



Innovation through supply relationships, chains and networks

Thomas Johnsen

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Ecole Doctorale Sciences de Gestion de Grenoble
(ED 275)

THESE D'HABILITATION A DIRIGER DES RECHERCHES

Spécialité : Sciences de Gestion

Par

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***Les relations avec les fournisseurs comme
source d'innovation : relations, chaines et
réseaux***

(Innovation through supply relationships, chains and networks)

JURY

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Finally, I wish to thank my wife Rhona for her endless love, support and belief in my abilities and potential as an international academic.

1. Résumé et Synthèse (EN FRANÇAIS)

1.1. Vue d'ensemble

Ce rapport donne un aperçu de mes recherches à ce jour. Il commence par expliquer pourquoi mon domaine – gestion des achats et des approvisionnements – est un sujet pertinent et même de plus en plus critique, autant pour les chercheurs universitaires que les entreprises et organisations. Je présente mes principaux axes de recherches et j'introduis par la suite les deux domaines principaux de la gestion des achats et des approvisionnements à laquelle j'ai contribué, à savoir les relations au sein des réseaux d'approvisionnement, ainsi que le rôle des fournisseurs dans l'innovation et le développement de nouveaux produits (DNP pour New Product Development : NPD). Le rapport donne un aperçu des principaux projets de recherche dans lesquels je me suis impliqué, avant de détailler ma contribution sur le terrain ainsi que la philosophie et les méthodologies qui sous-tendent mes recherches. En particulier, je réfléchis sur l'utilisation de la recherche qualitative dans l'étude de cas en matière de gestion des achats et de l'approvisionnement et j'offre des suggestions sur la façon d'assurer une recherche de bonne qualité dans ce domaine. Le rapport se termine par un aperçu de mes projets de recherche à venir.

1.2. Contexte : Importance des achats ; mon positionnement

Je commence le rapport en présentant mon expérience personnelle et ce qui motive le positionnement de mes recherches dans le domaine de la gestion des achats et des approvisionnements. J'explique comment, vers le milieu des années 1990, j'ai commencé à travailler comme Agent de Recherche au CRISPS (Centre for Research in Strategic Purchasing & Supply / Centre de Recherche en Achat & Approvisionnements Stratégiques) à l'Université de Bath, où j'ai aussi effectué mes études de doctorat. Cependant, je n'avais pas l'intention délibérée de me tourner vers la gestion des achats et des approvisionnements. Comme cela arrive souvent, je me suis retrouvé dans l'achat presque par accident. Mes premières expériences avaient en fait trait au marketing industriel ; j'avais étudié les théories relatives à cette question – la relation acheteur-fournisseur et les modèles de réseaux industriels, mais j'étais peu expert en matière de gestion des achats et des approvisionnements. Cependant, après avoir été initié à l'achat, j'en ai rapidement compris le potentiel ; les entreprises démontraient un grand intérêt à s'impliquer, et bénéficier des recherches sur la gestion des achats et des approvisionnements. Elles ont développé ce nouvel intérêt pour l'achat quand elles ont pris conscience qu'elles avaient besoin de développer des modalités fondamentalement nouvelles d'aborder cette question.

Au cours des deux dernières décennies, de nombreuses entreprises ont changé leur point de vue sur, et leur approche de l'achat. De nombreuses organisations modernes le considère comme une fonction stratégique essentielle et une véritable source d'avantage concurrentiel. Cela est d'autant plus vrai que nombre d'entreprises ont externalisé des activités qu'elles assuraient en interne auparavant. La tendance à l'externalisation émerge souvent lorsque des entreprises décident de se concentrer sur un plus petit ensemble de compétences relevant de leur cœur de métier et décident donc d'externaliser leurs compétences et activités non essentielles (Arnold, 1999). Ce qui a des implications majeures pour la gestion des achats et des approvisionnements car il leur faut se procurer – acheter – des compétences complémentaires (Teece, 1986) chez des fournisseurs spécialisés. Airbus a par exemple sous-traité à des fournisseurs la conception, le développement et la fabrication d'importants sous-systèmes d'aéronefs, et cette évolution devrait se poursuivre (par exemple : Airbus sous-traite auprès de fournisseurs environ 50% des tâches sur l'aéro-structure de l'Airbus A350 XWB). Dans le même temps, Airbus cherche à réduire la taille de sa base d'approvisionnements et s'appuie donc sur des fournisseurs moins nombreux mais plus stratégiques. Il s'agit notamment des principaux acteurs du secteur tels que Rolls Royce, General

Electric et Pratt & Whitney, qui assument la responsabilité de la conception et de la construction des sous-systèmes de gros avions. Airbus illustre une tendance significative de l'ensemble des industries à sous-traiter non seulement la production mais aussi la fourniture de services. Comme une proportion très élevée de la valeur ajoutée provient ainsi de l'extérieur de l'entreprise, c'est-à-dire de la chaîne d'approvisionnement, la gestion des achats et des approvisionnements revêt logiquement une importance accrue. Ces évolutions, évidentes dans toutes les industries (Van Weele, 2010) impliquent qu'en matière d'achats il est de plus en plus important de développer des relations à long terme avec les fournisseurs les plus importants – en particulier ceux qui représentent les plus hauts niveaux de valeur et de risques (Kraljic, 1983; Gelderman et van Weele, 2005). Il s'agit généralement de relations avec les fournisseurs où il existe un degré élevé de dépendance mutuelle et où la confiance et l'engagement à long terme a remplacé le comportement opportuniste à court terme (Cousins, 2002; Walter et al, 2003). Ces relations permettent aux entreprises de capitaliser sur les compétences et technologies spécialisées qui existent au sein de la base d'approvisionnement. Beaucoup de recherches dans la gestion des achats et des approvisionnements se concentrent donc sur le développement de concepts et de modèles utiles pour comprendre les relations client-fournisseur ; j'ai cherché à contribuer à cette partie particulière de la gestion des achats et des approvisionnements.

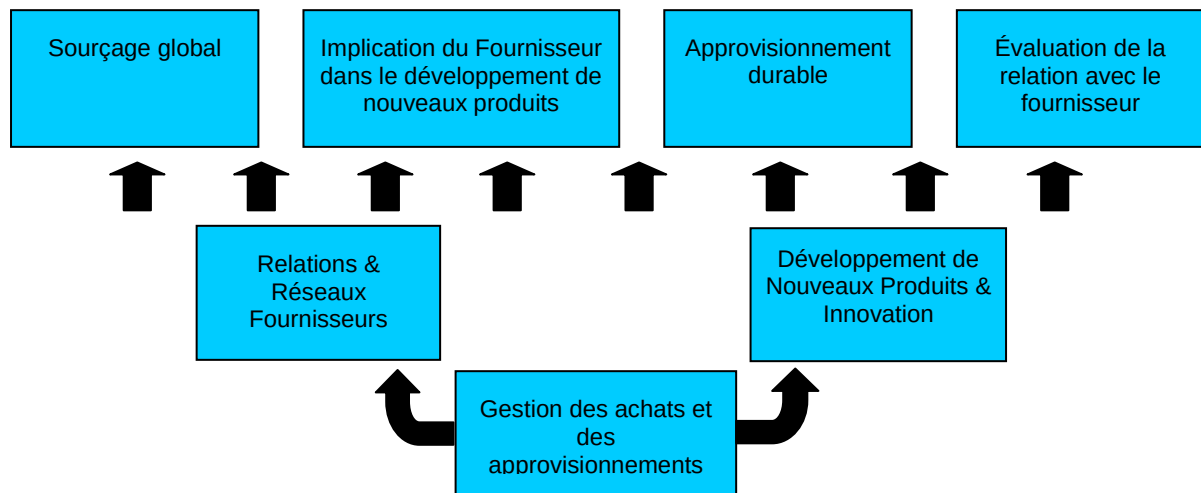
C'est ainsi que, lorsque j'ai commencé mon travail au sein du CRISPS, je me suis retrouvé au cœur de cette évolution parce que l'Université de Bath a été la première au Royaume-Uni à posséder une chaire en Achats, financée par le CIPS (UK Chartered Institute of Purchasing & Supply / L'Institut britannique agréé en Achats & Approvisionnement) où je travaillais sous la direction du professeur Richard Lamming. Pendant quelques années, le CRISPS a été le fleuron de la recherche sur l'achat, non seulement au Royaume-Uni mais aussi en Europe. Une preuve parmi d'autres : le *European Journal of Purchasing & Supply Management* (EJPSM, devenu maintenant le JPSM) a été créé en 1994 par CRISPS (rédacteur en chef fondateur : Richard Lamming) et l'ISPERA (International Purchasing & Supply Education & Research Association) a également été présidée par le professeur Richard Lamming. En fait, l'université de Bath (CRISPS) est le principal contributeur aux articles du JPSM, avec à son actif 7,1% de tous les articles parus dans le JPSM de 1995 à 2010 (Wynstra, 2010).

