the understanding in detail of what we do. So I could arrive there, give the information in the training, say ok you are trained, we tick the box and it is fine, but here you would ask yourself questions about it, about operation in countries...(Interview 22)¹³¹

Indeed, the role of middle managers already appears to be the position of a strategic person (Glaser *et al.*, 2016; Mintzberg, 2009; Mintzberg & Quinn, 1996) but literature on risk culture has not

¹³¹ The interview participant is a sector compliance officer.

acknowledged this phenomenon yet. While middle managements connect the top and the operational level, their role is in the hub, in between the top-down and the bottom-up perspective, and they appear as important agents who can possess strategic information related to risk management.

The importance of the middle roles in risk management also progressively appear in the field of reference of EngineerCo. We were also discussing our ideas with different colleagues and stakeholders inside the company where we executed our research (we call it EngineerCo). Our real-life experience suggests that the focus on the middle management, which can seem evident in research literature has only arrived in the field.

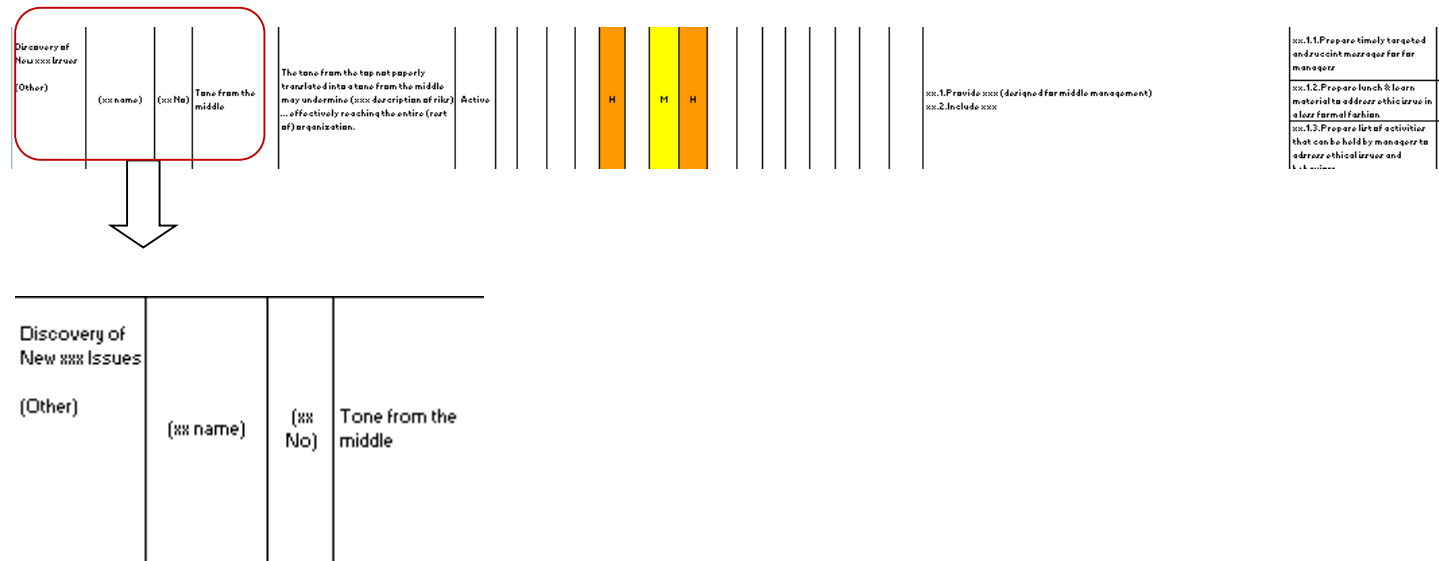
In the second portion of our fieldwork in 2016, we were reporting to the Vice-President¹³² of one function related to risk, but we were also discussing our ideas with different colleagues and stakeholders inside EngineerCo. We also had discussions with the directors¹³³ of one function related to risk management. These were directors from a variety of different functions related to some form of risk (such as ethics risk, strategic risk, financial risk, environmental risk, security risk...) all of the people belong to different departments that are related to risk management in some way, but they were not always reporting to the same president or vice presidents. In the case that the departments fall under the same functions, such as the management systems, that could lead to the people reporting to the same head or president. Even when reporting to the same department head, there can still be a competition for attention within the department. Then, during our fieldwork in 2017, we were reporting to the corporate risk management and we assisted with the whole process of preparing risk management workshops. In fact, we were reporting to a person who had had an early-stage discussion with us about the role of middle management within risk culture. During that presentation, we raised the question of the role of middle management in relation to risk management. As a result of that, the company included the middle management as one of the sections to evaluate during Risk and Risk Conformity assessment workshops in 2017. Therefore, we can say that middle management was involved as one indicator of risk culture during

¹³² For confidentiality reasons we disguised all information that can lead to any person or company identification.

¹³³ For confidentiality reasons we disguised all information that can lead to any person or company identification.

the risk assessment workshops following our discussions with the risk management direction. The following figure (Figure 41)¹³⁴ is the extract from the company risk register. It shows that middle management appeared as one of the variables to assess in terms of the potential risk.

Figure 39: Extract from the Risk Assessment Register (Anonymous)



Despite all this, some early flags on potential risks in middle management were already raised during risk assessment workshops in 2016:

Aug 30, 2016, Observation Risk Workshop 19:

« Middle management need to train and repeat the training again and again. It is about the experience. » (Senior Vice President)

In 2017, the animator of Risk workshops proactively asked to assess the middle management:

¹³⁴ Only the enlarged extract is needed to support our research, the rest of the data is not relevant here.

Aug 24, 2017, Observation Risk Workshop 25:

« *~Do you consider there to be risk in the middle, at the top middle management level? ~*
»

« *~What do you mean by top middle? I ask because there is a lot of top in this company, everybody is top manager, top director and president and so top is not only real top~* »

« *~senior level, unit leaders and heads of regions for example. ~* »

After alignment between both participants, they agreed that the top middle corresponds to regional leaders, the senior directors' level and the line below it.

« *~There is a lot of power resting with a regional manager, ...and we have to review this because information is not going below a certain level...I can guarantee that there are a lot of things from the tone from the top that stop and do not go lower than that middle. There is a large part of the culture message which is not going downwards. ~* »

Animator asks « *~what would you propose specifically?~* »

« *~.... I propose to do an audit. We have a lack of training of our middle managers with regard to their responsibility. At the first stage, it has to be assessed to see how they communicate. ~* » (Conversation between Senior Vice president and Vice President)

The person specified that some managers need to have evaluation indicators, KPIs on communication, in order to report information, otherwise they do not communicate.

After this Risk assessment workshop, we approached the workshop organizer and we asked him/her where the idea about assessing the middle management came from. The person answered: « *~...It was you who mentioned it in your models ~* ».

Indeed, further to our results we are convinced that middle manager's roles have their legitimate place, and that managers are not only needed as communicators but also as the strategic people who decide how far the risk culture could be distributed throughout the whole company.

VIII.1.2 Managerial competencies in risk culture

« *It is inconsistent how people play their roles.* » (Phase one, Interview 9)

Henry Mintzberg built his early research on observing managers at their day-to-day work, which resulted in his description of managerial roles. In their middle roles, managers often have to deal with multiple complexities that bring them into the processual hubs¹³⁵ (Mintzberg, 2009). Those hubs can connect with different organizational levels. Our section on middle management competencies was added in the late stages of our analysis. We decided to develop this point further for several reasons:

- 1) We had realised that we had collected rich and varied data about managerial behaviour (from interviews and observations).
- 2) We had been stimulated and encouraged by Professor Romelaer following on from our thesis discussion with him.
- 3) We became curious about the subject while we started doing some additional reading about entrepreneurial literature and we were able to make a direct link with middle managers' characteristics identified in multinational companies.

Since this point on competencies represents just a minor finding of our thesis, we are not dedicating a large part to this section to it, but we consider it important to bring it up. We think it is important because managers can have an important influence on risk culture and if they do not have the appropriate skills, knowledge and competencies risk culture can be neglected. The impact of this would be that the risk culture winds up going in a different direction than the company's goal and strategy that has been set at the top. Competencies are important for the future development of habits, routines, values and attitudes that can lead to risk culture manageability. In order to be able to identify different competencies, we turned to human resources literature and on the literature on about competencies in multinational companies. We base our results on the Competency Theory

¹³⁵ What Mintzberg call by hubs are: « webs—forms that we believe reflect the varied ways people organize themselves at work today. » (Mintzberg & Van der Heyden, 1999).

that defines competence characteristics in terms of « *traits, motives, personality, personal character, values, attitudes, behaviours, skills and knowledge* » (Kim & McLean, 2015, p.237).

Managers in multinational companies are dealing with global and cross-cultural integration. Thus, managing cross-cultural risk culture requires some skills based on managerial openness and multicultural understanding. Indeed, the notion of risk and risk culture does not seem the same in every country (see fieldwork demonstration in Table 45: Specific example).

Table 45: Specific example from the observation of managerial traits in risk management in a multinational firm

In our Risk Assessment observation, we had the opportunity to assist with multi-country assessments, from different regions across the world. The role of the regional manager as an animator in each workshop was crucial to gather relevant information about potential risks and judge if they represent a potential contradiction with corporate practices and Canadian regulations.

Among multiple examples that demonstrate differences between contexts, we would like to mention the following one: The company has limited the amount (\$) that may be spent on courtesy gifts for internal and external stakeholders in order to avoid any potential act of bribery. The amount had a limit set by the company in order to control expenses and spending on gifts. However, during one assessment it became evident that one project manager talked about a higher amount that they spend on gifts. The workshop animator was not alarmed, but he¹³⁶ asked for more details and he discussed this information and explained that it exceeded the company limits. The project manager seemed not to know the company rule and also emphasized that this is how they do things in the country where they operate and they cannot do business without giving presents.

There were many more examples that revealed cultural differences during the workshops. What we want to point out here is that the animator's approach was "I seek more information and I teach the individuals" rather than "I express my judgment about the whole situation". That was the case with most of the managerial approaches during international workshops. Regional leaders usually had a good knowledge of cultural specificities and they tried to target more potential red flags rather than put operational level employees in embarrassing situations.

Compared to that, we had an opportunity to observe a different type of animator's approach in workshops. Before each workshop, participants had to fill in a form with their perceptions of specific risks (ranging from low to high according to the traditional 5x5 model), and during each workshop some time was allocated to review the risks that were identified in previous years to determine if they persist or if they disappeared. While in some workshops animators decided to hide the names next to each evaluation, in some other cases animators showed the list of names with the evaluation and questioned participants about their risk evaluation and their reasons for it. To be specific, we had a real-life situation wherein all participants were rating risks as very low, low or occasionally medium-high; however, one participant evaluated some risks as high.

Thus, the red colour popped up while the list with individual evaluations appeared on the screen. At this moment the animator started to question the specific person why he considered these to be high risks and at the same time the animator argued the opposite. The situation was very close to an interrogative atmosphere. In the end, after this exchange the targeted participant did not talk during the workshop and did not participate further during risk discussions.

This last example seems to indicate that the animator in the first case was probably right: the public and personalized confrontation of differences of opinion (possibly cultural differences) probably leads to

¹³⁶ In the example we use « *he* » to refer to the animator regardless of the gender.

people closing themselves off and not changing, while the result that is sought is to get people to open up and change.

The narrative example above demonstrates two different approaches to management that can influence risk. There was one open-minded manager who tried to understand and teach about cultural differences and, on the other hand, there was one creating a more threatening environment through fear.

Recently Rah-Khem (2018) has shown that middle managers often drive spontaneous initiatives that can create a dynamic for the future in an organization. We can confirm that middle managers contribute to internal systems development and, in particular, they can create internal interactions that relate to risk and risk culture practices. We have done a lot of reading on management and we have noticed the importance of the role of the middle management. However, we do not know more about those managerial types. We were wondering what competencies different managers have and what the differences in their mode of work are.

In fact, we have identified two managerial attitudes with their competencies. There are two main approaches to the risks: 1) Proactive, that is seeking information, creating a dynamic interaction in order to obtain all available information and 2) Followers, people who follow existing procedures without considering other options and who give regular training before implementation. Both profiles have to be considered. We would suggest that in risk functions, companies consider the appropriate profiles in key positions as decision makers need to have a different profile than those people responsible only for execution. For decision makers in risk management it is important that the proactive attitude is dominant, as they have to have a global view of the situation and not only consider the solution for the current risk.

We found that literature from the area of human resources (see Kim & McLean, 2015; Kowske & Kshanika, 2007) can be helpful in identifying some competencies that can fit in with risk management.

(1) We call the first profile « **intrapreneur** » (Pinchot, 1985). It is characterized by **proactive** behaviour and tends to be more informal. The name is derived from the term entrepreneur (e.g.

Ren & Guo, 2011) a word usually applied to people who are dynamic creators of business. In Cheng & Van de Ven, entrepreneurs are those « *who, with support and funding of upper managers or investors, undertake a sequence of events that create and transform a new idea into an implemented reality* » (1996, p.593). « Intrapreneurs » are « internal entrepreneurs », i.e. people who belong to the organization and want to push a project from within. In fact, intrapreneurs are supposed to create a high speed of innovation (Pinchot, 1985), but they are not always supported in every type of structure, and it may happen that the company does not endorse their action. During our workshops we identified that these characteristics apply to middle management profiles. Middle managers, as part of organizational leverage, regulate formal structure from the top, and correct irregularities at the bottom and their role corresponds to entrepreneurial characteristics (Ren & Guo, 2011). Therefore, we were looking for a denomination that could describe the entrepreneurial profile inside a multinational company. Pinchot (1985) uses the term « intrapreneur » to refer to the internal person who can be part of a multinational company and initiate some actions within the internal systems. Indeed, we use this term for one of the managerial types, i.e. a person with the characteristics of an entrepreneur.

First of all, the person's competency is related to how the person transmits and receives information. Usually, the person takes the **initiative to seek** information through **relationship and partnership building**: It is the proactive type who would be looking for a **collective approach**.

But this is what allows somebody to give me a more specific answer and says, « you know, I know what you are looking for, ok, and I will tell you there is all this which we do here and we did not do what we had to do »...It is information that is not necessarily requested but the relationship allows the information to come, so it is all this that puts « the bug in the ear » that we can know. (Interview 12)

We identified that usually the profile of middle manager intrapreneur is not that of a person who is an expert in the sector of activity in which the company works. Indeed, the person in question has no engineering background. We noticed that most of the proactive managers were lawyers, MBA managers or from a humanities background (such as psychologists). Their lack of knowledge about the sector was usually balanced by the proximity to operations and their **curiosity**, which allowed them a closer understanding of the project and core business. We also called these individuals « connectors » (Mintzberg, 2009), because they **create an interactive** and dynamic

culture in multiple projects. These managers usually look for the truth of the matter and try to **understand** situations between top and bottom.

Risk feedback about potential issues from them is valuable. Their work is based on **flexibility** and they are able to adapt to different situations (see risk assessment in different geographical zones in VII. II.2).

This profile can bring an innovative approach to risk management and **actively build risk culture**. We are not arguing that there are not any inconvenient characteristics in this profile, but we do not possess enough proof to present it as relevant. For instance, we presume that, since those types are more active in informational queries, they involve personal interpretation of information that can lead to selective rationalization. Also, their sense of innovation and dynamics has to be appropriately regulated in order to not modify internal systems.

(2) In the second instance we propose a more reactive behavioral type that we call « **followers** », which is aligned to more formal characteristics. It is a more individualist approach. Managers of this type look for the facts and they do not need to create additional interaction if it is not necessary. Those are more passive information links and their communication goes hand in hand with formal practices. At the same time this type has a **systematic approach** to work and looks for **uniformity**. The person has a **good knowledge of their sector** of work, often with the profile of an engineer, and built his/her career in that field, thus becoming an expert. While they pilot the restructuring project, they follow formal instructions and thus deliver what is expected on paper. Also, in this category we notice a strong loyalty to the top.

A huge part of my work is to make an influence. And risk, the risk management. ...my principal risk in my work is that the culture is missing, the culture has to come from the top. (Phase one, Interview 9)

Also, during an exchange with one of the Presidents, we mentioned that some people are cautious with regard to information sharing and we received the answer that it « *~is better to take precautions and they prefer it like that. ~* » (Informal discussion with a Senior Vice President)

However, basing their knowledge on formal structure, those types of managers can be surprised by the fact that some risk was not identified *ex ante*:

« *There are risks which arose from nowhere and which we never discussed.* » (Phase one, Interview 9)

Finally, for both profiles, these competencies and abilities are not exclusive to each personality type. Both types have in common their **sense of responsibility** and **organizational integrity**. The list of competencies is not exhaustive and serves as a first attempt to propose some risk competencies to develop risk culture.

VIII.2 Internal coordination systems

« *It is far easier to blame individuals than entire systems.* »
(Power, 2009, p.849)

In different parts of the Seventh Chapter, we already mentioned the strong hierarchical structure that exists within the company. Hence hierarchy and tone at the top are two major components to building risk culture internally. Here we emphasize that the way in which risk culture is practiced relies on informal aspects.

In section VIII.2.1 we see that informal coordination systems or systems of actions are major components that contribute to risk information and risk culture on an ongoing basis; and we identify several informal modes of coordination within a team. In section VIII.2.2 we go on and explore how far risk culture systems are manageable. Then, based on the definition of manageability, we summarize our research dimensions according to the way they are formally and informally managed. This helps us to conclude our reflections on risk culture manageability.

The following verbatim shows that, even if formal internal procedures apply to every function and business sector, they sometimes need to be adapted to the specific context of each business. Sometimes waiting for an update on -and change of- formal procedures from the top can take time.

This may do not be a corporate priority, and it can create complications for the business units that are supposed to strictly respect corporate rules while at the same time delivering results. This is one example of how management formal rules can affect, and force, adaptations in the business reality.

We did not want to reinvent the wheel, so we readapted it and did our form and honestly it has not been updated in, I think, many years. ...in our sector we have been authorised to make modifications of the form. After trying to change it on a corporate level, we did not have a lot of success, so we took it, we readapted it, modified it, changed it...it is the 4th version, it is not perfect, but that is not the point I want to make here is that what I do is beneficial here, for us [in the business unit, note from the author]. (Interview 21).

VIII.2.1 Coordination systems in the management of Risk Culture

Risk culture and coordination are two aspects that are both empowered by people. We find it relevant and interesting to include coordination analysis in risk culture as a part of risk practice. Indeed, we were able to identify multiple coordination mechanisms based on the definition and references mentioned in Table 46: Outline of coordination mechanisms.

<i>Table 46: Table: Outline of coordination mechanisms</i>		
Concept	Definition	References
Coordination Mechanisms and systems	Coordination mechanisms are « <i>direct and indirect management tools, that managers use to make sure that the employees' contribution are aligned with the task to be accomplished (i.e. that employees' actions are efficient and coordinated).</i> Coordination mechanisms are therefore related to job definitions » (Romelaer, 2011, p.5) ¹³⁷	Romelaer, 2011, 2013; Bunderson, Van Der Vegt, Cantimur, Rink, 2016; Harrison & Klein, 2007; Mintzberg, 1979

¹³⁷ Translated from Romelaer, 2011, p.5: « *instruments de gestion directs et indirects, que le manager utilise*

By definition, organizations include coordination systems that can be more or less formal or informal (Romelaer, 2011). One organization has usually more than one system of coordination. This is especially true in the case of multinational companies, which often operate in multiple industries and domains of activities. Thus, the coordination system can also be different from one part of a company to another. Table 47 demonstrates that there can be some internal tensions based on differences between modes of coordination.

Table 47: Divergence in coordination mechanisms, Observation 24.2.2016

During the coordination meeting for the business resiliency programme, the security team (Team S) invited people from an industry that is close to the military (we call it team M). During the programme introduction, team M explained that they already had multiple aspects of the programme in place, because that is how they work with their business partners. Team M seemed to be already well synchronised, but all those synchronisations were based on mutual agreements. Team S leader reacted positively to this information, but commented: «~it is great, and it is exactly what has to be done, except where are your written agreements? We need to have it written and signed from all parts. ~» To that Team M objects «~ it is impossible, we cannot have it written ~» Team S responded, «~it has to be, otherwise it does not work for us~». Team M reiterated its stance and explained «~ it is not possible, it is not our practice in our industry [name of industry, note from the author], we cannot ask this from our partners, we would lose our credibility, it does not work like this ~».

In addition to that, during the presentation of our results to the Vice-President and Senior-Vice President of Corporate Risk, we emphasized that the formal structure represents a considerable part of a multinational company. At the same time, formal aspects can also be a source of risk. The following example demonstrates the difference between formally set rule and operational reality:

...But the reality is that it is a formal policy developed here at Headquarters and its implementation can be impossible, the best example is that this (policy) is illegal in half of the countries where we work. (Interview 22)

pour s'assurer que la contribution d'un salarié est en phase avec le travail à faire (autrement dit que les actions des salariés sont efficaces et coordonnées). Les mécanismes de coordination sont donc liés aux définitions de postes. »

Eighth Chapter: From bottom to middle - Managers as key actors in the creation of risk culture

Formally, risk management responsibilities and risk culture are directed by corporate risk management which is housed at the offices at corporate headquarters. Their activities include, but are certainly not limited to, the coordination of risk assessment throughout the organization and on the project side. Additionally, risk management has responsibilities in risk peer review, as well as the bidding process. We already described formal coordination during the workshops and diverse programmes in the Seventh Chapter, and the informal part of coordination is described below.

Figure 40: Key activities of risk management



Source: Internal intranet of EngineerCo.

As we already emphasized, formal aspects are taking over in the organization, the coordination system keeps the different levels connected, especially the top and middle level. The top management team is using mixed coordination, which is a combination of formal and informal systems designed to maximize connectivity and coordination between levels. In this style of coordination, the informal represents a major interface that goes beyond the formal dynamic.

Interview 17: *« If guys are here in the office it happens more frequently, guys somewhere in the world we need to be a little bit more structured, we plan and we talk, we say here are ten topics and we just talk about individual things so that ...we regularly keep each other aware of what is going on. I would say a more formal process where a number of people sitting on ...in the room, trying to engage with us...so it seems to be a lot of interaction... »*

MJ: *« How do you coordinate with these people that are reporting to you? »*

Interview 17: *« They might think too much. (smile) So, first of all, you have things like Levels of Authority. Which is important that we have a delegation of authority into the organization. And our big risk would be lack of delegation of authority and everything would go to (name) or me. So you need the right people to delegate the authority to and those people need to make appropriate decisions. So if you don't do that I would be engaging with him far too much and it is not that I am not engaging on a frequent basis but I prefer to be engaging about the right things rather than micro managing their business...»*

The set of formal coordination systems is fundamental, but it is not sufficient for establishing risk culture. Risk culture as a social construct is empowered by action, but in the case that an organization has different cultures there may also be multiple alternatives and visions to managing risk (Hardy & Maguire, 2016). This question was already partially covered when we mentioned that EngineerCo. tries to have consistency throughout their systems (Seventh Chapter). In terms of coordination systems, this informational inequality is covered by communication that is especially relevant in informal information exchanges that complement formal structure.

MJ: *« How do you exchange information? »*

Interview 33: *« There is variety of different ways. One, there is just the formal written communication for example when we are talking the concept of a bid review and bid proposal there is a section that requires us to provide, you know, documentation, that is provides the legal advice, advice in terms of what should and should not be accepted and the risk associated with these things. On top of that there are formal meeting sessions, there is also a lot of informal dialogue, so you know...there is the formal communication that is required by the process but there is the relationship built, communication whereby the very nature of working with the people on a regular basis you exchange your thoughts on risks.*

...

The minimum formal requirements are that I have a bi-weekly meeting with my direct reports and I have a monthly meeting with my entire team, in addition to that there is a weekly material matters report that is generated and submitted to (name of his/her responsible) and everyone on of the people on my team feeds into that. Based on what I see in there, there are often informal discussions, there is also just relationship-based communication. You know what I've always told my team as a general concept I don't ever want to be surprised by something. And so, if they think something is going to raise up to the level where senior leadership team members for [sector, note from the author] or even higher in corporate are going to ask me and talk to me about it, I need to know about it beforehand. So, you know, it is not specific dollar threshold or any specific materiality, there is just a general request that they keep me informed of anything that might be valuable, so in addition to those formal meetings I just described there is constant communication based on those types of issues. »

Also, another person at the top confirms:

« I have to say we talk a lot. ...there are those meetings, we have specific cases where we have regular meetings, or we start an initiative and we talk about it, we have regular steering committees with harder cases, one might say. And I have to say we communicate by email a lot. Because sometimes we are in different time zones and different places, even if we are on the same floor we are in a rush and it does not mean we cross paths with each other. So we write to each other a lot, and I try to keep my inbox clean. » (Interview 30)

Here we can validate the conclusion from Power *et al.* (2013, p.76), who explains: *« It is said that culture is not about the messages organizations send to their participants, but how they are received ».*

The risk culture can contribute to the internal coordination. From narratives we have also identified cases of the informal escalation in three specific situations (Table 49: Objectives of informal communication).

« If it is a part of the business culture [awareness, note from the author] so it is like that if you have people in the country, we can find out very quickly. » (Interview 1)

There are three objectives of informal coordination systems. (1) Accountability, that comes from the top level and has the aim of gathering information from people related to the same sector of activities. Those are coordination meetings and systems of activities that serve for the updates. In relation to risk, those are initiated by a leader or a person in charge but are not prescribed by

company policy. We called this Accountability because it keeps the higher level accountable on information from operations. (2) Common Understanding is related to non-hierarchical relations, it is more lateral and cross-business coordination. In a previous chapter (Seventh Chapter, VII.2.2) we already pointed out the lack of interconnection between business units. We have to say that, apart from a few examples (such as in the Seventh Chapter, II. Section, II.2) we have observed very little informal coordination between different functions. But there were cases that lead us to develop this point further, even if it is not strongly supported by our data. It would appear that some units understood that risk management has to happen across business units. Where top teams established this kind of cross-sector relations, there were less visible observations at other levels and cross coordination is limited. (3) What we call Predictability is the informal coordination that helps to prevent and limit risk events and comes from any organizational part because it is related to internal networks. At the same time, this informal exchange has positive feedback in terms of risk management and thus creates risk culture through networks and communication.

These three objectives that we presented in the previous paragraphs, and that we summarize in the Figure below constitutes part of our research contribution. We developed objectives and proposed the concept of informal coordination within the organization.

<i>Table 48: Objectives of informal coordination</i>	
Informal	Verbatim / Observation
(1) Accountability = informal routines from the top, Top down informal initiative - become formally noted in the agendas.	<i>I try to be informal, by, you know, not requiring policies. Every week I have a call with these 2 people and they update me and, you know, on every aspect of the project that they are responsible for or on the other issues we need to catch up on. And on a monthly basis I have a call with all of my direct reporting colleagues and the project managers just to update them on how the month is going, what issues are coming up for example my (xxx) VP talks to them about upcoming project evaluation...sorry, personal evaluation... (Interview 28)</i>
(2) Common Understanding = Flat and cross-business communication	<i>But it is also communication, well, communicating with people. I...So I have changed what my department was doing and I do weekly meetings with my (positions and functions) and monthly calls and a blog and I am just trying to catch up. And some of the (function) told me recently, I have never met your predecessor.(Interview 1)</i>

<p>(3) Predictability = Urgency, prediction of unexpected accidents and the communication system is informally in place</p>	<p>Off the record Interviewee 34 explained about incidents and the « fortunate » fast recovery because one of the team sent a text to Interviewee 34 as soon as possible, while the site manager’s information came out only 2 hours later.</p> <p>Additional note: To facilitate the exchanges and circulation of information there was also restructuring of this function.</p>
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VIII.2.2 Investigations into Manageability

Manageability is associated with control. This concept is based on the assumption that, if a thing is controllable, it could also be manageable:

The Manageability is the possibility to mitigate the consequence, the probability of occurrence or both in order to reduce the exposure of the project to the risk. (Extract, Internal presentation on Risk Management Tools, Overview, Dec 11, 2014)

Observation, Risk Workshop 22

I think we have all controls in place so it is a high manageability.

All the policies and SOP are written in that plan.

So everything is in place so it is more about information that has to be put in place.

(Director)

The following figure 43 shows the proportion of how manageability is distributed among the 8 characteristics that we analysed. According to our data, manageability is distributed between Communication and Practice, which could be expected. The most surprising results confirm that hierarchy as formal aspects have little impact on how to manage risk culture, which contradicts the professional literature that tries to place risk culture into the same box as organizational control.

Figure 41: Extract from NVivo on Manageability

	A : Actors - Social Role	B : Communication	C : Hierarchy
1 : Manageability	6.95%	25.56%	3.2%

Eighth Chapter: From bottom to middle - Managers as key actors in the creation of risk culture

	D : Practices ▼	E : Process ▼	F : Ressource allocation ▼	G : Risk Management ▼	H : Structure ▼
1 : Manageability ▼	38.07%	9.61%	0%	9.85%	6.77%

Control and communication are related to the hierarchy and are strongly formalized, but as we have already argued there may be unexpected effects of being too formal. In fact, based on that data we could raise a question mentioned by Professor Torset¹³⁸ who asked: Do organisations have an interest in fully managing their risk culture? As we demonstrate in the Seventh and Eighth Chapter, risk culture, especially in large systems, needs a formal structure, but is it actually really desirable to entirely control it? We have demonstrated that, if culture is subject to control, the organization can lose an important and rich part of the risk culture if they do not consider informal aspects, through relations, systems and networks.

¹³⁸ Comment during the pre-defence, September 30, 2017.

VIII.3 Summary of empirical findings on risk manageability

In this chapter we have addressed management as one of the major components that plays a role in creating the risk culture dynamic.

(1) First, we demonstrated that management is a factor that can contribute to the extension of risk culture governance. Senior and middle management play a strategic role in supporting risk culture practices that would remain passive without this intermediate level between top and bottom. This role played by middle management develops a multiagency relation of risk culture governance. This means that governance activity is extended in order to create a relationship between the different parts of the hierarchy and also create collaborative ties between risk management practitioners and decision makers. At the same time, we have identified two main managerial types and competencies that have a role in risk culture management, proactive and follower. There are those who are more proactive and are going to gather information and actively create risk culture and those who are following formal structure and rules and are formally oriented. We also emphasised that organizations need both types, but in the appropriate proportion.