L'achat est désormais un réel centre d'intérêt pour de nombreuses universités et écoles de commerce à travers le monde. Nombre de pays ont récemment mis en place des chaires en achat et elles sont souvent liées à la création de centres de recherche. Le « Centre of Purchasing and Supply Chain Atlantique » (PASCA), à Audencia, en fait partie et c'est là que je m'efforce actuellement de promouvoir la recherche en achats. Cependant, même si l'achat devient un sujet de plus en plus important dans la recherche en management, la question de savoir si l'achat est un champ d'investigation ou une discipline, voire «une discipline émergente» fait encore débat. Comme nous l'avons soutenu (Harland et al, 2006), la gestion des achats et approvisionnements « ... est une discipline émergente ; il existe une cohérence dans le débat sur la gestion des approvisionnements comme discipline, la qualité de la recherche sur la discipline de la gestion des approvisionnements s'améliore et le débat sur la discipline est en cours.... La qualité des revues publiant des articles sur le débat portant sur la discipline s'améliore, de même que leur impact, mais les meilleures revues de gestion de niveau international ne s'y sont pas encore engagées ». (P. 747). Ainsi, les chercheurs travaillant sur les thèmes liés à la gestion des achats et des approvisionnements doivent encore se battre pour être pris au sérieux face à des disciplines très bien établies. Ce rapport examine les conséquences de cette absence relative de statut sur les perspectives de publication dans les meilleures revues internationales d'articles de recherche en achats.

1.3. Mes principaux axes / piliers de recherche

Même si j'ai contribué à divers aspects de la recherche en gestion des achats et des approvisionnements, j'ai surtout cherché à me concentrer sur deux questions : 1) relations avec les fournisseurs et les réseaux, et 2) développement de nouveaux produits et de l'innovation. Ces piliers m'ont conduit à explorer d'autres domaines assez particuliers, comme le montre la Figure 1.

Figure 1 : Piliers de recherche



La gestion des achats et approvisionnements constitue le principal pilier de ma recherche. À partir de ce pilier, je cherche à contribuer à la recherche sur les relations fournisseurs et sur leur imbrication dans des réseaux d'approvisionnement plus larges. Il existe un nombre important de recherches sur les relations client-fournisseur et les différentes formes de réseaux inter-organisationnels ; ce corpus divers de recherches est essentiel à l'achat qui, par définition, relève d'une problématique inter-organisationnelle. Les relations de partenariat avec les fournisseurs, ou « partnership-sourcing », représentent un thème important de l'achat depuis la fin des années 1980 et le début des années 1990 (Macbeth et Ferguson, 1994; Carlisle et Parker, 1989). J'ai fait des recherches sur de nombreux aspects de la théorie des relations et réseaux d'approvisionnement en utilisant les concepts et les modèles développés par le groupe Industrial Marketing & Purchasing (IMP) (p. ex., Håkansson, 1982; Håkansson et Snehota, 1995; Ford, 1980).

La principale raison pour laquelle les entreprises s'engagent dans des relations fournisseurs à long terme c'est de capitaliser sur les capacités et les technologies spécialisées des fournisseurs – de plus en plus critiques pour le développement de nouveaux produits (New Product Development : DNP). L'implication précoce des fournisseurs dans le DNP est un thème de recherche en plein essor, ayant pris forme dans les années 1980 (Johnsen, 2009) et, plus que toute autre chose, ma recherche a pour ambition de contribuer à ce domaine de recherches qui couvre l'achat et le DNP /l'innovation. Un grand nombre de preuves suggèrent qu'une large et précoce implication des fournisseurs dans le DNP améliore les performances en DNP en termes de réduction des coûts ainsi que de délais de commercialisation, contribuant ainsi à accroître la qualité (par exemple Ragatz et al, 2002) ; on a considéré que c'est un facteur clé pour expliquer l'« avantage japonais » (p. ex., Clark, 1989). Toutefois, la participation précoce des fournisseurs est difficile et toutes les entreprises n'en profitent pas car elles ne comprennent pas bien de quoi il s'agit et ce que cela exige. Ma recherche a exploré différents thèmes au sein de l'implication des fournisseurs dans le DNP. J'ai examiné cette question dans plusieurs secteurs et j'ai examiné la relation fournisseurs et les problèmes de réseaux, au travers de bon nombre de mes projets de recherche. Ceci constitue donc l'autre pilier important de ma recherche.

Comme le montre la Figure 1, d'autres thèmes ont émergé à partir de ces piliers de base. La Figure 1 présente certains de ces « produits finis », mais la liste n'est en rien exhaustive. La plupart ont en commun les thèmes traitant des relations avec les fournisseurs ainsi que des réseaux et de l'innovation. Les projets spécifiques dans lesquels j'ai été impliqué sont décrits plus bas.

1.4. Principaux projets de recherche

Le rapport donne un aperçu des projets de recherche dans lesquels j'ai été impliqué à ce jour. Certains de ces projets ont été formalisés ; par exemple, financés par les conseils de recherche du Royaume-Uni. D'autres ont été moins formels, n'ont pas reçu de financement et peuvent représenter un thème de recherche que j'ai poursuivi sur un long laps de temps. J'en dresse la liste chronologique, et le premier projet sera donc le Projet ION (Inter-Organisational Networking / Réseau inter-organisationnel), initialisé en 1996. Mon doctorat a commencé l'année suivante et comme je m'y consacrais à temps partiel, il a duré jusque vers 2003. Comme c'est le premier grand projet sur lequel j'ai travaillé, le projet ION a une forte influence sur l'élaboration des hypothèses, des perspectives et des contributions de mon travail. Le Tableau A est le même que le Tableau 5 mais traduit en français, et il donne un aperçu des objectifs, contextes, méthodes et résultats ainsi que des contributions de chacun des projets :

- Le projet ION : Réseau Inter-organisationnel : projet sur 3 ans, financé par le Royaume-Uni, entrepris par une équipe de recherche nombreuse (Bath, Cambridge et les universités de Brighton). Mon rôle : Agent de recherche.
- Thèse de doctorat : l'innovation collaborative dans les réseaux : entreprises à temps partiel en parallèle avec le projet ION. Fondée sur la théorie du marketing et de l'achat industriels (IMP, Industrial Marketing and Purchasing). Mon rôle : doctorant.
- Projet ISN : l'innovation dans les réseaux d'approvisionnement (des soins de santé) : projet sur 2 ans financé par le Royaume-Uni et pris en charge par l'Université de Bath, en collaboration avec, entre autres, le UK National Health Service (Sécurité sociale du Royaume-Uni), avec pour thèmes principaux les innovations dans le secteur des soins de santé et le rôle des réseaux d'approvisionnement. Mon rôle : chef de projet.
- Defense Industrial Supply Strategy (DISS) : conseils et projet de recherche axés sur la stratégie d'approvisionnement de la défense du Royaume-Uni. Réalisé avec deux collègues de l'Université de Bath. Mon rôle : co-investigateur.
- Développement de la chaîne globale d'approvisionnement (JIBS) : projet financé sur 3 ans, entrepris par la Jönköping International Business School, en se concentrant sur l'approvisionnement mondial. Mon rôle : Professeur invité / Co-investigateur.
- Évaluation de la Relation Fournisseur : projet conceptuel visant à réfléchir sur, et à redévelopper, un modèle d'évaluation de la relation fournisseur. Mon rôle : co-investigateur (mais de manière informelle).
- Participation des fournisseurs au Développement de Nouveaux Produits : différents projets autour du même thème, dont l'examen systématique de la littérature et une étude de cas sur l'Airbus A380. Mon rôle : enquêteur principal.