We integrated the senior middle level to risk culture governance and we extended the scope of the risk culture management. At the same time, we demonstrated that coordination should not exclusively be equated with control in terms of risk culture.

We also completed previous research on risk culture from Power *et al.* (2013) and other research in risk management competencies (e.g. Mayer, 2017). Power *et al.* (2013) already mentioned that managing risk takes development of personal competencies, but they did not develop this point in more detail. In our research we were able to divide risk management profiles into two types of competencies, those that are proactive and those that are followers.

The table below summarize our finding on risk management competencies.

Table 49: Risk culture and management

Key statement & Ref	Finding	Verbatim
The risk culture needs competent people to endorse it. (Power <i>et al.</i> 2013) + fieldwork	<p>⇒ As has been shown, we can definitely divide risk managers' profiles into two types:</p> <ul style="list-style-type: none"> • Proactive (inspired by entrepreneurial behaviour according to Santos & Eisenhardt, 2009) • Followers 	<p>Proactive: (Explanation of how a person gives training on projects about risks) « <i>It is really further to the individual discussion that I have tried to understand...but I could also just go there and give an information and do a check.</i> » (Interview 22)</p> <p>Followers: « <i>There are management action plans. ... But it is one thing to do, we will write procedures... We will try to install culture.</i> » (Phase one, Interview 9)</p>

(2) In the second section, we have focused on the coordination of systems that shows the connection between formal and informal aspects. While informal systems of coordination are a natural part of multinational companies, the literature did not previously emphasize the strong contribution of those informal coordination systems in risk culture. They do exist, but since they are more difficult to capture, recognition of their contribution is limited. The informal systems are complementary to risk culture and should be accepted, including their limit of control as we demonstrated in the section entitled « Investigation into manageability ».

Table 50: Risk culture and findings on manageability describes four aspects that are ascribed under formal and informal manageability. We classify the level of manageability into a scale with three (3) points: + Those aspects that are almost impossible to manage because they depend on human behaviour and action that is difficult to control; ++ Aspects that can eventually be managed or are part of the systems that are controllable; +++Aspects that can be fully under formal prescriptions and are subject to control activities. The attribution of a level of manageability was made through the results of the Seventh Chapter correlated with Manageability in which we consider informal activities as practices as less manageable and formal prescriptions as most manageable; the middle value are aspects that are in between informal and formal and can eventually be assigned to one or

the other side. These aspects are not compared with previous literature, because these results come from our analysis.

The table below shows our findings on the level of manageability within all risk culture characteristics that we studied.

Table 50: Risk culture and findings on manageability

Characteristic	Manageability	Formal results	Informal results
	<i>Practices, abilities and capacities that lead to achieving risk culture, roles and responsibilities</i>	<i>Level of manageability: + not manageable, can never be managed; ++moderate, can be managed; +++controllable</i>	
Control, tone from the top	Ways of controlling risk: (e.g. centralized or decentralized)	+++Risk management roles and responsibilities fall into 3 categories: -Risk management Assessment process and reporting; -Risk facilitation; Survey of risk register updated; -Follow-up with mitigation measures.	++Coordination based on regular or day-to-day exchanges helps to involve multiple stakeholders and also helps with the awareness of risk situations.
Communication	Communication and exchange of information in real time	+++Formal message helps to spread the risk culture vision throughout the organization.	+ Informal communication helps to escalate information faster which can be helpful in risky situations.

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Actors / social capital	<p>Risk Understanding</p> <p>Actors' involvement in practice</p> <p>Knowledge creation</p>	++Actors are manageable through control that is related to communication of information	<p>+ They create their own comprehension of risk culture related to their task and responsibilities.</p> <p>++They respect formal rules but facilitate the risk practice through some procedural adaptation.</p>
Processes and procedures	Evolution over time and practice	++Training and programmes have the objective of controlling risk culture in the company	+ / ++Adjustment to day-to-day business depending on the geographical location
Author: Marketa Janickova			

We reflect on and compare our results with existing literature in IX.1.

IX. DISCUSSION OF RESULTS and CONCLUSION

In this section we are going to discuss our results. We have based our research on the concept of risk culture that we have tried to develop and enrich by introducing formal and informal aspects of organizational theory. Both from a managerial and an organizational point of view we have applied our preliminary model to the fieldwork reality and we have developed process stages involving different types of practices that contribute to risk culture development. In section IX.1, we compare our results with existing literature. In section IX.1.1 we explain our contribution to Organisational theory as well as Risk management literature, while in section IX.1.2 we discuss our contribution to risk culture management. We specifically emphasize our results on the competitive advantage of risk culture and on its manageability that is contradictory to current managerial literature. Finally, in section IX.2, we do a critical review of our research that also serves to point out suggestions for the future extension of our results.

The objective of our research was to clarify and extend the risk culture concept. Using risk culture literature, we have outlined its origins from accountancy and finance, which also demonstrates that the concept is often related exclusively to organizational control and to performance. However, our additional research into the literature on organizational studies shows risk and organizational culture through more ambiguous aspects based on human behaviour and social characteristics, organisational structure, and coordination systems. Hence, we have identified that there is a gap in how the risk culture is approached in the current literature, and there are formal and informal distinctions that have not been taken into account in previous studies. Therefore, we decided to address the gaps in, and the vague nature of, the perception of risk culture in our contribution, and to try to demonstrate its formal and informal dimensions, as well as limits in risk management and risk culture control. Thus, we have proposed the following questions guiding our thesis research:

Under what conditions can risk culture be established in a multinational organization?

This question was specified through two research questions:

Q1: How do formal and informal dimensions contribute to building risk culture?

Q2: To what extent can we manage risk culture?

In order to answer those questions, we have opted for the method of single case study (Yin, 2003). We have defined our epistemological position as innovative and situated it between (Dumez, 2011) the two major paradigms of Positivism and Constructivism (Royer & Zarlowski, 2007, in Thietart *et al.*, 2014). We have taken this liberty because we estimated that unilateral epistemological positions would limit the scope of our research. At the same time, we do not believe that this choice leads to a less rigorous approach, as some researchers have already criticized (e.g. Avenier, 2011): to avoid this criticism we followed a systematic methodology and we have established an epistemological foundation based on abduction within the qualitative study. We have based our research on extensive fieldwork. We did our case study in a company we call « EngineerCo », through a research approached by a mix design that led us to select (according to Patton, 2002) an unusual case that illustrates the evolution of our risk culture study phenomena; the choice of the case EngineerCo. was the result of our preliminary sampling and selection out of four companies.

In total, our eighteen and a half months of fieldwork time, divided into four months of choosing our case study and fourteen and a half months of in-depth immersion in our case study, allowed us to observe the process of evolution in Enterprise Risk Management and the development of risk culture in a Canadian multinational company in the Infrastructure and Construction sector. During that period, we were able to closely follow multiple risk programmes, assessments, decisions, workshops, training and evolution, as well as having formal and informal interviews with diverse stakeholders and reports to experts in risk and to the top executive level within the company. During this immersion in EngineerCo, our research project was known to all, we helped in various expert tasks concerning risk management, and both research and more operational activities put us daily in formal and informal work contacts with dozens of very high-level executives and Headquarters experts in the company. We were granted full access to these high-level people. As a result of the wealth of data collected, we were able to analyze and categorize our finding into different categories and develop the risk culture dimension into the formal and informal aspects and integrate its manageability.

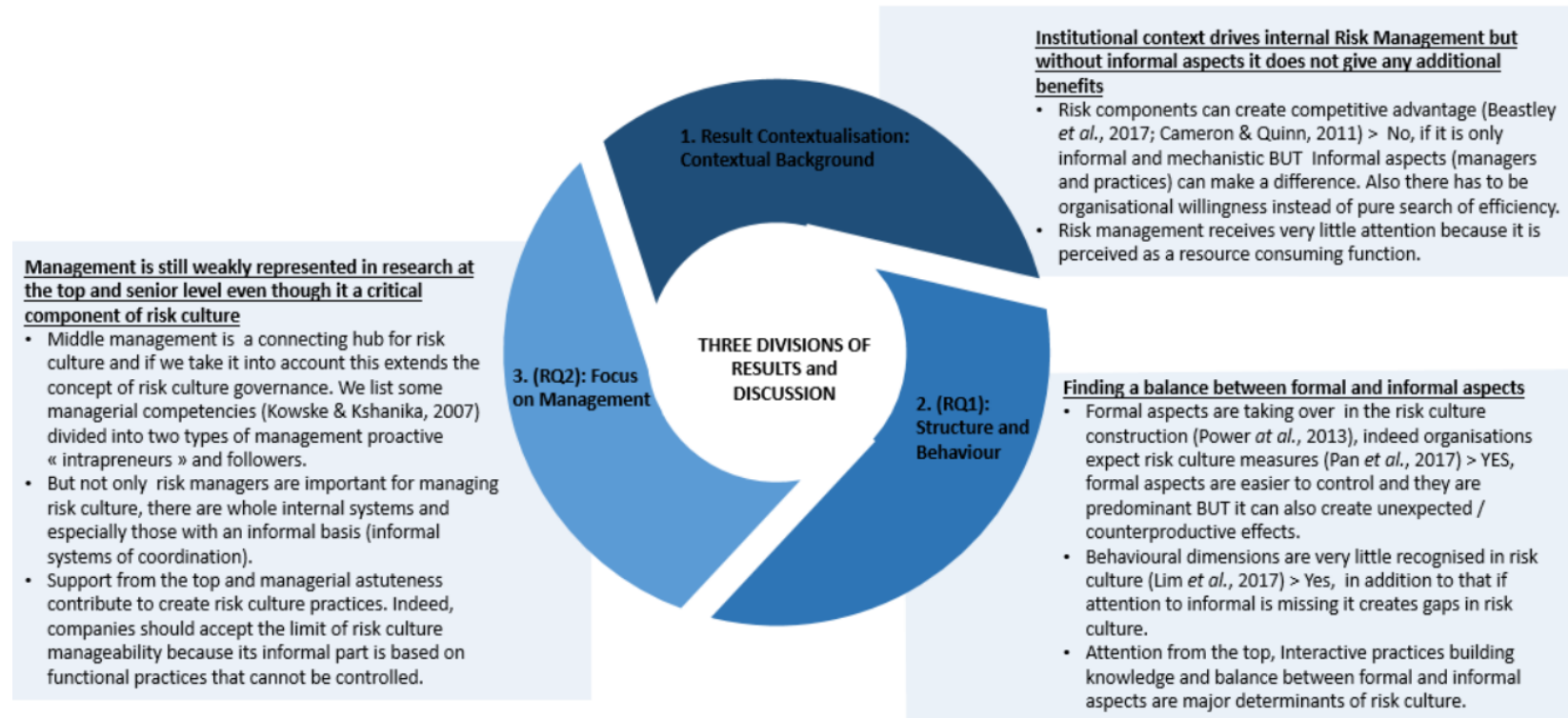
IX. DISCUSSION OF RESULTS and CONCLUSION

IX.1 Conceptual and Theoretical Contribution

In this section we would like to outline how our research contributes to the existing literature. Figure 43: Circular Model Summarizing key results, summarizes our results regarding our research questions.

First, we contribute to the research on the Engineering and Construction sector to verify if the limited amount of proposed empirical data for this industry is up to date. Furthermore, our thesis contributes to filling a gap in our knowledge about risk culture in relation to the organizational structure, systems and behaviour by exploring formal and informal interactions (Research Question 1). We demonstrated that formal aspects could be taking over and lead to the loss of organizational efficiency of risk culture if not complemented by informal aspects. Research Question 2: Middle management and soft management are important factors of risk culture and they enlarge the concept of risk culture governance. We show how risk culture translates into managerial practice as well as the organizational capacity to manage risk culture and questions related to its manageability.

Figure 42: Circular Model Summarizing key results



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IX. DISCUSSION OF RESULTS and CONCLUSION

As summarized in Table 51: Comparison of findings with the literature, we mainly contribute to the refining of the concept of risk culture based on its formal and informal aspects. We have confirmed most of the statements from previous literature, but we were able to extend the concept based on contextual, structural, behavioural and management grounds.

Table 51: Comparison of findings with the literature

Relation to	Dimension	Prior	Extended
Context (Sixth Chapter)	Risk Management as strategic advantage	RM is the source of competitive advantage (Beasley <i>et al.</i> , 2017; Braumann, 2016)	⇒ We do not confirm this statement from a formal perspective. ⇒ But RM can contribute to building competitive advantage while it is rooted in informal aspects.
	Goal of Risk Culture	Literature identified three (3) main goals/objectives of interest in risk culture within companies: <ul style="list-style-type: none"> • RC as tool of control (Zhvitskaya, 2015; Power <i>et al.</i>, 2013) • Response to the regulatory pressure on Compliance (Palermo <i>et al.</i>, 2017) • Consistency in systems. (Rittenberg & Martens, 2012; Mikes 2011) 	⇒ We extend those three (3) goals and we add an additional one <ul style="list-style-type: none"> • Objective of expansion
Structure and Behaviour (Seventh Chapter)	Hierarchy in Risk Culture	Risk culture comes from the top and functions as a result of formal procedures deployed downwards. (Richter, 2014; Frigo & Anderson, 2011; Rittenberg & Martens, 2012; Richardson & Fenech, 2012; Farrell & Hoon, 2009)	⇒ We confirm that tone from the top and formalization is the major aspect in multinational RC. ⇒ But there are other informal influences on risk culture. Also, other senior levels disseminate the risk culture by their behaviour.
	The control is made through centralization	Procedures as instruments of control are part of auditable models that could report and outline risk culture. (Palermo <i>et al.</i> , 2017; Pan <i>et al.</i> , 2017; Vakkur <i>et al.</i> , 2010)	⇒ We confirm that auditable models formally shape risk culture in the company. ⇒ But the control is not equal to risk efficiency. There are informal networks that are faster due to the informality that is difficult to audit.
	Risk communication	Risk communication results from formal organizational footprint. (Palermo <i>et al.</i> , 2017; Pan <i>et al.</i> , 2017)	⇒ We confirm that formal risk communication represents an organizational footprint. ⇒ But open and informal communication increases risk culture efficiency.

	Risk Management as part of the structure	Risk managers have a role as facilitators in dialogue and management of risk (Power <i>et al.</i> , 2013)	<p>⇒ We confirm that formal roles of RM are to facilitate immersion into the Risk Culture</p> <p>⇒ But not only formal roles of risk managers create risk culture and its embeddedness</p>
	Process & Procedures in Risk Culture	Change programmes are an instrument of communication to establish risk culture across the organization (Power <i>et al.</i> , 2013; Ashby <i>et al.</i> , 2012)	<p>⇒ It is partially verified from the formal perspective. Those programmes have to be intentionally created for risk culture and have to be also informally supported.</p> <p>⇒ The additional piece is informal risk management that goes through non-prescribed practices and develops knowledge and informational flows.</p>
		No prior statement	<p>In addition to Process and Procedures, we find that Risk culture needs innovation through active informal processes and human exchanges on a regular basis.</p> <p>⇒ Methods and communities can contribute to risk culture if there are informal ties. Informal can lead to better realisation of RC.</p>
	Resource allocation	No prior statement	<p>⇒ Attention from the top on specific concerns is interpreted by allocation of resources to RC. More attention means sufficient allocation of resources.</p>
	Human Interaction in RC	Human interaction is an element that is not sufficiently taken into account and yet it is an active element of RC. (Power <i>et al.</i> , 2013)	<p>⇒ We confirm the statement</p> <p>⇒ Our findings showed that there are different extended forms of interactions.</p> <ul style="list-style-type: none"> • Based on formal basis • Based on informal basis • Mixed interaction based on collaboration (Fjeldstad <i>et al.</i>, 2012)

	Risk Culture balance between formal and informal	No prior statement	An excess of different forms of RC can create an unexpected effect ⇒ The way the company's internal stakeholders are overloaded by Ethics & Compliance can result in loss of interest on the part of different internal stakeholders and loss of attention to the subject.
Management (Eighth Chapter)	Managerial competencies	The risk culture needs competent people to support it. (Power <i>et al.</i> , 2013, and our inspiration from the fieldwork)	⇒ We validated this information and we developed risk managers' profiles into two types: <ul style="list-style-type: none"> • Proactive (inspired by entrepreneurial behavior according to Santos & Eisenhardt, 2009) • Followers (Reactive)
	Locus of Coordination in RC	No prior statement	⇒ RC culture needs informal coordination. We identify three objectives of informal coordination <ul style="list-style-type: none"> • Accountability = informal routines from the top, Top down informal initiative - become formally noted in the agendas. • Common Understanding = Flat and cross-business communication • Predictability = Urgency, prediction of unexpected accidents and the communication system is informally in place (Findings are in addition to formal structure)
	Limit of manageability	No prior statement	Risk Culture is limited in the manageability extension (see p.281 for further details)

IX. DISCUSSION OF RESULTS and CONCLUSION

IX.1.1 Contribution to Empirical Research on Engineering and Construction Multinationals in a global environment

The literature in the fields of accounting and economics (Palermo *et al.*, 2017; Zhivitskaya, 2015) strongly emphasizes the role of the environment and its very powerful role in building the risk culture structure within multinational companies in the financial sector. From our research, we can confirm that the majority of the previous findings on risk culture are valid, especially those that are formally imposed, and come from the financial sector. For instance, financial studies emphasize the role of the top and risk governance in a risk culture setting and describe formal instruments, such as policies, programmes or assessments, to create risk culture. Therefore, our results also demonstrate the role of informal aspects that receive less attention from academics and practitioners, but are complementary to the formal. We were able to verify statements about the competitive advantage of risk culture and our findings clearly show that formal risk management and formal risk culture alone do not bring any additional benefits among competitors. However, as soon as organizations start to explore informal aspects, there could be a potential benefit to risk culture. At the same time, only informal elements, as a form of mutual support, have a weak outcome in risk programmes and would not result in functioning risk culture either.

We noticed that both formal and informal aspects are crucial in risk culture building but no literature on risk culture has distinguished these two aspects in greater detail. Especially in large and complex organizations, neither of these aspects can be neglected. While formal aspects are important to structure and to set the tone of risk culture, informal aspects are adding a crucial dynamic without which the risk culture cannot be considered to be functional. However, especially the informal aspect is very often not taken sufficiently into account in a risk culture setting.

Results on risk culture and its relation to enterprise risk seem to represent a dichotomy that we have identified between formal and informal characteristics and its structure that touch every organizational level. In order to develop our findings in more detail, we present them in the following categories: (IX.1.1.a) contextual, (IX.1.1.b) structural and behavioural and (IX.1.1.c) managerial.

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IX.1.1.a Influence of Global Context on Risk Culture

We have confirmed what Gupta & Leech (2015) refer to as a « *regulatory storm* », in other words it is the rush to create effective risk culture through strong regulatory policies. Therefore, there is a strong tendency towards risk culture assessment that leads to its general articulation. This means that companies that create a risk culture are using and reproducing frameworks provided by different institutions. Those frameworks are tools that support some kind of mimicking and there would not be any difference between the risk cultures of different companies. This could satisfy those who are looking for general concepts that are replicable, except that risk culture is by its cultural definition a concept that is supposed to be concerned with organizational specificities. In fact, we have identified that current formal tendencies are showing that trend. The context, especially institutional influence, is a strong asset that affects formal risk culture practice and process.

The formal risk culture is defined as a typical way to control and measure organizational performance. It is based on traditional models that are often proposed by professionals and institutions specializing in risk. We agree that these models have considerable importance in the organizational world because they remain important references for our research on the subject, but they lack more concrete explanations. In order to understand the process of risk culture evolution, we had to use traditional models on risk management from ISO 31 000 on risk management and COSO Standards on Enterprise Risk Management. However, we are aware of the problems associated with these models, which our research confirms. Indeed, we read that risk culture is the result of the tone set from the top when in an environment governed by formal rather than informal aspects. Its objective is efficiency and effectiveness and it is supposed to contribute to competitive advantage (Beasley *et al.*, 2017; Braumann, 2016). Therefore, our results on risk culture are addressing different views on the risk culture context and propose additional findings on competitiveness that is generated by risk culture. Firstly, we cannot confirm that risk culture implementation from a formal perspective brings any competitive advantage. This means that, if a company opts for a strictly formal implementation of risk culture based on industrial and world practices, that will establish compliance and structured risk culture, but without any additional benefits. Therefore, we can strongly confirm the study by Palermo *et al.* (2017) that mentioned a

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causal relation between the institutional environment and organizations. In our case, the external environment plays an important role that impacts the internal structure of formal risk culture.

In addition to that, there are informal aspects of risk culture. Informal aspects of risk culture are those that make it different within each organization. In fact, while risk culture is defined by the regulatory requirements, organizations also focus on the soft aspects of risk culture, they may develop more flexible and proactive practices, and then the informal part can eventually bring added benefits to the organization.

We have also proposed additional rational reasons that drive organizations to establish risk culture within multinational companies, specifically in our case study. The first reason why an organization pays attention to risk culture has previously been identified as the purpose of gaining **control** (Zhivitskaya, 2015; Power *et al.*, 2013). This follows the logic that there is a necessity for control over events and for reduction of uncertainties. The second aspect that we validate is the objective of **compliance**, especially in terms of ethics and compliance (Palermo *et al.*, 2017). Due to the regulatory pressure and different legal contexts, companies cover this responsibility not only by rules but also by behavioural aspects of risk culture. The third reason is related to centralization, which is only limited in a global environment, and thus risk culture brings **consistency** in organizational systems building (Rittenberg & Martens, 2012; Mikes, 2011). We were able to confirm all of those aspects and objectives, but, in addition to that, we have proposed another one. We have identified that the analysis and evaluation of risk culture made by the company that we studied was also based on the objective of **expansion**. Expansion can happen in multiple forms (joint venture, agreements, franchise, acquisition...). In our study, the growth was in the form of acquisition of new entities and new companies. Indeed, EngineerCo. needed to define its current risk culture in order to be able to merge with different organizational cultures. As Schein (2010) mentioned concerning organizational culture process assessment, organizations need to know where they are before they engage in new steps.

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IX.1.1.b Formal and informal dimensions are the first step to understanding risk culture complexity

In our study, we have examined the hierarchy, power and scope of Risk Culture governance (we also elaborate on the question of governance from the managerial perspective in the next point, IX.1.1.c); communication, process and procedures and the character and role of actors and of social capital. In fact, all those internal dimensions are overlapping and influence risk culture. The force of the interconnection of those components is related by formal and informal settings and social interactions.

We have identified a tendency to centralize and to formalize risk management after an organizational crisis. The formal process takes the form of written policies, rules and directions that influence organizational risk culture. At the same time, the hierarchical setting and formal distribution of power structure risk governance. Our research confirms most of the previous literature, but also demonstrates that most of the statements are incomplete. For instance, our research does not disagree with the financial statement from Godson & Gottwald (2016), who find positive and strong relations between the impact of the audit committee and corporate risk governance on risk culture, but we would like to add that these formal aspects are not sufficient to create risk culture. In addition to the tone from the top, which formally trickles down to the bottom, there is also informal power that is vertical and that goes behind prescribed policies. Aspects of informal power appear as a contributor to the organizational restructuring. While the top relies on formal prescriptions, there is also delegation of responsibility on the natural acquisition of risk culture in other organizational levels.

The current literature says that risk culture is the effect of corporate governance and risk strategy choice that is sent from the top down (Richter, 2014; Frigo & Anderson, 2011; Rittenberg & Martens, 2012; Richardson & Fenech, 2012; Farrell & Hoon, 2009). In this kind of proposition, we notice that there are different findings on the tone from the top related risk culture:

- From the formal perspective, we can confirm that the tone from the top and the strategic level is the major aspect that creates and sets lines for risk culture.

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- Although, from the informal perspective, other aspects influence and set the tone of risk culture. For instance, the level just under the top management, which we have called senior management, possesses important powers to influence (and possibly to manipulate) risk culture throughout the organization.

Our research defines risk culture governance as an assemblage of executive power to influence risk culture with formal and informal construction that are strongly related to the senior management level. (We elaborate on risk culture governance in IX.1.1.c).

Also, other analysed aspects contributed with relevant information distinguishing formal and informal parts of risk culture. Formal risk communication is an object of risk culture that takes different formats through processes as programmes, training and routines. From this perspective, human capital has strictly marginal value considering that humans have to follow procedures and communicate through prescribed rules and vertical channels. Indeed, formal communication is related to the power relation between actors that leads to the hierarchical level and creates formal structure. On the other hand, informal communication creates a linear and flatter structure that can appear at any organizational level. Hence, seen from an informal perspective, risk culture takes a more dynamic and inclusive form that is based on knowledge construction, interactive communication and collaboration wherein social capital acquires additional value.

- From the formal perspective we can confirm the literature already mentioned (*cf.* Power *et al.*, 2013). We show that formal communication plays a major role in multinational companies. It is important in order to establish **consistency** of organizational methods across the world. While companies operate in multiple cultures, there also have to be specific rules and procedures that apply to all systems. Despite the importance of formal aspects, we have also shown multiple information exchanges that are going outside of the official channels of communication. The major objective of informal communication is **the search for awareness**. Indeed, **the asymmetry of information** that leads to a limited flow of information seems to be the main issue that is more important than risk itself. Insofar as an organization can have an overview of a risky situation, they also assume they can manage it.

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In addition to that, other aspects contribute to risk culture and both formal and informal aspects appear to be equally important. Therefore, some conditions apply to the risk culture from the formal and from the informal perspective.

- Formal aspects definitely help to solve issues and propose solutions that could be consistent if properly applied. However, formal aspects need to be supported by appropriate resource allocation. This means that an organization needs to allow enough concrete and human resources that would be able to develop risk culture. For instance, Arena *et al.* (2010) show that in order to develop effective risk management and organizational resiliency, companies have to allocate enough financial resources and investment in order to make their risk systems safe. By comparison, organizations that claim to support their risk management without allocating resources to that function cannot be regarded as taking this subject seriously because their approach is unsupported and hence very volatile. Risk culture also needs enough human resources that enforce risk culture robustness and develop informal aspects, as a web or network of informal practices and coordination.
- In terms of procedures, centralization and formalization of information is the tool of control that we confirm from previous studies (Palermo *et al.*, 2017; Pan *et al.*, 2017; Vakkur *et al.*, 2010). However, we have also demonstrated that this is not enough to establish risk culture. In fact, formalization can be an instrument that misleads organizations into the comfortable illusion wherein the company is convinced that they manage risk situations. In those situations, misperceptions regarding risks are even greater. We did not have the opportunity to evaluate all of our data in the present study, not only because of the limited selection that we have had to make for our research subject but also due to the confidential nature of the information. However, we can confirm that these types of situations appeared in a few cases.
- Our findings extend the element of human interaction and collaboration within the risk culture model. Martin and Eisenhardt (2012) also developed a cross business collaboration model that seems like a new alternative to organizational collaboration. However, scholars writing about risk culture have emphasized the missing piece of collaboration and interaction. Our research strongly confirms that the aspect of human interaction is still missing in the consideration of risk culture. Even if the human aspects are supposed to be a major component of risk culture it is still lacking consideration in the research (Power *et al.*, 2013). We were however able to demonstrate the variation in interaction that is based on a formal, an informal and a mixed

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basis. While formal interaction is based on formally prescribed reporting and respect of protocols, informal interaction includes systems of coordination based on informational *slack* (we mean « slack » in terms of Garbage Can as defined in the Garbage Can model developed by Cohen, March and Olsen, 1972). A mix of both is the organizational collaboration that is a more actor-oriented form of management (Fjeldstad *et al.*, 2012).

When summarizing our findings, it occurred to us that a different kind of paradox could exist.

- In a formal setting, messages being sent from the upper levels may not correspond to the operational identity and reality. However, an over-reliance on formal aspects and control can create barriers and other conditions that need to be more flexible, such as communication or human interaction. Following the logic of efficiency, a less bureaucratic company has a greater chance to perform better (Crilly & Sloan, 2014) since the risk culture represents the special organizational capacity that relies on the flexibility driven by formally outlined patterns, tasks and missions and on being informally supported.
- Despite the existence of different definitions, the concept of « culture » is based on static components such as shared values, assumptions and beliefs; however, from a more processual point of view, it is also a result of organizational behaviour and acquired skills:

« Risk culture in essence is the product of organizational learning about what has worked or not worked for a group over time. The members of a group mean which of the formal risk management norms and rules actually work in practice in the sense of behaviour that is formally or informally encouraged or discouraged, applauded or smiled at, rewarded or punished » (Röschmann, 2016, p. 11-12).

IX.1.1.c Management related to risk culture has to be strongly endorsed by informal characteristics

Our main findings on management contribute to previous research on

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- Governance and its extension to risk culture that is investigated through managerial practices;
- Calculative culture by adding the importance of soft management;
- More micro-level analysis by outlining some managerial competencies we identified during our case study;
- Contributions to reflections about the purpose of coordination within Risk management.

Risk culture governance enriched by soft power

Our results in relation to the managerial part address the question of the scope of risk governance. We have had a look at the formal governance that is traditionally defined on the basis of control and delegation of authority (Charreaux, 1996) and represents the risk culture using three lines of defence models. In addition to that, we include the revised view of governance involving the discretionary role of managers that is based on the continuing interactions between humans, resources and hierarchies within organizational systems (Charreaux, 2015) that could also have informal attributes.

Governance processes, controls, pilots and delegates. In relation to the structure of risk governance, a multilevel risk control mechanism was established that is in the majority of cases driven by three lines of defence. In this regard, risk culture governance corresponds to the multidimensional aspect of risk culture. It is in line with the model by Van Asselt & Renn (2011) in which risk governance is a compound process of multilayer decision-making.