Le Tableau A montre comment les objectifs d'une grande partie de mes recherches ont porté sur le développement de la compréhension des relations client-fournisseur et les différents types de réseaux industriels. Plusieurs projets étaient axés sur l'identification des activités de collaboration ou de mise en réseau et sur les facteurs favorisant et contraignant au cours du processus de mise en réseau. Le DNP et l'innovation sont également des thèmes récurrents, que j'ai étudiés dans un contexte et une perspective de réseau. Le tableau montre également une progression dans le cadre de mes études empiriques : les premières études portant sur la production dans le secteur privé, ainsi que des recherches plus récentes, se concentrent sur le secteur public et aussi

sur les services. Les méthodes de recherche utilisées ont été principalement des études de cas en profondeur, mais ont également inclus des travaux purement conceptuels et des recherches s'appuyant sur des enquêtes.

Tableau A. Vue d'ensemble des principaux projets de recherche

Projet	Objectif	Contexte	Méthodes	Résultats/Contributions
<i>Projet ION</i>	- Identifier les déterminants de la collaboration entre entreprises dans trois domaines clés : approvisionnements, innovation et apprentissage	Entre divers secteurs : automobile, télécommunications/ ordinateurs, produits pharmaceutiques, Biens de consommation à circulation rapide (FMCG, Fast Moving Consumer Goods)...	- Enquête exploratoire - 20 études de cas en profondeur (8 réseaux d'approvisionnement : environ 80 entretiens) - Enquête	- Taxonomie des réseaux inter-organisationnels - Classification initiale des réseaux d'approvisionnement - Taxonomie des réseaux d'approvisionnement
<i>Doctorat</i>	- Identifier un ensemble d'activités mises en place par les entreprises au cours de l'innovation technologique (accent mis sur le DNP) pour tirer partie des relations individuelles dyadiques et accéder aux ressources et technologies disponibles dans le réseau plus large - Examiner comment les entreprises tirent partie des réseaux lors de leur gestion des ensembles d'activités identifiées - Examiner dans quelle mesure les réseaux imposent des contraintes sur la gestion des ensembles d'activités identifiées	Automobile, pharmaceutiques et télécommunications	- Enquête exploratoire (5 entretiens) - 4 études de cas approfondies (46 entretiens)	- J'ai développé un ensemble <i>interactif</i> d'activités en faveur de l'innovation collaborative : rassembler, régler le timing, mobiliser, communiquer, synchroniser, allouer des ressources humaines, résoudre les problèmes - J'ai montré que les entreprises risquent de ne pas être en mesure de collaborer parce qu'elles opèrent en étant soumises à des contraintes dues au réseau, c'est à dire qu'elles sont soumises à l'intervention du réseau des consommateurs en matière de rassemblement et de communication (choix du fournisseur)
<i>Projet ISN : Innovation dans le réseau d'approvisionnement (soins de santé)</i>	- Evaluer les connaissances existantes sur les process d'innovation, et les facteurs favorisant ou contraignant en termes de gestion de l'innovation dans les réseaux d'approvisionnement en soins de santé - Développer un cadre comprenant divers types de réseaux d'approvisionnement	- Secteur de la Santé : Sécurité Sociale au Royaume-Uni, génie tissulaire, technologie d'assistance aux patients souffrant de démence, etc. - Accent mis sur des secteurs ayant atteint différents niveaux de maturité / d'innovation industrielle	- Enquête exploratoire de diverses parties du secteur de la santé au Royaume-Uni. - Ensemble d'études de cas approfondies, se concentrant sur le génie tissulaire et les technologies d'assistance	- J'ai montré comment les interactions entre fournisseurs de santé et une série de parties prenantes impliquées dans le développement de technologies nouvelles innovantes (p. ex., fournisseurs, client, Sécurité sociale britannique, et les autorités régulatrices) peuvent avoir un impact positif ou négatif sur la réussite de l'innovation.

	partenaires en innovation technologique et en produits de soins de santé			- J'ai montré, p. ex., le rôle des fournisseurs, des clients et des parties prenantes horizontales dans divers types d'innovation (fluide, transitionnelle, à maturité)
<i>Stratégie d'approvisionnement dans le secteur de la défense</i>	- Définir un soutien en interne et un TLM dans le contexte des achats dans le secteur de la défense - Analyser la littérature concernant la chaîne d'approvisionnement, dont les modèles de portefeuilles de relations, en flux tendu (« lean » agile), pertinents en matière de défense - Enquêter sur les implications du soutien en interne et sur le TLM - Construire un modèle et formuler à l'industrie de défense du Royaume-Uni des préconisations pour le changement en termes de politique et de pratique	Secteur de la Défense au Royaume-Uni	Étude de cas du secteur de la Défense au Royaume-Uni : entretiens avec le Ministère de la Défense, les fournisseurs au Royaume-Uni et diverses parties prenantes	- J'ai défini et conceptualisé le Through-Life Management : TLM - J'ai exploré le lien entre le TLM et la stratégie d'approvisionnement, en mettant surtout l'accent sur le rôle de l'implication du fournisseur au sein de longs cycles de vie de service-produit
<i>Développement de la Chaîne d'approvisionnement globale (JIBS)</i>	- Identifier comment l'intégration avec les chaînes d'approvisionnement existantes peut servir à développer de nouvelles chaînes d'approvisionnement internationales - Examiner comment l'intégration des chaînes d'approvisionnement existantes est influencée par le développement de nouvelles chaînes d'approvisionnement internationales, dans la durée - Enquêter sur la manière dont le développement de chaînes d'approvisionnement nouvelles et existantes diffère selon la nature de l'externalisation et de	Entreprises suédoises se fournissant dans le monde, p. ex., en Chine. Mobilier (p. ex., Ikea), appareils ménagers, etc.	- Deux études de cas explorant le développement de la chaîne d'approvisionnement de sociétés multinationales suédoises - Trois à quatre études de cas en profondeur analysant le développement de la chaîne d'approvisionnement de sociétés suédoises de taille moyenne - Une enquête de grande envergure pour tester les conclusions de l'étude de cas à plus grande échelle	- Les résultats ont montré l'enchevêtrement entre le développement des ventes en aval et le marché de sourcing en amont - Le cas d'Ikea a montré que le processus global de sourcing est influencé par les interactions complexes et les effets dus au réseau entre clients et fournisseurs à divers niveaux du réseau d'approvisionnement global qui influence la rapidité et la profondeur du processus de sourcing global

	l'internationalisation			
<i>Évaluation de la Relation Fournisseurs</i>	Nouvelles perspectives sur le projet RAP (anciennement appelé CRISPS) Alimenté également par ma thèse de doctorat à Bath & par le projet CRISPS concernant l'achat fondée sur les Preuves	Conceptuel La Passation de marchés fondée sur les Preuves s'inspire d'études de cas menées au Royaume-Uni dans le secteur de la santé	Conceptuelle mais proposant des réflexions sur l'expérience de mise en application du modèle RAP L'achat fondé sur les Preuves s'inspire d'un ensemble de données recueillies par des doctorants	Modèle conceptuel pour l'évaluation de la relation fournisseur
<i>Implication du fournisseur dans le Nouveau Développement de Produit</i>	Analyse de la littérature Étude de cas au sujet de l'implication du fournisseur dans le développement de l'Airbus A380	- Conceptuel - Airbus A380/Aerospace	Une critique de la littérature sur le sujet Une étude de cas empirique de l'Airbus A380	- Synthèse de la littérature ayant trait à l'implication du fournisseur dans les facteurs de réussite du DNP - Identification d'orientations de recherches, dont la question de l'implication du fournisseur dans l'innovation discontinue et radicale - Le projet A380 contribue à accroître les connaissances sur l'implication du fournisseur dans des DNP de grande complexité, surtout en rapport avec les décisions de timing et les mécanismes de partage des risques ainsi que les gratifications, et sur les questions de la délégation autant que de la faisabilité d'impliquer des fournisseurs lointains pour trouver des solutions innovantes

1.5. Bilan d'ensemble de mes contributions à la recherche

Tous mes projets de recherche, comme indiqué dans le tableau A, ont trait à des problèmes liés à la gestion des achats et de l'approvisionnement. Plus précisément, les thèmes généraux de mes recherches ont porté sur les relations client-fournisseur, l'enchâssement des relations dyadiques dans les réseaux d'approvisionnement plus larges, ainsi que la gestion du développement de nouveaux produits et de l'innovation dans un contexte de réseau d'approvisionnement. C'est cette interface entre la gestion inter-organisationnelle et le développement/innovation de nouveaux produits qui constitue le cœur de mes recherches. Ma contribution au domaine de la gestion des achats et de l'approvisionnement est spécifiquement axée sur l'élaboration d'une meilleure compréhension du développement et de la gestion du développement des produits et de l'innovation au sein des relations acheteur-fournisseur et des réseaux.

Après m'être intéressé au début de ma carrière, aux relations acheteur-fournisseur et aux réseaux industriels, je me suis tourné vers des recherches traitant des réseaux inter-organisationnels (ION, inter-organizational networks), qui ont essentiellement porté sur les activités de networking afin de créer et gérer différents types de réseaux. Le Projet ION a adopté une perspective plus normative que la théorie des interactions IMP (p. ex., Håkansson, 1982), réfutant l'hypothèse de l'IMP voulant que les réseaux ne puissent pas être créés ni gérés (Håkansson et Snehota, 1995). Ma participation au projet ION m'a apporté une compréhension approfondie des concepts ayant trait aux relations acheteur-fournisseur et à différents types de réseaux – les réseaux d'approvisionnement en particulier – concept que j'ai contribué à développer au travers de plusieurs publications (Lamming, Johnsen, Harland et Zheng, 2000 ; Harland, Zheng, Johnsen et Lamming, 2004 ont été parmi les premiers articles à introduire le concept de réseau d'approvisionnement et sont encore aujourd'hui les sources les plus fréquemment citées au sujet des réseaux d'approvisionnement). En particulier, j'ai acquis une bonne compréhension de l'importance d'étudier les différents niveaux d'analyse des relations et des réseaux, cadre d'analyse dont j'ai fait grand usage du fil des années (p. ex., Phillips, Johnsen, Caldwell et Lewis, 2006 ; Johnsen, Lamming et Harland, 2008 ; Miemczyk et Johnsen, 2010).

Ma thèse de doctorat s'est écartée du Projet ION de deux manières : elle s'est concentrée sur le DNP et l'innovation dans le contexte des relations et des réseaux acheteur-fournisseur, et elle a été entreprise dans une perspective d'interaction IMP (mon directeur de recherche, Prof. David Ford, fut l'un des fondateurs de l'IMP). La perspective des réseaux a représenté la plus importante différence entre ma thèse de doctorat et le Projet ION : plutôt que de considérer un réseau comme une entreprise étendue – ou une alliance multipartite – ma thèse de doctorat considérait les réseaux comme un contexte. Selon la tradition IMP, les réseaux représentent l'environnement dans lequel une entreprise focale est intégrée et reliée par des liaisons entre acteurs, des liens d'activité, et des relations autour des ressources (Håkansson et Snehota, 1995). Les réseaux peuvent activer et / ou limiter les relations entre les acteurs dyadiques, et ma thèse a donc porté sur la façon dont les tentatives d'une entreprise focale de collaborer avec les fournisseurs au cours des projets DNP et d'innovation seraient facilitées et / ou entravées par le réseau dans lequel s'inscrit la dyade. J'ai développé les concepts d'intervention du réseau d'approvisionnement et de délégation du réseau d'approvisionnement, inspirés par une conceptualisation initiale de l'intervention et de la « cascade » (délégations successives aux fournisseurs) formulée par Lamming (1996) et Lamming, Johnsen, Harland et Zheng, 2000) ; c'est un thème dont je poursuis encore l'étude à ce jour (Johnsen et Ford, 2005; Johnsen et Ford, 2007, Johnsen, 2011 à paraître).

Mes recherches en DNP et sur l'innovation au sein des relations acheteur-fournisseur et les réseaux d'approvisionnement se sont poursuivies avec le projet ISN, mais ont déplacé le contexte industriel du secteur secondaire privé vers celui de la santé, qui comprenait des perspectives liées au secteur public, au travers du rôle clé, au Royaume-Uni, de la Sécurité sociale comme client majeur. Les recherches plus ciblées sur l'implication des fournisseurs dans le DNP ont continué avec mon examen de la documentation (Johnsen, 2009) et du cas de l'Airbus A380 – ce dernier se concentrant sur un projet NDP très complexe. Une fois de plus, ma contribution à ces projets a porté sur la nécessité de comprendre les implications des réseaux d'approvisionnement sur la collaboration dyadique ; par exemple, Johnsen (2009) a identifié la nécessité d'envisager la participation des fournisseurs indirects à des projets DNP ; enfin, le projet ayant trait à l'achat et l'implication des fournisseurs dans l'innovation discontinue cherche à explorer la pertinence de l'implication des fournisseurs existants dans ce contexte particulier de l'innovation.

D'autres projets de recherche ont débouché sur d'autres domaines d'investigation, mais toujours axés sur les aspects liés aux relations client-fournisseur et aux réseaux : la recherche conceptuelle

sur l'évaluation de la relation fournisseur apportait des réflexions sur le modèle de RAP (Lamming et al, 1996), et élargissait le modèle d'origine pour prendre en considération les influences du réseau sur les dyades ; la recherche sur le Through-Life Management (TLM), qui traitait plus spécialement des implications des changements récents dans l'industrie de la défense du Royaume-Uni sur les relations entre les fournisseurs de matériels de défense et le ministère de la Défense ; le projet GSCD à JIBS portait en particulier sur le sourcing mondial et le développement global de la chaîne d'approvisionnement, mais ma contribution au projet (en particulier au cas d'Ikea) a de nouveau surtout porté sur les problèmes de gestion découlant de diverses formes de mise en réseau, plus précisément l'intervention de la clientèle (Ikea) quant aux opérations et aux activités et aux choix liés au sourcing global des fournisseurs.

Enfin, un autre projet récent se concentre sur les achats durables (également discutés plus tard au sein de futurs projets de recherche). Bien que le projet plus large mette l'accent sur divers aspects de la façon d'améliorer les performances de l'approvisionnement durable, ce projet se sert – au moins en partie – du même cadre d'analyse pour enquêter sur la durabilité à différents niveaux d'analyse, c'est-à-dire celui des relations dyadiques avec les fournisseurs, de la chaîne d'approvisionnement et des réseaux (Miemczyk et Johnsen, 2010).