Thus, we had a closer look at the managerial plan and managerial involvement in risk culture and risk decision-making. We have demonstrated that risk governance and risk culture management evolve in strongly institutionalized environments, and thus that some practices relating to different organizational levels are strongly formalized (as also confirmed by Ashby *et al.*, 2012). For instance, we have identified the Level of Authority as the main instrument for decision-making in terms of risks, and the importance of the fact that at the same time it delegates authority within the same levels. This official document is the tool of control and responsibility that is supposed to prevent any opportunistic behaviour or deviation that represents a risk for the organization.

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At the same time, we have also shown responsibilities of the management that go beyond the official functions of control and supervision. We have demonstrated that managers act as connectors that create links between organizational levels and create hubs that can contribute to the innovations within risk management. Therefore, we can say that our research approaches innovation from the actors' point of view that corresponds to entrepreneurial characteristics (Ren & Guo, 2011; Cheng & Van de Ven, 1996) and is a powerful part of risk culture governance. Since we have studied the structure of risk cultures, the tone of which is, by definition, set from the top, we essentially saw its power coming from governance and related to the governance of risks as a formal delegation to create risk culture. Therefore, control as a formal tool in risk management is overstepping its limits in terms of social behaviour and networks as well as digital influences that cannot be formally controlled in their entirety.

Thus, by emphasizing the place of informal aspects in risk culture and in risk management, we raise the question of agency from informal delegations of power and responsibility. Agency is formally attributed from the top, but in our research we have discussed the importance and the rising informal power of the middle management (we explored this in section IX.I.2 on « Managerial contribution »).

Indeed, in our research we have demonstrated the structure of risk culture governance, and also the fact that: Risk culture governance needs « hard » and « soft » power (Santos & Eisenhardt, 2009). Soft power « *is based on subtle influence mechanisms that cause others to willingly behave in ways that benefit the focal agent* » (Santos & Eisenhardt, 2009, p.663). This means that, formally, power is related to the organizational hierarchy and delegation of responsibilities on different levels. However, we have also demonstrated that the enforcement of risk culture is based on informal power that is related to governance and that is more subtle, and thus we call it « soft power » (see also Santos & Eisenhardt, 2009).¹³⁹ Santos & Eisenhardt (2009) relate the concept to the entrepreneurial organization actors. While Santos & Eisenhardt (2009) attribute this soft competence to **organizational entrepreneurs**, in other words **intrapreneurs** (Pinchot, 1985), we

¹³⁹ Soft power has only recently been imported as a concept from political science and international studies (Nye, 2004)¹³⁹ into organizational studies. In international studies and studies on politics “soft power” is represented by different types of actors, such as institutions (e.g. UNESCO, OECD,...), or individuals (political bodies) but we are also able to identify this role in middle management.

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find that most of the soft power actors are middle managers who have the dual roles of informal connectors and formal reporters.

Management and coordination in calculative culture

When Anette Mikes (2009) published her research about Enterprise Risk Management practices, she found that any organization needs to associate risk culture in specific cognitive interpretations in order to understand it. In order to do so, organizations translate risk culture as formal dimension using a calculation into quantifiable numbers, that is why she proposed the concept of Calculative culture. We have found that calculative culture, as described in Mikes (2009), is present in business activities. It is crucial for the definition of economic entities that are driven by performance. However, the explanation of the calculation presents interesting findings on the rationalization of risk culture that can be made evident through the numbers generated by the calculations, even if it is a concept based on human behaviour and human rationalization, aspects that numbers do not take into account and cannot adequately represent.

Informal aspects seem to be those that can contribute to the different development of the quality of risk culture but, unfortunately, they are not sufficiently considered by organizations. Perhaps the role of informal aspects arises also from human nature and the fact that human action can be unpredictable and cannot always be controlled.

- Risk culture occurs in actions and in behaviour. Indeed, organizations used to put in place formal mechanisms to control behaviour and possible deviations, because « *wrongdoing occurs for three reasons: people make mistakes (out of confusion or ignorance), people have a moment of weakness of will, or people choose to do harm* » (Hirth & Chelsey, 2017, p.61). Therefore, by formalizing, we are not considering the human advantage that is also based on room for innovation on the basis of our human intellect. Companies have technical knowledge of their specific field, but they may struggle to know how to implement some specific innovation related to risk culture in their particular systems. This is why we have argued that a generic risk culture framework might be useful, but it has to be considered with caution in relation to specifics of social capital and human knowledge within each particular sector.

Moreover, we have enriched the notion of risk coordination more particularly by objectives of informal coordination within risk management activities.

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We proposed the following reasons for informal coordination:

- **Accountability:** Palermo *et al.* (2017) talk about formal accountability that happens through communication within official publications (such as documents and directives). In our study, we have also identified **informal accountability**, which happens as part of the informal routine set from the top-level directors on a voluntary basis. Even if this routine in the shape of regular meetings with the team becomes formalized through the setting of agendas, it keeps its informal role to exchange information and create awareness of what happens at lower levels which support risk culture (Zhao *et al.*, 2014).
- **Common Understanding:** Flat and cross-business communication were identified as a sort of informal action to facilitate the communication on risk activities. Common understanding helps more effective « *intervention en amont* » (Interview 22) in case of a risk event. Again, we emphasize that our data does not allow us to develop this point in more detail in order to strongly support this proposition (we already mentioned this point in VIII. 2.1), but previous theories based on organization coordination support the common actions and understanding. (see for instance the analysis in Alsène & Pichault, 2007). Hence, the common understanding is the way to create stable situations and interdependencies between organizational parts (March & Simon, 1993)¹⁴⁰ and we bring this point into risk culture reflections in order to develop it in future research.
- **Predictability:** This form of informal coordination helps to prevent and limit risk impact, thus creating more visibility and helping to increase the « *predictability* » of the event. We identified it as the coordination mechanism that works in case of emergencies and when unexpected incidents happen. It is a form of coordination through informal networks and channels. « *We react more on an ad hoc basis this time* » (informal discussion with middle manager, April 25, 2016). This *slack* as a mode of functioning allows quicker reactions and remains a source of informal information that helps to circulate information and make quicker decisions in emergency situations. We have shown in the Eighth Chapter that this sort of communication is executed through a network based on human interactions and human commitment. We are going along with suggestions made in some recent research (e.g. Glaser *et al.*, 2016; Hall *et al.*, 2015) Managerial interaction focused on risk studies has started to be questioned in recent

¹⁴⁰ 2nd ed., 1958.

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years, especially if it comes to « *structural arrangements and interpersonal connections when explaining how functional experts can become influential* » (Hall *et al.*, 2015, p.3).¹⁴¹

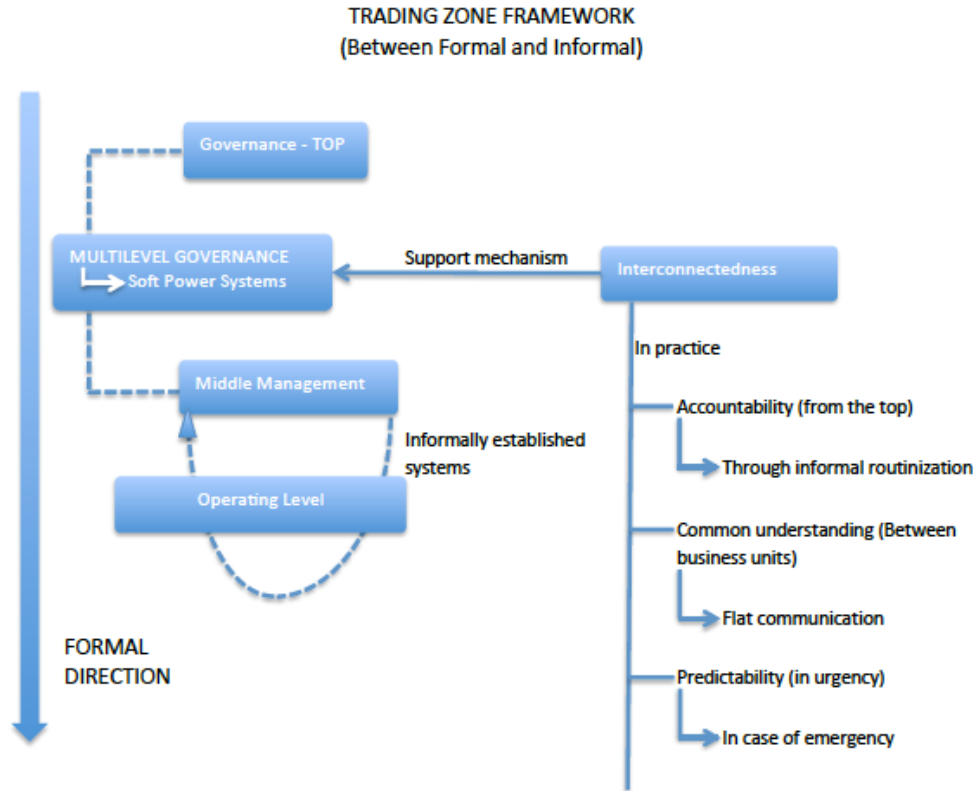
Collecting information through « *interpersonal relations* » can give influence to risk management specialist and, through interaction with other managers, as well as through the regular interaction with operations (project or first line managers), allows for a less biased decision because information comes from close to the source, from the core business.

Indeed, all of the elements mentioned above are interconnected, as the following model shows. We designed the following frameworks based on our findings which are explained in the Eighth Chapter (VIII.2.2). This framework completes studies on coordination systems based on Mintzberg's work (1979) and shows the existence of the interactions that we identified and that lead to informal interactions between organizational levels.

¹⁴¹ This article proposes to develop the « *communicability* » as the willingness to communicate through tools developed by risk management (Hall *et al.*, 2015, p.20).

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Figure 43: Framework showing flows of informal coordination



Management types involving risk culture creation

Regardless of the level in the organization, the managerial roles also depend on the characteristics of individuals (Mayer, 2017). During our study, we have been able to identify, analyse and classify some managerial competencies that could contribute to the reflection on the role of management in risk culture.

Experts as risk managers, or in other roles directly related to risk management, are also the ones who put basics of risk culture into practice. Hall *et al.* (2015) showed how experts gain their influence through instruments and tools that are put in place. This study is one building block that contributes to outlining the concept of risk management and shows interaction and managerial competencies to be able to influence risk decisions to be fundamental. In our study, we have been

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able to extend the question of competencies related directly to managers as individuals. Managers need different competencies and skills related to risk.

Some previous publications have already outlined managerial competencies. Recently, Mayer (2017, pp.322 - 323) identified four roles of risk managers:

- Experts that have a deep knowledge of risk that support companies' systems;
- Animators in the process of risk coordination and assessment;
- Challengers that help to understand the environment;
- Controllers of risk dispositions and set-up.

Our research is consistent with previous literature that focuses on experts and managers as important subjects to study in relation to risk management and risk culture. The roles mentioned above can be confirmed and correspond to our research. Going along with those findings, our research leads us to identify managerial competencies that contribute to risk culture development. We distinguished two groups of profiles, i.e. proactive (intrapreneurial) and followers (as described in the Eighth Chapter). We have noticed that the most interactive and proactive individuals, called intrapreneurs, were those who do not come from an engineering background. On the other hand, followers are those who showed more rational thinking and took fewer risks.

In conclusion, we can say that risk culture needs diversity in the choice of middle managers' competencies. Diversity creates open views on the situations and opens up other possibilities in decision-making regarding problem solving.

Finally, we also suggest that all of the listed elements are complementary.

- Risk culture has to be supported by the context.
- Behaviour is important, but it is not only about creating formal behaviour. It may influence how people react, but informal behaviours leave space for a more dynamic and proactive practice.
- Risk culture structures cannot be accounted for only by a formal setting. Organizations have to give more serious consideration to informal aspects and coordination.
- Omitting the management in risk culture models can generate risks for organizations.

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IX.1.2 Managerial contribution

Ten years after the world financial crisis and six years after the crisis that affected EngineerCo. (the company of our case study), we have observed that risk management and risk culture only play a limited role inside of organizations. This limited role is described by how risk management and risk culture are viewed within the organisation and what role they occupy internally. For instance, risk management is still seen as a function that consumes organizational resources rather than how it protects, and what it brings to the organization. Moreover, the role of any form of risk management is sometimes marginal. We would like to emphasize the importance of creating risk culture with particular attention to informal aspects.

In this section, we would like to outline some results that can raise awareness for managers. Again, we would like to emphasize that, (IX.1.2.a) if the organizations would like to consider developing their risk culture, they also need to focus their attention on aspects of informal support (IX.1.2.b). We support the focus on the middle management that may bring additional benefits to the risk culture.

IX.1.2.a *Strategic Advantage of Risk Culture*

In our Sixth Chapter, we have outlined the competitive character of risk culture that companies are looking for. Indeed, a large amount of managerial literature say that risk may be the source of competitive advantage. However, what we have found is more ambiguous than that. By analysing professional literature, we have formulated propositions saying that risk culture is the source of competitive advantage, but that is based on how it is approached by the organization. Therefore, following the results of our research, we can confirm that proposition only under certain conditions.

- Formally, risk culture is not particularly designed as a tool for competitive advantage – it is not a resource that may help to distinguish one company from another from the formal point of view of the organizational components. Since regulators indirectly prescribe risk culture it

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is highly institutionalized, and there is no room to create a unique risk culture if it is standardized by the external environment.

- However, informally it may potentially contribute to the creation of a competitive advantage (through practices and learning).

Therefore, as soon as organizations pay attention to informal aspects, risk culture can bring additional value to the organization.

IX.1.2.b Risk Management beyond control

While the topic of risk culture is popular in research as well as with professionals, it is still unclear in terms of practices. We can see a fairly clear picture when it comes to the question of risk culture formalization, and multiple different models have been proposed to present and outline risk culture applications within organizations (such as ISO, COSO, consultancy or risk associations' frameworks). These approaches stay traditional and outline formal views on risk culture, which is supposed to be controllable and manageable. Our research emphasized that these models are subject to multiple gaps because they do not project risk culture into the organizational life and practice (Jondle, Maines, Burke, Young, 2013). Our research reveals more details on the role of practices and management in the concept of risk culture.

Thus, we also outlined the question whether it is desirable¹⁴² to have full control over risk culture, a concept based on human and behavioural characteristics.

Our managerial contribution shifts the focus to:

- Emphasis on the middle level that is an internal strong connector (Mintzberg, 2009) between levels and different layers of risk culture.
- Emphasis on the collaborative and interactive concepts that come from organizational studies and encourage cross-business collaboration (such as Santos & Eisenhardt, 2009 or Martin & Eisenhardt, 2012).

¹⁴² Here we would like to refer to the comment by Prof. Torset who raised the question: Do companies have an interest in managing and controlling risk culture?

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Indeed, based on our study we can say that companies are omitting the informal part of risk management and risk culture that comes from the middle, despite the fact that it is an inevitable part of organizational life. We would suggest that, instead of focusing on control and risk culture measures, the first step would be to accept informal aspects of risk culture and to be conscious of them. Informal aspects in management can be powerful in terms of creating new opportunities and openings as well as hiding potential threats.

- The strong commitment to risk culture and different forms of risk management has to be strategically deployed and communicated within the organization. At one stage of risk culture enforcement (in the last portion of our fieldwork) we have noticed the loss of interest in the subject by some internal stakeholders due to excessive formal communication and demand of commitment.