En résumé, ma recherche a contribué à l'exploration des thèmes suivants :

1. La théorie des réseaux, en enquêtant et en développant des cadres relatifs à la façon de créer et de gérer différents types de réseaux. En particulier, j'ai contribué à l'élaboration de la notion de réseaux d'approvisionnement.
2. La théorie des réseaux, en développant des classifications et des typologies de réseaux, en particulier les réseaux d'approvisionnement.
3. L'implication des fournisseurs dans le DNP, en étendant ce corpus de recherche d'un niveau d'analyse dyadique à celui du réseau. J'ai surtout montré comment et pourquoi les entreprises ont accès à des fournisseurs indirects et les conséquences des interventions de ces réseaux d'approvisionnement sur les fournisseurs.
4. La gestion des achats et de l'approvisionnement, dont j'ai accru la connaissance en développant des cadres destinés à mieux comprendre, gérer et évaluer les relations avec les fournisseurs dans une variété de contextes (secteurs public et privé).

1.6. Réflexions sur les méthodologies de recherche et mes projets futurs de recherche

Ce rapport décrit mon utilisation d'une méthodologie d'étude de cas en profondeur et il évalue mon approche de la méthode des cas ; il propose une réflexion sur mes hypothèses philosophiques et sur les méthodes pratiques visant à traiter les études de cas portant sur les relations inter-organisationnelles et les réseaux. Je propose des préconisations utiles aux chercheurs : par exemple, je discute du problème de la détermination des limites du réseau et je réfléchis sur l'utilisation et la pertinence des philosophies de recherche et des processus de recherche inductif, déductif et adductif. Je donne également des directives sur ma méthode en matière d'études de cas. Dans plusieurs parties du rapport, je rapporte ces questions au problème de la publication des résultats d'une recherche, en particulier dans des revues qui acceptent de publier des articles de recherche sur la gestion de l'achat et des approvisionnements. Il n'y a pas une seule bonne façon de faire de la recherche, mais les choix opérés doivent être clairs, cohérents et bien justifiés.

Mon rapport HDR présente ce que je compte faire dans le cadre de deux projets de recherche sur lesquels j'ai l'intention de concentrer mon travail au cours des cinq prochaines années. L'un traitera des marchés durables ; je crois en effet que c'est un thème susceptible de présenter, dans

un avenir prévisible, autant un défi qu'une opportunité pour un grand nombre de sujets de recherche sur l'achat. Le projet FusionCO2, qui a débuté en Janvier 2011 à Audencia / PASCA, offre la possibilité de proposer des conclusions empiriques sur ce sujet d'actualité ; je poursuis également l'étude de ce thème par le biais d'autres activités telles que l'édition d'un numéro spécial dans le « Journal of Purchasing & Supply Management ». L'autre projet à venir que je décris concerne le rôle des fournisseurs et des achats en matière d'innovation discontinue : innovations qui, fondamentalement, rompent avec les paradigmes technologiques existants. Une grande partie de ma recherche a examiné l'implication du fournisseur dans le développement de nouveaux produits (innovation incrémentale). Toutefois, des recherches récentes suggèrent que l'innovation discontinue exige la participation de fournisseurs situés en dehors des chaînes d'approvisionnement existantes et qu'il s'impose de trouver de nouvelles relations avec les fournisseurs pour de telles entreprises. J'ai récemment mis sur pied un projet de recherche initial, rédigé un article en collaboration avec le professeur Richard Calvi et le Dr Wendy Phillips, et j'ai l'intention, dans le cadre de ce projet, de proposer dans un proche avenir l'un des axes majeurs de ma recherche.

Si je postule à l'habilitation à diriger des recherches c'est pour être en mesure de superviser et de diriger des recherches en France, tant au travers de projets financés qu'en collaboration avec des doctorants. Je suis convaincu qu'il est possible d'apporter une contribution réelle aux recherches sur l'achat en France et de participer à l'amélioration de la visibilité internationale de la recherche française sur l'achat ; depuis ma prise de fonctions à Audencia, j'ai mis en route ce processus, par exemple en qualité de représentant de la France dans les grandes études comparatives internationales telles que l'Enquête internationale sur l'achat (IPS, International Purchasing Survey) et l'International Public Procurement Research Study (IRSP) ainsi qu'en m'impliquant considérablement dans IPSE (dont j'aurai l'honneur de présider la conférence en 2013).

Une partie importante de ma vision consiste à jouer un rôle majeur dans le développement de la discipline de l'achat au niveau international. D'autre part j'ai pour ambition la promotion en France de la recherche sur la gestion de l'achat et de l'approvisionnement, tout en améliorant la visibilité internationale de la recherche française sur l'achat. On peut déplorer un relatif manque de visibilité internationale de la recherche française sur l'achat : par exemple, depuis l'inauguration du JPSM en 1994, seuls 10 articles ont été écrits par des auteurs ayant des affiliations françaises. Par comparaison, durant la même période, 28 émanaient de chercheurs italiens et 27 d'auteurs allemands. C'est une occasion manquée pour la recherche française sur l'achat et j'ai la ferme intention d'y remédier. Publier des résultats de recherche dans des revues internationales présente de grandes difficultés. Au cours des 10 dernières années il est devenu de plus en plus ardu de participer au « jeu de la publication » ; par conséquent la recherche produite, tant par les doctorants que les professeurs d'université, se doit d'accroître sa qualité. J'ai l'intention de jouer un rôle de facilitateur dans ce processus et mon habilitation à diriger des recherches contribuera considérablement à la poursuite de cet objectif.

2. INTRODUCTION: PURCHASING AS AN EMERGING FIELD

2.1. Background

I began my academic career in purchasing and supply management in 1996 when I joined the Centre for Research in Strategic Purchasing & Supply (CRiSPS) at the University of Bath to work on a three-year research project called ION (Inter-Organisational Networking) as Research Officer. Project ION set out to investigate how companies can create, operate and evaluate different types of inter-organisational networks and it was my interest in buyer-supplier relationships and industrial networks that initially attracted me to this project. The project was undertaken by an alliance of three UK universities: Bath, Cambridge and Brighton. These three partners each took the lead on three types of networks, which reflected their respective expertise, so Bath focused on supply networks, Cambridge focused on innovation networks, and Brighton focused on learning networks.

Although I had some experience in industrial buyer-supplier relationships and had studied theories related to this issue, I knew little of purchasing and supply management at the time and ended up at CRiSPS because this was where there happened to be an opening for a Research Officer. Once we embarked on the project, I quickly realised the potential, however, because there was a great amount of interest amongst companies to become involved in and learn from research on purchasing and supply management. Moreover, there seemed to be a real upsurge of research into this new field: purchasing and supply management. This newly found interest in purchasing was not least triggered by companies that had begun to realise the importance of improving their knowledge and competence in purchasing. They realised that they needed to start filling this knowledge gap and to develop fundamentally new ways of thinking about purchasing and its potential contribution to ensuring sustained competitive advantage in an increasingly competitive global business landscape.