IX.2 Critical Review of the research

This section sheds light on some limitations of our research that we would like to point out in relation to the literature (IX.2.1), as well as observations during our fieldwork (IX.2.2). At the same time, we would like to close our discussion by suggesting openings for future research.

IX.2.1 Research limitations

We studied risk culture in the organizational functions within a multinational company that has gone through a major organizational crisis. Even though we have adopted a rigorous research approach we need to mention some limitations. Our case study has a particular context, the organization had gone through a crisis that served as an incentive for the development of its risk culture and of its risk management activities. Indeed, we cannot say that practices, decisions and processes influencing internal risk management and risk culture would be the same in the case of other types of organizational change.

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In addition to that, we had to deal with limited information about the multinational company of our case study when it comes to risk management and risk culture. Indeed, there is a limited amount of research that provides an in-depth case study of risk management and risk culture within multinational companies. This is also the reason why we have had to refer to literature from other disciplines (such as accounting and finance, e.g. Power *et al.*, 2013) as well as to use institutional managerial literature. These were rich sources, but we had to handle them with caution due to the different angles of research as well as due to the more business-focused approach.

From the point of view of methodology, we were not allowed to record workshop conversations, so we were exclusively basing our work on observation notes for this type of source (but we jotted down keywords on paper while workshops were going on, and we wrote fairly extended notes every evening). We have tried different observation strategies following Langley (summer class 2016). We have started by observing and noting information relevant to the topic of risk management and to risk culture. Later, we have established guides and a grid on the basis of preliminary topics to incorporate into risk culture that we have used with continuous modification at three ERM workshops. However, we noticed that sometimes it was hard to follow conversations and appropriately parse information quickly enough in some cases, and usually we ended up writing down sentences without classification in these cases because we had the impression that we might be losing information. Thus, in other workshops, we did not use a grid but focused on topics we had already identified as part of the structure or management, and formal or informal definitions. In order not to lose the flow of information, we have transcribed and commented on our notes after every workshop (or at the end of every day if it was not possible to do this after the workshops). We are therefore aware that workshop discussions cannot be quoted exactly word for word, but we were using our notes with the comments fresh in our memory and we indicate this by using the following approximation sign: ~.

In addition, we would like to point out some limits to our results on management (Eighth Chapter). We have identified proactive and follower types of competencies. We would like to emphasize that this distinction is the first one to be made in relation to risk culture competencies and we are aware that it could be more extensive in the future.

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For instance, Wu *et al.* (2018) recently emphasized that different types of proactivity exist. Their findings could be applied and tested in a risk culture context in multinational companies in future research in order to extend those managerial competencies.

IX.2.2 Future development

The financial sector is the leading industry in terms of Enterprise Risk Management and risk culture. In order to apply and extend risk culture generally, we have studied the construction industry that presents significant gaps and missing links with regard to data on Risk management and risk culture. Many of the prior characteristics of risk culture that we proposed were validated and developed, but we dare say that our research could be tested and potentially validated in other sectors. Already, some of our results are in line with the suggestions made by Lim *et al.* (2017, p.76) who say that risk culture « *attention should therefore shift towards understanding better the nature and significance of such power differentials (i.e. knowing where the power lies, how it is exercised and with what consequences). The analytical priority has to move away from a reliance on standardized risk management systems to a better understanding of how people accommodate and live with the day-to-day tensions and contradictions of « risk managed » organizations* ».

We also suggest that future research should focus more on soft practices such as cross-business collaborative models, like those found in Martin & Eisenhardt (2012). In our work we have outlined the limit in cross-business collaboration in our EngineerCo. study, but have not had the opportunity to develop the collaborative pieces that we briefly proposed in our Discussion. However, we are convinced that the human ability to collaborate, interact and create new opportunities can help with new key developments in risk culture, because even technical implementations would not be efficient without human intuition and creativity.

In our results on management we have looked at innovation in managerial practices, but we did not get deeper into the question of the innovation and knowledge management within risk culture. Indeed, we have already mentioned the literature on innovation that would lead us to say that risk culture, if it were taken as a product of innovation, would drive companies to perform better. This fact was studied and proven by Andersen (2008), who correlated risk management with

IX. DISCUSSION OF RESULTS and CONCLUSION

performance, and validated positive relations under the condition of an innovative approach to risk management in the knowledge-based industry. From our perspective we cannot validate or affirm the results on innovation and risk culture in construction because we did not observe such intentional resource allocations to the risk culture development. At the same time, we cannot confirm that no company unit made this choice. Another aspect to be taken into account is social and digital networks, an aspect that seems to have been neglected up to date. We did not explore the innovative dimension in regard to organizations in our study, so we are not able to propose deeper insights into this subject, but we would like to encourage further research into the subject.

To summarize our suggestions for further development, we are calling for a greater focus on human aspects. It is true that we are living at a time of robotization and rapid advances in technology. Humans may soon be unable to compete with robots' cognitive systems, but they will keep their advantage of human behaviour, that cannot be replicated by machines, as the basis of creative thinking, emotional intelligence, or an awareness of history that can be useful in risk culture studies.

General Conclusion

Risk culture is a part of a new interest in research that arose due to multiple scandals at the beginning of the 2000s, such as Maxwell,¹⁴³ Enron or the financial crisis. Multinational companies continue to operate in a global environment of increasing uncertainty, and as a result, risk management is in the ascendancy and there is a growing effort to foster risk management in organizational culture and create risk culture. Even if risk and Risk management have been studied since the 1990's, risk culture is still under-explored.

If we look at risk culture in various literature, we get the impression that its place is still marginal and only refers to the « *calculative culture* » (*cf.* Mikes, 2009). However, such an approach to risk culture closes the concept off and disconnects it from its practice. Paradoxically, risk culture issues have especially been emphasized by financial and accounting literature (Lim *et al.*, 2017; Palermo *et al.*, 2017; Power *et al.*, 2013 or Mikes, 2009), which may explain why the human aspect is missing within the definition of risk culture. In our study we have tried to push the risk culture concept forward.

Despite all the literature on risk, risk culture is missing its very basic classification and our research demonstrates that this is the case. Risk culture is renowned for its formal characteristics that were not put into question, even if at the same time risk and organizational culture, as two different aspects, have informally-defined characteristics. In our study, we have looked at the integration of risk culture through one in-depth case study, and we have used this study to contribute to our theoretical and practical results. In order to capture risk culture patterns and modalities, we made use of multiple theoretical angles and approaches. The theoretical basis for risk culture conceptualization covers organizational studies with regard to behavioural theories and structural approach. At the same time, we have explored risk culture with regards to management. By seeing two different levels of analysis, organization (structure and behaviour) and management, we were

¹⁴³ We would like to thank Prof. Romelaer for the suggestion of this specific example.

able to make a distinction between risk culture formalization, informal aspects, coordination and creation of managerial dynamic through informal interconnections.

Our empirical results show multiple characteristics and forms of risk culture with a focus on organizational structure and its characteristics through formal and informal aspects. Companies have to make connections between their structure, behaviour and people. This recognition of formal and informal aspects is important. By formally outlining rules, however, this cannot fully drive human actions in practice and that is why informal aspects should be considered in any work on risk culture. Hence, the first step to risk culture is the acceptance of the limit of its manageability.¹⁴⁴ Therefore, managerial input can strongly influence collaborative models of risk culture as a form of coordination and to motivate interaction, however these cannot be taken as fully controlled aspects.

Our work provides evidence to support most of the previous literature, but at the same time we contribute fuel to the fire that is the motivation to explore the risk culture in a more profound and more academic way. In addition to that, we have demonstrated the inevitable place of risk culture in the risk management of multinational companies. Yet, risk management and risk culture are not research priorities on the strategic agenda, and information from these channels is limited.

Showing formal and informal aspects of risk culture allows us to contribute to its clarification. Risk culture reflects what organizations are prepared to do in order to handle risk. The way in which risk culture is approached will separate successful organizations from failing ones in the future. Those who focus only on control and formal aspects are going to ignore subtleties that will be leveraged by organizations that are aware that informal components create a strong support to risk culture. Especially those organizations that focus only on the formal aspect may struggle because respect for regulations is not enough in today's environment. Organizations have to be involved proactively in risk management.

To conclude, we would like to emphasize that risk culture is more complex than generally believed and does not put an end to the discussion among research communities. However, we are

¹⁴⁴ We would like to thank Prof. Torset for his contribution to our reflection on risk culture manageability. While we were reflecting on the question « *to what extent can we manage risk culture?* », he suggested to us to reflect on the question if we really should manage it, and maybe eventually accept the limit to its manageability.

convinced that our research contributes to the clarification of some aspects of risk culture that are missing in current research. We would like to encourage the research community to increase publications on subjects related to risk culture, its relation to management and to organizational studies.

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Glossary of Acronyms

ACCA	Association of Chartered Certified Accountants
AMF	Autorité des Marchés Financiers
BR	Business Resiliency (Programme)
CEO	Chief Executive Officer
CMT	Continuity Management Team
COSO	Committee of Sponsoring Organizations of the Treadway Commission
DBRS	Full service rating agency established in 1976
ECRI	Engineering & Construction Risk Institute
E&C	Ethics & Compliance
ERM	Enterprise Risk Management
ERT	Emergency Response Team
ExCom	Executive Committee
EY	Ernst & Young
FMI	Financial Monetary Fund
FSB	Financial Stability Board
HQ	Headquarters
I&C	Infrastructure and Construction
IRM	Institute of Risk Management
ISO	International Organization for Standardization

LOA	Level of Authority
NIST	National Institute of Standards and Technology
OECD	Organisation for Economic Co-operation and Development
PRRP	Peer Review Risk Procedure
Q	Quarter (year quarter)
R-A	Risk Assessment
RC	Risk Culture
RIMS	Risk and Insurance Management Society
R-M	Risk Management
UNESCO	United Nations Educational, Scientific and Cultural Organization
WEF	World Economic Forum

Appendices with public content (P)

Appendices include information that reveal or may reveal company name. However, the information provided is important in proving the reliability of our data. According to the EngineerCo. request to protect the company name as much as possible, we propose to give public access to these appendices only upon request to the author of the thesis.

Appendix 1P: Models and Methods in consultancy companies

Deloitte (2012)

https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/risk/lu_en_wp_riskintelligentculture_01082012.pdf

p.1 : There is no « one size fits all » solution to risk management – how an organization manages risk should align with, and support, its strategy. Business model, business practices, and risk appetite and tolerance.

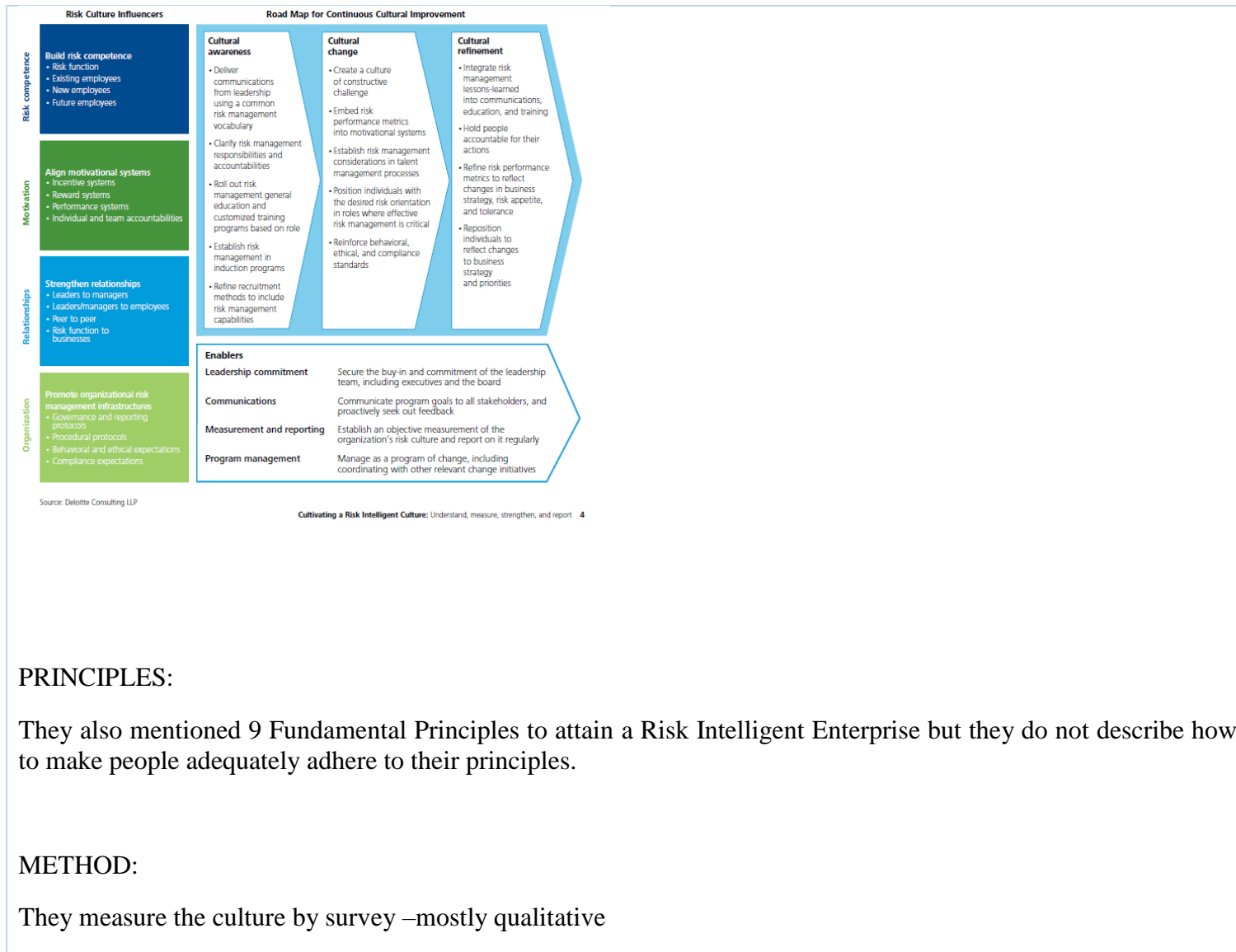
INDICATORS

Deloitte developed 16 Risk culture indicators divided in 4 groups:

- Risk competence = Knowledge, Skills, Learning, Recruitment & Induction
- Organization = Strategy & objectives, Values & Ethics, Policies-processes & procedures, Risk governance
- Relationships = Challenge, Management, Leadership, Communication
- Motivation = Accountability, Incentives, Risk orientation, Performance management (Deloitte, 2012, p.3)

PROCESS:

- (1) Enabling risk management ways of working, (2) Enabling a risk transformation program, (3) Improving management compliance, (4) Assessing the impact of enhancements to risk management capabilities



PRINCIPLES:

They also mentioned 9 Fundamental Principles to attain a Risk Intelligent Enterprise but they do not describe how to make people adequately adhere to their principles.

METHOD:

They measure the culture by survey –mostly qualitative

Main issue is building cultural awareness – through communication and education.