My own almost accidental introduction to purchasing was actually quite typical to how people ended up in purchasing. Gadde and Håkansson (2001) introduce their book 'Supply Network Strategies' with a quote from an IBM Purchasing Director (Carbone, 1999):

*In the past when you could do nothing else at IBM we made you a buyer
When you couldn't design anything
When you couldn't build anything
When you couldn't carry anything
When you couldn't deliver anything
We put you into the purchasing organisation*

As they explain in their book, the IBM view of purchasing was typical until not long ago. However, like so many other companies IBM has changed its view of, and approach to, purchasing to the extent that purchasing is regarded as a strategically critical function – with salaries to match – in many modern organisations that use the purchasing to drive competitive advantage. More will be explained about the background for radical change in the importance and status of purchasing in the following section. I found myself at the heart of this development when I began at CRiSPS because the University of Bath was the first university in the UK to have a professorial chair in purchasing funded by the UK Chartered Institute of Purchasing & Supply (CIPS) and I was working under the direction of this professor: Richard Lamming. Within a short space of time the CIPS had funded six chairs across the UK but as the first dedicated research centre in purchasing, CRiSPS was the flagship of purchasing research not only in the UK but in Europe. Evidence of this status include, for example, that the *European Journal of Purchasing & Supply Management* (EJPSM, now JPSM) was created in 1994 by CRiSPS (with Richard Lamming as founding editor) and the

International Purchasing & Supply Education & Research Association (IPSERA) likewise was chaired by Prof. Richard Lamming.¹ Reflecting on 15 years of research in the *Journal of Purchasing & Supply Management* (JPSM), Wynstra (2010) identified that the University of Bath (CRiSPS) was the top institution by authorship having written 7.1% of all articles during this period (52 articles or nearly three times as many as the second highest contributor: Chalmers University of Technology, Sweden).

Purchasing is now taken very seriously at many universities and business schools around the world. Some countries appear to be lagging behind when it comes to the appointment of professorial chairs in purchasing; these play an important role in promoting the importance of purchasing both within academia and to the outside world. However, many countries now have established chairs in purchasing and these are often linked to creation of research centres. In Europe these include (in addition to CRiSPS) for example: the Centre for Business Strategy and Procurement at Birmingham, the Purchasing & Supply Management Centre at Erasmus University in Rotterdam, Supply Management Institute (SMI) at the European Business School in Germany, Groningen Research Institute of Purchasing (GRIP) in the Netherlands, and in France for example the European Institute of Purchasing Management (EIPM), and the Centre of Purchasing and Supply Chain Atlantique (PASCA) at Audencia.

Some scholars – including professors from the centres outlined above – have discussed whether purchasing is a field or a discipline or an emerging discipline (Harland et al, 2006). In an article from 2006 (ibid) we argued that purchasing and supply management “is not yet a discipline; there has been insufficient discipline and theory development to underpin the subject. There does appear to be evidence that it is an emerging discipline; there is coherence in the supply management discipline-debate, the quality of supply management discipline research is improving and there is a discipline-debate occurring.... The quality of journals publishing articles on the discipline-debate is improving, as is their impact, but the top management journals internationally are not yet engaged. There is evidence of a discipline-debate occurring in the field but it is not sufficiently developed or deliberately articulated.” (p. 747).² As an emerging rather than fully mature discipline, purchasing and supply management still has to fight to be taken seriously by scholars in very established disciplines such as economics. There are many indicators of this challenge: for example, the most prestigious journal dedicated to purchasing & supply management is JPSM, which is only rated as a 2-star journal on the UK ABS journal quality list (2 out of 4); even worse JPSM is only rated as 1 star on the French journal quality list CNRS probably because this list is arguably more focused on economics than management. By contrast, in a survey of journals publishing purchasing and supply management research, Zsidisin (2007) found that JPSM is well-placed as number 7 out of 27 journals, just below the highly renowned *Strategic Management Journal*. However, most national journal quality lists such as the UK ABS (Association of Business Schools), the German VHB list (*Verband der Hochschullehrer für Betriebswirtschaft*), the French CNRS (Centre National de la Recherche Scientifique), or the international journal list used by the Financial Times, rate JPSM and other dedicated purchasing journals as middle-low (a ‘B’ journal), forcing ambitious academics to target operations management (or strategic management) journals, which are highly ranked but do not tend to recognise purchasing and supply management research as core to the scope of their journals.

Finally, it is worth mentioning the burgeoning interest in educational programmes in purchasing and supply management. In recent years there have been many new Masters programmes in purchasing management (often linked with supply chain management) across the world. Audencia, for example, offers two masters programmes, one targeting French students and the

¹ The CRiSPS Deputy Director Prof. Christine Harland superseded Prof. Lamming as editor in Chief of EJPSM

² Harland et al (2006) describe four stages towards a fully mature academic discipline and identify purchasing and supply management at stage three.

other targeting international students. There is also an increase in PhD students focusing their theses on purchasing; these are looking to join and help to build this emerging academic discipline. This is the underlying motivation for my HDR report: to lead and direct research projects in purchasing and supply management in France and internationally.

2.2. Purpose and Objectives of Report

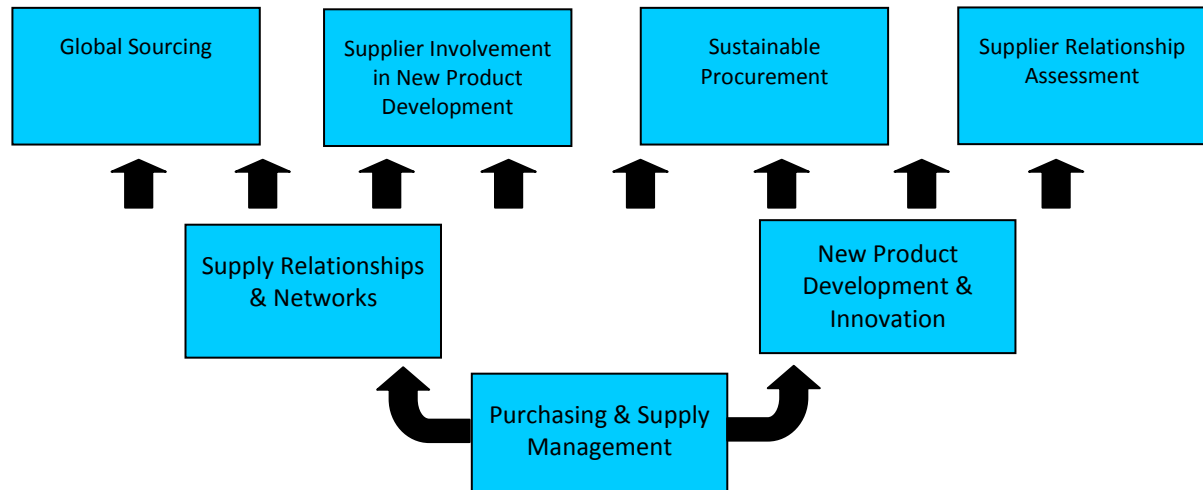
This report provides an overview of my research to date. The report begins by explaining why my field - purchasing and supply management – is a relevant and indeed increasingly critical subject both for academic researchers and for companies and organisations. I explain the main pillars, or axes, of my research and subsequently introduce the two main areas within purchasing and supply management to which I have contributed, namely supply relationships and networks, and the role of suppliers in new product development (NPD) and innovation. The report provides an overview of the main research projects in which I have been involved and I subsequently discuss in more detail my contribution to the field and the research philosophy and methodologies that I employ. In particular, I reflect on the use of qualitative case study research in purchasing and supply management and offer suggestions for how to ensure good quality research. The report concludes with an overview of future research plans.

2.3. Pillars of Research

My research touches on and relates to several different fields of research. This is perhaps reflected most clearly in the variety of journals in which I have published that are based within, for example, purchasing, industrial marketing, innovation, and operations and supply chain management. My early research focused on buyer-supplier relationships and the embeddedness of these in industrial networks (e.g. Håkansson, 1987; Uzzi, 1997); initially my perspective was that of the supplier (industrial marketing) but gradually my perspective shifted towards the buyer (purchasing). Having taught purchasing management the last ten years or so, my research increasingly focuses on, and seeks to contribute to, purchasing rather than industrial marketing and the fundamental pillar of my research is purchasing and supply management.