Once established : Continually refine

Risk culture metrics

EY, (2015)

[http://www.ey.com/Publication/vwLUAssets/Risk_culture_-_How_can_you_create_a_sound_risk_culture/\\$FILE/EY-risk-culture-model-brochure.pdf](http://www.ey.com/Publication/vwLUAssets/Risk_culture_-_How_can_you_create_a_sound_risk_culture/$FILE/EY-risk-culture-model-brochure.pdf)

P.2:

The focus is no longer only on ‘tone from the top’, but also on how behaviors and values are embedded in the daily behaviors and decision making processes throughout the organization;

Every organization has risk culture but it depends how it is operationalized and used.

EY uses criteria from the Financial Stability Board:

(EY, p.2)

According to the FSB, a sound risk culture:

bolsters effective risk management;
promotes sound risk-taking;
ensures that emerging risks and excessive risk-taking activities are assessed, escalated and addressed in a timely manner.

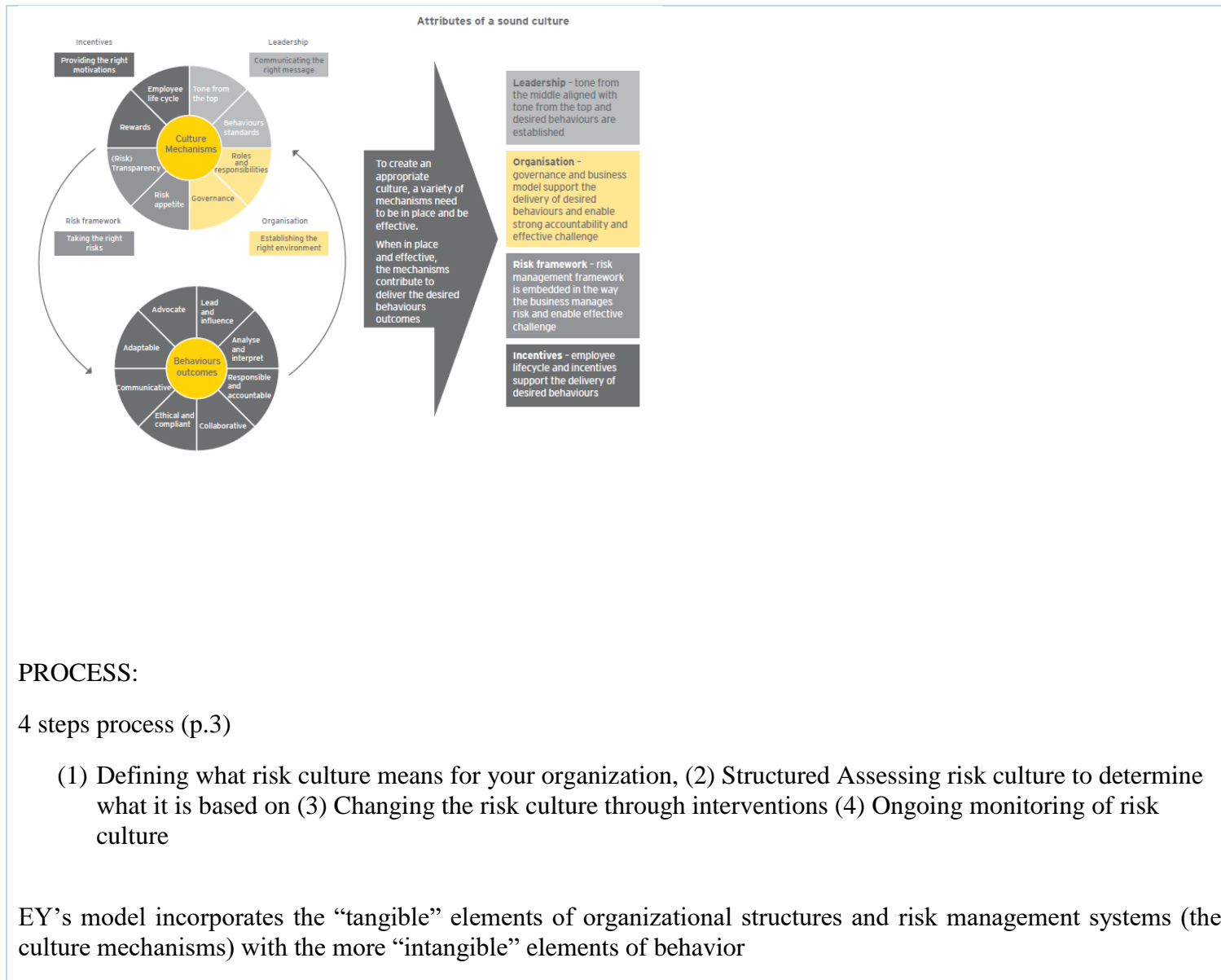
This places risk culture at the intersection of behavior and risk management.

INDICATORS:

Culture mechanism

- Incentives (providing the right motivation) = Employee life cycle, Rewards
- Leadership (communicating the right message) = Tone from the top, Behaviors standards
- Organization (Establishing the right environment) = roles and responsibilities, governance
- Risk framework (taking the right risks) = Risk transparency, Risk appetite

To this they add Behavioral outcome: Adaptable, advocate, Lead&influence, Analyze and interpret, responsible and accountable, collaborative, ethical and compliance, communicate



In assessing, changing and sustaining a sound risk culture, firms need to approach each of the eight segments of the culture mechanisms and “move the dial” by assessing the current state, the desired state and gaps; implementing and managing change;

(P.5)

METHOD: combining qualitative measures with structured ones *NOTE*: does it mean that qualitative is not structures?

IRM (2012)

INDICATORS (p.6)

A successful risk culture would include:

1. A distinct and consistent tone from the top from the board and senior management in respect of risk taking and avoidance (and also consideration of tone at all levels).
2. A commitment to ethical principles, reflected in a concern with the ethical profile of individuals and the application of ethics and the consideration of wider stakeholder positions in decision making.
3. A common acceptance through the organisation of the importance of continuous management of risk, including clear accountability for and ownership of specific risks and risk areas.
4. Transparent and timely risk information flowing up and down the organisation with bad news rapidly communicated without fear of blame.
5. Encouragement of risk event reporting and whistle blowing, actively seeking to learn from mistakes and near misses.

6. No process or activity too large or too complex or too obscure for the risks to be readily understood.
7. Appropriate risk taking behaviours rewarded and encouraged and inappropriate behaviours challenged and sanctioned.
8. Risk management skills and knowledge valued, encouraged and developed, with a properly resourced risk management function and widespread membership of and support for professional bodies. Professional qualifications supported as well as technical training.
9. Sufficient diversity of perspectives, values and beliefs to ensure that the status quo is consistently and rigorously challenged.
10. Alignment of culture management with employee engagement and people strategy to ensure that people are supportive socially but also strongly focused on the task in hand.

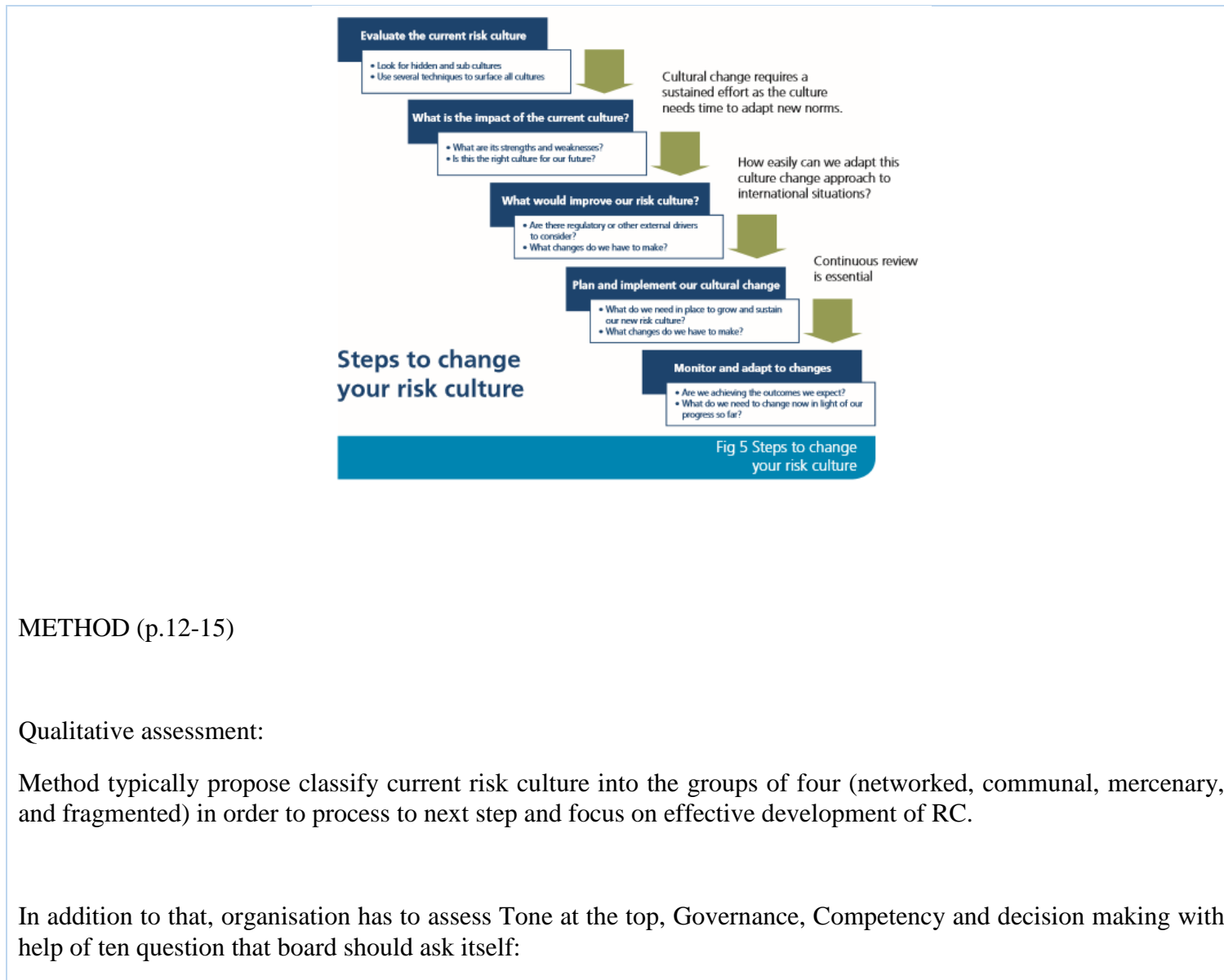
PROCESS (p.10)

IRM has defined a Risk Culture Framework around which to analyse, plan and act to influence risk culture within any organisation.



Fig 1 IRM Risk Culture Framework

They set the steps that need to be taken on a programme of risk culture (p.16).



METHOD (p.12-15)

Qualitative assessment:

Method typically propose classify current risk culture into the groups of four (networked, communal, mercenary, and fragmented) in order to process to next step and focus on effective development of RC.

In addition to that, organisation has to assess Tone at the top, Governance, Competency and decision making with help of ten question that board should ask itself:

1. What tone do we set from the top? Are we providing consistent, coherent, sustained and visible leadership in terms of how we expect our people to behave and respond when dealing with risk?
2. How do we establish sufficiently clear accountabilities for those managing risks and hold them to their accountabilities?
3. What risks does our current corporate culture create for the organisation, and what risk culture is needed to ensure achievement of our corporate goals? Can people talk openly without fear of consequences or being ignored?
4. How do we acknowledge and live our stated corporate values when addressing and resolving risk dilemmas? Do we regularly discuss issues in these terms and has it influenced our decisions?
5. How do the organisation's structure, processes and reward systems support or detract from the development of our desired risk culture?
6. How do we actively seek out information on risk events and near misses – both ours and those of others - and ensure key lessons are learnt? Do we have sufficient organisational humility to look at ourselves from the perspective of stakeholders and not just assume we're getting it right?
7. How do we respond to whistle-blowers and others raising genuine concerns? When was the last time this happened?
8. How do we reward and encourage appropriate risk taking behaviours and challenge unbalanced risk behaviours (either overly risk averse or risk seeking)?
9. How do we satisfy ourselves that new joiners will quickly absorb our desired cultural values and that established staff continue to demonstrate attitudes and behaviours consistent with our expectations?
10. How do we support learning and development associated with raising awareness and competence in managing risk at all levels? What training have we as a board had in risk?

PwC (2014)

<https://www.pwc.com/us/en/financial-services/publications/viewpoints/assets/bank-financial-services-sustainable-risk-culture-pwc.pdf>

INDICATORS (p.2)

Leadership: Adopt and exercise the perspective that leaders are role models who should understand, embrace, and exemplify the risk culture.

Governance and organization: Align the risk function and the business as strategic partners.

Communications: Promote and sustain the right risk culture with a clear communications strategy and transparency.

Talent management: Connect compensation and risk-adjusted performance.

Global operating norms: Establish consistent global operating norms.

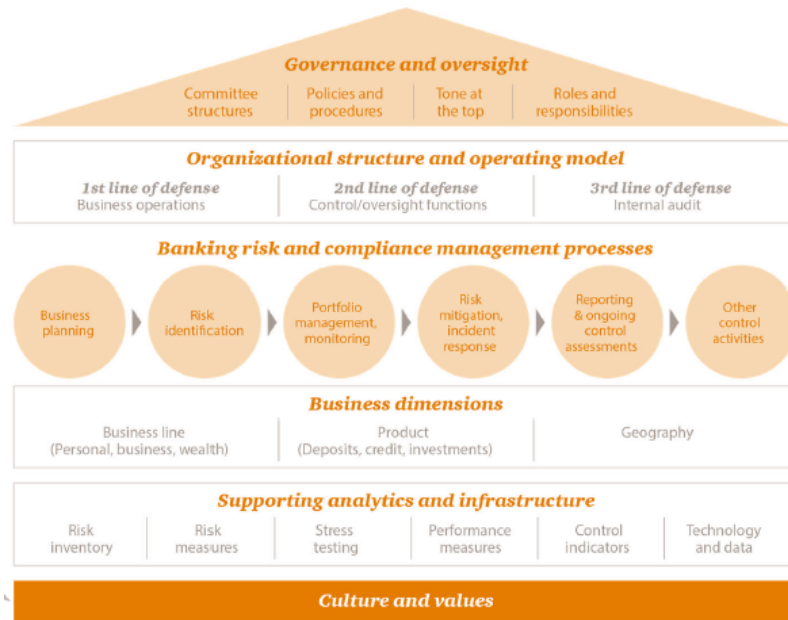
Technology and infrastructure: Mine, manage, and interpret data.

Figure 1: The six key areas of risk culture



PROCESS

Figure 2: How the risk culture framework links with the Governance, Risk, and Compliance framework.



Cure for the common culture: How to build a healthy risk culture

Create, assign, communicate

METHOD

It is a metric assessment, indeed, they mention quality but not how to do it.

Appendix 2P: Table on analyzing risk culture in different literature

Area of Study	Risk Culture Concepts	Key references
Axis 1- Risk culture in research literature		
<ul style="list-style-type: none"> <i>Literature regarding risk</i> 		
Accountancy, finance and economics	Programs, risk management tools, control systems and access to information	Lim <i>et al.</i> (2017); Palermo <i>et al</i> (2017); Gupta & Leech (2015); Zhivitskaya (2015); Richter (2014); Power et al (2013); Asby <i>et al.</i> , (2012); Mikes, (2011), Mikes (2009)
Politics and public sector	Rules, willingness to trust	Chen & Bozemann (2012); Chen & Williams (2007); Bozeman & Kingsley (1998)
Management and Strategy	Risk awareness	Braumann (2016)
Sociology and anthropology	Acknowledgement of risks and risk taking	Schiller & Prpich (2014); Parker <i>et al.</i> (2006)
<ul style="list-style-type: none"> <i>Literature in organizational theories</i> 		
Theoretical approaches in through organizational vision	The notion of risk is not very developed in organizational theories	Romelaer, (2013)

	Culture (attachment to organizational values)	Schein, (2010)
	Risks (different perceptions of risk)	
	Risk management in practice	Arena et al (2010), Mikes (2009)
Axis 2- Risk culture in professional literature		
Consultancy industry	Tone from the top, structure of risk management and escalation of information	Price Waterhouse Coopers (2016), Ernst & Young, (2012); Deloitte (2012); KPMG (2009); Ley, Lamarre, Twining (2010)
Specialised organisations and Institutions	Evaluation criteria for managing risks	Enterprise Risk Management Initiative (2017); International Finance Corporation – World Bank Group (2015); Richardson & Fenech (2012); Rittenberg & Martens (2012); Frigo & Anderson (2011)

Appendix 3P: Screenshot EBSCO and ABI INFROM COMPLETE

Refine Results

Current Search

Find all my search terms:
"risk culture"

Limit To

- Full Text
- References Available
- Scholarly (Peer Reviewed) Journals

1982 Publication Date 2017

Show More

Source Types

- All Results
- Academic Journals (86)
- Trade Publications (50)
- Magazines (41)
- Product Reviews (6)
- Country Reports (3)

Show More

Search Results: 1 - 10 of 191 Relevance Page Options Share

- 1. Risk culture and banking supervision.**

By: Carretta, Alessandro; Farina, Vincenzo; Schwizer, Paola. Journal of Financial Regulation & Compliance. 2017, Vol. 25 Issue 2, p209-226. 18p. DOI: 10.1108/JFRC-03-2016-0019.

Subjects: Industrial supervisors; Central banking industry; Risk management in business; Monetary Authorities-Central Bank
- 2. Navigating Institutional Complexity: The Production of Risk Culture in the Financial Sector.**

By: Palermo, Tommaso; Power, Michael; Ashby, Simon. Journal of Management Studies. Mar2017, Vol. 54 Issue 2, p154-181. 28p. DOI: 10.1111/joms.12241.

Subjects: Organizational behavior; Financial services industry; Organizational ideology; Decoupling (Organizational behavior); Consumer Lending; Complexity (Philosophy)
- 3. Does risk culture matter? The relationship between risk culture indicators and stress test results.**

By: Fritz-Morgenthal, Sebastian; Hellmuth, Julia; Packham, Natalie. Journal of Risk Management in Financial Institutions. Winter2015/2016, Vol. 9 Issue 1, p71-84. 14p.

Subjects: Stress tests (Finance); Financial institutions; Risk; Bank examination; Consumer Lending; Banking industry -- Europe

[PDF Full Text \(8.4MB\)](#)
- 4. Transforming Risk Culture Through Organizational Culture Leveraging COBIT 5 for Risk.**

By: Kannan, Ganapathy; Sivasubramanian, Vinoth. COBIT Focus. 7/5/2016, p1-7. 7p. 2 Diagrams, 5 Charts.

Subjects: Corporate culture; Information storage & retrieval systems -- Security

Company

Enter company name

Go

Revue professionnelle
(573)

Publications académiques (412)

Quotidiens (79)

Thèses et mémoires (49)

Magazines (32)

[Autres options...](#)

Date de publication ^

1981 - 2017 (décennies)

Entrez une période

Type de source ^

- Revue** professionnelle (544)
- Publications académiques (388)
- Quotidiens (69)
- Thèses et mémoires (47)
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Date de publication ^

2000 - 2017 (années) x

Entrez une période

2010 - 2016 (années) x

2016 (135)

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2 📖 **RISK CULTURE** From Theory to Evolving Practice

Anonymous. **The RMA Journal; Philadelphia** 96.4 (Dec 2013/Jan 2014): 24-26.
 ...that while **risk culture** continues to challenge organizations, its benefits ...**risk culture**. Although there isn't a single, uniformly used definition of

Résumé/Détails 📄 Texte intégral 📄 S.F.X Aperçu v

3 📖 **Risk culture**: up close and personal. A web-site survey for employees can reveal a lot about your organization's **risk culture**, and deliver a powerful message to management

Rossiter, Carmen. **CA Magazine; Toronto** 134.3 (Apr 2001): 45-46+.

Détails 📄 S.F.X Aperçu v

4 📖 Operational risk software provider of the year Thomson Reuters

Anonymous. **Operational Risk & Regulation; London** 14.4 (May 2013): 28.
 ...enable clients to achieve this **Risk culture** remains in ... All of these events have shot **risk culture** to the top of institutions' to-do ...in **risk culture** awareness. There is a realisation that **risk culture** is

Résumé/Détails 📄 Texte intégral 📄 Texte intégral - PDF (79 KB) 📄 S.F.X Aperçu v

5 📖 Creating an operational risk-sensitive culture

Everson, Miles. **The RMA Journal; Philadelphia** 84.6 (Mar 2002): 56-59.
 ...of OR offers findings on four key attributes of a strong **risk culture** and ...is a thriving operational **risk culture**. Operational **risk culture** is the set ...**risk culture**. It can either select or formulate its **risk culture** explicitly, or

Résumé/Détails 📄 S.F.X Aperçu v

Appendix 4P: Confidentiality agreement and contracts between research and EngineerCo.

The screenshot shows an Outlook window titled "PhD Thesis Publication - Message (HTML)". The interface includes a ribbon with various actions like "Ignorer", "Répondre", "Transférer", and "Rechercher". The email header shows the sender as "Janickova, Marketa" and the subject as "PhD Thesis Publication". The main body of the email contains the following text:

Marketa,

As discussed and on the instruction of [redacted] please ensure in the published version of your PhD Thesis that any references to [redacted] removed and that any descriptions of the company are made as agnostic as possible so as to avoid any clear inference in the Thesis that the company you are reporting on is [redacted]

Regards,

[Large redacted area]

Below the email content, there is a section for social media and electronic messages, which includes a profile picture of Marketa Janickova and her title: "Senior Vice-President, Co... Contract Administrator (C... Vice-President, Corporate...".

Janickova, Marketa

De: [Redacted]
Envoyé: 30 novembre 2016 14:41
À: Janickova, Marketa
Objet: RE: Some specifications: company's name - meeting with [Redacted]

Hi Marketa,

Could you please proceed with your thesis referencing "Company X" until you can share with us. Once we see how you are planning to reference the company we can confirm if we are comfortable with our name being mentioned or not. Does that work for you?

[Redacted]

Executive Vice President

[Redacted]

Contract fieldwork Part 1:

Le 23 décembre 2015

Madame Marketa Janickova

Madame Janickova,

Suite aux discussions que vous avez eues avec nos représentants, nous avons le plaisir de vous offrir un poste selon les conditions suivantes :

Statut: Stage non-rémunéré

Supérieur immédiat: [REDACTED]

Division : Sureté mondial

Date de début : Le 1er janvier 2016

Date de fin prévue: Le 31 décembre 2016


Résiliation: L'entente peut être résiliée par les deux parties en transmettant un préavis écrit.

Nous sommes heureux de vous accueillir au sein de [REDACTED]

[REDACTED]

Sureté mondial *Ressources humaines d'entreprise*

J'ai lu, j'ai compris et j'accepte les conditions d'emploi ci-dessus. Veuillez retourner à la soussignée une copie de la présente offre dûment signée.

ACCEPTÉ: 
Marketa Janickova

DATE: _____

Contract fieldwork Part 2:

April 27, 2017

Ms. Marketa Janickova

Dear Ms. Janickova,

Following your recent discussions with [redacted] representatives, we are pleased to extend this opportunity based on the following terms and conditions.

Status: Non-paid internship

Reporting to: [redacted]

Division: Corporate Risk Management

Starting date: May 8th 2017.

Estimated end date: September 1st 2017

The agreement may be terminated by both parties by giving a written notice.

We look forward to you rejoining [redacted]

[redacted]

Vice-President, Corporate Risk Management
Integrated Management Systems

Manager
Corporate Human Resources

I have read, understood and accept the above employment terms and conditions. We request that you sign and return to the undersigned one original copy of this letter.

ACCEPTED:



Marketa Janickova

DATE:



I agree with this addition, please amend the letter and sign it accordingly. Welcome on board.



De : marketa JANICKOVA [mailto:marjanickova@gmail.com]
Envoyé : 20 janvier 2016 11:46
A : [Redacted]
Objet : Contracts & Schedule

Dear [Redacted]

I hope you are going well.

Here is information concerning the precedent e-mail :

Contracts

As promised I have discussed with my Phd supervisor concerning the confidentiality agreement. We agree that it is very important part for my commitment to the company, however as you know, the internship is a part of my phd thesis. Thus, in addition to the agreement we provide following submission (find enclose in attached file):

Add after second paragraph ("sans avoir auparavant obtenu le consentement écrit du Président de la Société")

rajouter

« Dans le cas présent, il est convenu dès le début que ce consentement sera demandé pour la thèse que l'Employé a l'intention rédiger pour son doctorat de gestion à l'Université Paris Dauphine, et pour toute publication scientifique contenant des informations venant de la Société, même si le nom de la société n'est pas indiqué. »

If you agree with that, I may send you the signed copy.

ENGAGEMENT RELATIF À LA CONFIDENTIALITÉ
ENTRE

« La Société »

ET

« l'Employé ou l'Employée »

Considérant que [redacted] et ses filiales et sociétés associées offrent des services de gestion de projet, d'ingénierie, d'approvisionnement et de gestion de la construction en plus d'entreprendre des travaux de construction, et dans le cours de la réalisation de ces services, sont en possession d'informations confidentielles et de propriété et de procédés secrets pour leur propre compte et pour celui de leur clients ;

En conséquence, l'Employé¹ s'engage à préserver la confidentialité des informations qui lui seront communiquées et auxquelles il aura accès dans le cadre de son affectation et consent à ne révéler ni à utiliser, en aucun temps, soit durant ou après son emploi, aucun secret ou information, connaissance ou donnée confidentielle de la Société, de ses filiales et sociétés associées ainsi que leur clients (qu'ils soient ou non obtenus, acquis ou développés par lui), sans avoir auparavant obtenu le consentement écrit du Président de la Société.

Dans le cas présent, il est convenu dès le début que ce consentement sera demandé pour la thèse que l'Employé a l'intention rédiger pour son doctorat de gestion à l'Université Paris Dauphine, et pour toute publication scientifique contenant des informations venant de la Société, même si le nom de la Société n'est pas indiqué.

De plus, l'Employé cède à la société, qui accepte, en toute propriété :

[redacted]

[redacted]

[redacted]

Appendix 5P: Introduction to interview for participants

My background: I am PhD candidate in Strategic Management at University Paris Dauphine. My research focuses on Enterprise Risk Management in Multinational companies. In 2013 I completed a Master's degree in Strategy of Organizations during which I did a comparative analysis of the challenges faced by XYZ in 2011-2013 to those faced by Siemens in 2006-2008. I am now building on my Master's work and examining Risk Management at *EnineerCo.* as part of her PhD thesis in Strategic Management. I joined (company name) in January 2016 to conduct independent research on risk management and I will complete this portion of my thesis in December 2016.

Purpose: Currently I focus on risk and the corporate culture research. Specifically, I compare how (company name) is mobilizing the risk management in practice and I associate it to the existing academic literature. I am looking for the qualitative evaluation of the risk management in your company.

Objective of the research: Further to the field work research I will be able to evaluate different types of practices and behaviors that contribute on the corporate risk culture building. My research also contributes to the scholar framework creation about risk culture and best practices.

Types of the interview: I do open questions interview. I ask a question and respondent can freely answer as much in detail as he/she want. I will manage the time and the flow of the interview.

Commitment: I would like to ask your commitment to record this interview. It will be confidential. I transcribe it and analyze for my thesis without any name or details revelations. I have signed company's confidential agreement. In addition to that I hold research ethics certificate EPTC2: FER.

Appendix 6P: Extract of General ERM rating criteria – Standard & Poor’s

ERM Assessment			
Score	Assessment	Guideline	What it means in our opinion
1	Very Strong	Positive score for all subfactors and economic capital model (ECM) is assessed either "good" or "superior" under our criteria.	The insurer has very strong capabilities to consistently identify, measure, and manage its risk exposures and losses within its chosen risk tolerances.
			The insurer's risk control processes are leading edge, applied consistently, and executed effectively. The insurer continues to develop its risk control processes to integrate new technologies and adapt to the changing environment.
			There is consistent evidence of the insurer's practice of optimizing risk-adjusted returns, resulting in an overall stronger financial performance than peers'.
			Risk and risk management heavily influence the insurer's decision-making.
			The insurer is highly unlikely to experience unexpected losses that are outside of its risk tolerances, in our opinion.
2	Strong	The risk management culture, risk controls, and strategic risk management subfactors are scored positive, one or both of the other two subfactors is scored neutral, and no subfactor is scored negative.	The insurer has strong capabilities to consistently identify, measure, and manage risk exposures and losses within chosen risk tolerances.
			There is clear evidence of the insurer's practice of optimizing risk-adjusted returns. But such practice is not as well developed as that of a very strong ERM insurer or has a shorter track record of success.
			Risk and risk management are important considerations in the insurer's corporate decision-making.
			In our opinion, the insurer is somewhat more likely to experience unexpected losses that are outside of its risk tolerances than an insurer with a very strong ERM score.
3	Adequate with strong risk control	The risk controls subfactor is scored positive, the strategic risk management subfactor is scored neutral, and no subfactor is scored negative.	The insurer has all the characteristics of an insurer with an adequate score, but has also established a variety of risk controls that we view in aggregate as positive.
4	Adequate	The risk controls and risk management culture subfactors are scored at least neutral; overall doesn't satisfy the requirement for adequate with strong risk control.	The insurer has capabilities to identify, measure, and manage most key risk exposures and losses, but the process has not been extended to all significant risks facing the enterprise.
			The insurer's loss/risk tolerance guidelines are less developed than those of insurers with a higher ERM score.
			The insurer demonstrates sufficient execution of its existing risk management programs, albeit less comprehensive than that of insurers with a strong ERM score.
			Risk and risk management are often important considerations in the insurer's decision-making.
			In our opinion, the insurer is more likely to incur unexpected losses than an insurer with a strong ERM score.
5	Weak	One or both of the risk controls and risk management culture subfactors are scored negative.	The insurer has limited capabilities to consistently identify, measure, and manage risk exposures across the enterprise and, thereby, limit losses.
			The insurer demonstrates sporadic execution of its risk management program; losses aren't expected to be limited in accordance with a set of predetermined risk tolerance guidelines.

For reference see Cheng et al, 2013, Ratings Direct, p.5

Detailed plan

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Résumé

Abstract

Mots Clés

Keywords