My approach to purchasing research is still strongly anchored in supply relationship and network theory i.e. my research on purchasing and supply management adopts a supply relationship and network theoretical lens and I often seek to contribute to the part of purchasing theory that concerns supply relationships and networks. In addition, my research within purchasing and supply management seeks to contribute to another important issue: new product development and innovation, specially the importance of supplier involvement and the understanding of innovation within a supply network context. It is therefore within these two fields of supply relationships/networks and NPD/innovation that I seek to contribute to knowledge. Specific research projects, or themes, that I have pursued over the years, such as supplier involvement in NPD, global sourcing, sustainable procurement or supply relationship assessment, generally build on either supply relationship and network theory and/or innovation theory.

Figure 1: Research Pillars



The following three sections provide a brief overview of, first, the field of purchasing and supply management, secondly supply relationships and networks, and thirdly new product development and innovation management.

2.4. Purchasing and Supply Management: Background

Compared with other business and management fields, purchasing and supply management is relatively new and under-developed (Harland et al, 2006). Early writings focused on defining the purchasing process (Robinson et al, 1967; Baily and Farmer 1977), although some of this work actually adopted a sales and marketing perspective i.e. the focus was on identifying organisational buying processes with a view to helping suppliers to better understand the buying process of their customers. During the 1980s, the focus was particularly on trying to elevate the position and status of the purchasing function within organisations and various purchasing maturity models were developed spanning from reactive, passive and tactical functions to integrative and strategic functions (Spekman, 1981; Reck and Long, 1988; Ellram and Carr, 1994; Gadde and Håkansson, 1994; Cavinato, 1999). In fact, the elevation of purchasing from a passive low level organisation function to a strategic function with corporate visibility and influence is still on-going and has gained some momentum in recent years not least with the rise of the Chief Procurement Officer (CPO) (Johnson et al, 2008).

The publication in the Harvard Business Review by McKinsey consultant Peter Kraljic (1983) probably had the most significant impact on the development of purchasing as a strategic responsibility within companies. In addition to providing a managerial tool for classifying different types of purchase items according to supply market complexity and impact on purchasing, his main message of why purchasing must become (strategic) supply management still resonates today. In fact, his purchasing portfolio model continues to be used by numerous companies, even if the original model has evolved and been adapted to particular circumstances (Gelderman and van Weele, 2005).

Kraljic's (1983) arguments for purchasing to be considered and managed as a strategic responsibility within companies is now more relevant than ever before. This is particularly so because so many companies have outsourced activities that they used to perform in-house. The trend towards outsourcing is often a result of companies deciding to focus on a smaller set of core competencies and thus deciding to 'farm out' or outsource non-core competencies and activities (Arnold, 1999). This has major implications for purchasing and supply management because

complementary competencies (Teece, 1986) now has to be sourced – purchased – from specialised suppliers. Consider for example the case of Airbus: despite its history as an aircraft manufacturer Airbus has chosen to outsource the design, development, and manufacture of major aircraft sub-systems to specialised suppliers. As part of the Airbus Power8 rationalisation programme, Airbus seeks to focus on its core competencies and thereby outsource major aircraft work packages to suppliers, especially those that they term ‘risk sharing partners’. For example, app. 50% of aero-structure work on the Airbus A350 XWB will be outsourced. Also, production sites that were previous under Airbus ownership have been sold off, including the wing component facility at Filton near Bristol which is now operated by GKN and other sites including in France may follow. At the same time, Airbus seeks to reduce the size of its supply base so that it relies on fewer but more strategic suppliers. These include major industry players such as Rolls Royce, General Electric, and Pratt & Whitney, that assume responsibility for design and build on large aircraft sub-systems.

The Airbus case exemplifies a significant trend across industries to outsource not only manufacturing but also service provision. Van Weele (2010) estimates that in many industries the proportion of value that stems from the supply chain is at least 50 per cent and in some industries, such as computers and automotive, even up to more than 80 per cent . As a high proportion of value adding thus stems from outside the company, that is, from the supply chain, purchasing and supply management becomes increasingly important. However, this does not imply that purchasing and supply managers simply need to put more pressure on suppliers, forcing these to reduce their prices through hard negotiation (a zero sum game). Instead, it is increasingly a matter of developing long-term relationships with the most important suppliers, especially those that represent the highest levels of value and risk (Kraljic, 1983; Gelderman and van Weele, 2005). These are typically supplier relationships where there is a high degree of mutual dependence and where trust and commitment to the long term has replaced short term opportunistic behaviour (Cousins, 2002; Walter et al, 2003). Much research in purchasing and supply management has therefore focused on developing concepts and models for understanding customer-supplier relationships; I have sought to contribute to this part of purchasing and supply management in particular.

2.5. Supply Relationships and Networks

The concept of partnership supplier or partnership-sourcing gained popularity, at least in Europe, in the late 1980s and 1990s (Macbeth and Ferguson, 1994; Carlisle and Parker 1989). However, as Lamming (1993) pointed out the term ‘partnership’ could be misleading as it might indicate a ‘cosy’ non-competitive relationship, whereas in reality there is a need to combine collaboration with competition, as observed in case studies of lean Japanese automakers (Womack et al, 1990; Lamming, 1993; Nishiguchi, 1994).

Long-term supplier relationships are generally regarded as a key ingredient in mature and well-developed purchasing functions (e.g. Reck and Long, 1988; Lamming, 1993) and thus one way for purchasing to impact positively on the overall strategic success of a company. However, as originally identified by Kraljic (1983), companies need a portfolio of different types of supplier relationships where, for example, some are short-term competition-based and others are long-term collaboration-based. In his critique of a simplistic either/or approach to supplier relationships, Cox (1997) called for the need for appropriateness, i.e. essentially a contingency approach, and to understand the role of power as an antidote to collaboration.

Research on supplier relationships has focused on how relationships can be better understood in terms of, for example, short-term and long-term exchanges, including adaptations and institutionalisation, and the embeddedness of dyadic relationships with complex networks i.e. through actor bonds, activity links and resource ties. This has been the focus of much of the

research by the Industrial Marketing & Purchasing (IMP) group (e.g. Håkansson, 1982; Håkansson and Snehota, 1995; Ford, 1980), and I have often relied extensively on concepts developed by IMP group research especially in depicting how dyadic supplier relationships are embedded in supply networks. However, although the IMP group tends to analyse buyer-supplier relationships from an interaction perspective, IMP research is often driven from a marketing perspective and therefore says little about purchasing. Furthermore, IMP research has until quite recently been reluctant to engage in managerial issues and attempts to construct managerial models, which inevitably simplify reality, have been frowned upon. This is perhaps particularly evident in Håkansson and Snehota (1995) where the fundamentals message is that companies cannot manage in networks, they can merely cope. In other words, because companies are embedded in complex networks they are so dependent on the actions of other companies within the network that they have little managerial freedom.

In contrast there has been research within purchasing, often based on operations management, which has been more managerial and sometimes normative. This includes research on, for example, purchasing portfolio models (Kraljic, 1983; Gelderman and van Weele, 2005), supplier assessment (Prahinski and Benton, 2004), supplier development (Sako, 2004; Modi and Mabert, 2007), and supplier relationship quality assessment models (Lamming et al, 1996; Johnsen et al, 2008; Fynes et al, 2004). Research in purchasing has also adopted a higher level of analysis to include supply chains and supply networks, sometimes borrowing concepts from the IMP group (e.g. Harland et al, 2004). Moreover, research has moved away from private sector manufacture into public sector and service industries (e.g. Caldwell et al, 2004; Axelsson and Wynstra, 2002; Valk et al, 2008). The development of my own research has reflected these trends, focusing on private sector manufacturing in the early stages of my research but increasingly moving towards a wider set of circumstances, including the healthcare and defence sector.

Companies engage in long-term relationships with a small group of suppliers not least because they seek to capitalise on the suppliers' specialised capabilities and technologies in developing new product and service offerings to their customers. As companies maintain fewer capabilities and technologies in-house they depend on complementary capabilities and technologies that exist externally, for example within their supply network. IMP network theory (Håkansson and Snehota, 1995) and, more recently, the concept of open innovation (Chesbrough, 2003) show the need for companies to develop innovations in collaboration with a myriad of external partners rather than the old logic of closed innovation focused on protecting and guarding innovation from competitors. There are many potential external partners with whom a company can collaborate, including customer, competitors, universities and research centres and suppliers. Within purchasing (and operations management) one stream of research has focused on one type of vertical relationship: suppliers. Early supplier involvement in NPD is a growing research theme that took shape in the 1980s (Johnsen, 2009) and more than anything else, my research has sought to contribute to this field of research that spans purchasing and NPD/innovation.

2.6. New product development and innovation: a purchasing perspective

Innovation can be defined as the "successful exploitation of new ideas" (UK DTI Innovation Unit, 1994). 'Exploitation' is important here, as it differentiates innovation from invention: "innovation is the process by which an invention is first transformed into a new commercial product, process, or service" (Saren, 1984, pp. 11-12). My research has focused mainly on product-related innovations (i.e. NPD) that represent varying degrees of change i.e. small gradual changes (incremental innovation) to more radical or even discontinuous changes.

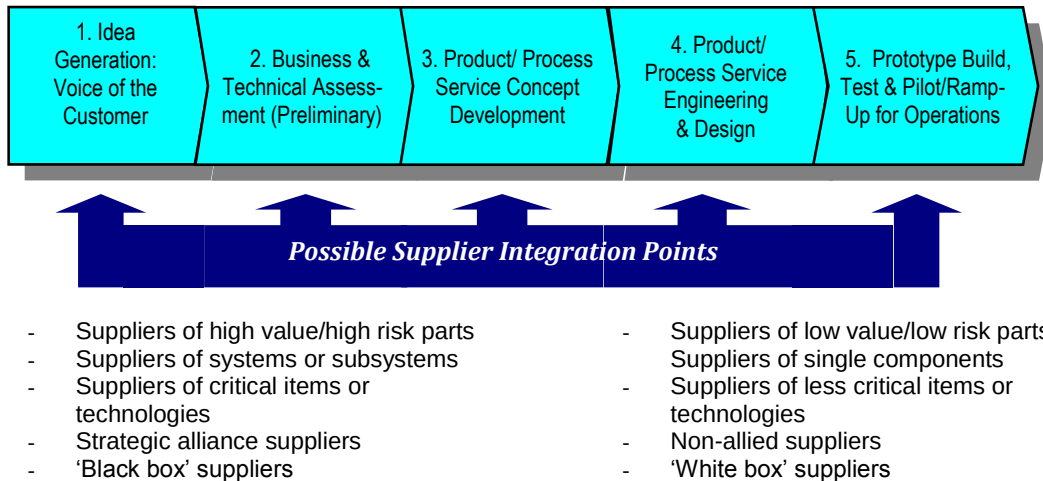
NPD projects are characterised by different stages and many stage models depicting varying number of stages have been proposed. I have often relied on a four-phase model developed by Wheelwright and Clark (1992):

1. *Concept development*
2. *Product planning*
3. *Product/process engineering*
4. *Pilot production/ramp-up*

Concept development involves generating ideas from market research, and exploring technical possibilities and product requirements. This phase feeds into product planning decisions on product architecture, conceptual design, desired performance, target market, and investments. Depending on the outcome of testing, the process moves on to product/process engineering, which entails detailed engineering, prototyping, and development of production tools and equipment. Once - or if - the product delivers the required performance, product specifications are released. This leads to pilot production, which involves low volume pre-series production, factory start-up and modification. Finally, the process undergoes 'ramp-up', gradually entering series production. Wheelwright and Clark's four-phase model simultaneously focuses on product and process development. Thus, it counters the problem of many earlier models (such as Booz *et al*, 1971), which largely ignored the need for process development. As companies face increasing pressures to reduce time to market (Stalk and Hout, 1990) the integration of process development into product development becomes vital to secure a viable market offering. Furthermore, the model assumes a 'funnel' approach during which unfeasible products are continuously filtered, and it is based on the assumption of overlapping between individual phases: concurrent engineering/development (Takeuchi and Nonaka, 1986). By taking into account the need for early process development within the NPD process as well as the need for overlapping – concurrent – stages, the model focuses on cross-functional collaboration and 'design for manufacture' (Dean and Susman, 1989; Whitney, 1988).

Much early research on NPD focused on internal processes, but as more and more companies outsource parts of their design and development work packages to suppliers, it is not surprising to find that research into how to manage supplier involvement in NPD and innovation has greatly expanded during the last 30 years (Johnsen, 2009). Several definitions of supplier involvement in NPD have been suggested; fundamentally it concerns the integration of the capabilities that suppliers can contribute to NPD projects (Dowlatsahi, 1998), the tasks they are able to carry out on behalf of the customer, and the responsibilities they assume for the development of a part, process or service (Van Echtelt *et al*, 2008, p. 182). Supplier involvement in NPD is important, therefore, because suppliers possess specialized product and process capabilities, which are critical as products are becoming increasingly complex. There is much evidence to suggest that involving suppliers extensively and early in NPD can improve NPD performance in terms of reduced costs and time to market and improved quality (e.g. Ragatz *et al*, 2002), and it has been used as a key factor in explaining the 'Japanese advantage' (e.g. Clark, 1989). An important part of supplier involvement in NPD concerns the timing of involvement: early supplier involvement (ESI) implies that the most important suppliers are involved as early in the NPD process as possible (Figure 2).

Figure 2. Product Development Stages and Supplier Involvement



Source: Johnsen, T.E. (2005) 'Supplier Involvement in Product Development: Challenges and Ways Forward', *DILF Orientering (Danish Purchasing & Logistics Forum)*, June, pp. 16-21. (Developed from Handfield, R. B., Ragatz, G. L., Petersen, K. J., Monczka, R. M. (1999) *Involving suppliers in new product development*, *California Management Review*, Vol. 42, No. 1, Fall, p. 62.)

My research has explored various themes within supplier involvement in NPD. I have investigated this issue across several industries and I have considered supply relationship and network problems through many of my research projects. This report provides an overview of these research projects and identifies how my research has contributed to the relevant theories that have briefly been outlined in this introduction.

2.7. The structure of the report

The report is divided into seven parts, two of which have already been covered, that is, the summary and introduction. Part 3 provides an overview of research projects I have worked on, including major projects funded by, for example, UK research councils, and less formal research themes I have pursued. Part 4 identifies my contributions to existing bodies of knowledge and positions my research in relation to existing theories. Part 5 introduces the research philosophy that I usually rely on and research methodologies that I adopt in my work. Part 6 outlines future research plans and Part 7 contains the conclusions of the report, summarising conceptual and managerial contributions, summarising the future research directions and makes a final note on my vision for the future of purchasing research in France.

The final parts list the bibliography (Part 8) and my research publications to date (Part 9), divided into journal publications, short journal contributions, articles in professional magazines and industrial reports, book chapters, and conference publications. My CV (in French) and a sample of six publications are appended at the end of the report.

3. REPORT ON MAJOR RESEARCH PROJECTS TO DATE

3.1. Introduction

This section provides an overview of research projects in which I have been involved to date. Some of these have been formalised research projects, for example, funded by UK research councils. Others have been less formal, unfunded and may represent a research theme I have pursued over a long period of time. The projects are reported in chronological order so the first project is Project ION (Inter-Organisational Networking) which commenced in 1996. My doctorate began the year after and as it was undertaken on a part-time basis it continued until around 2003. As the first major project I worked on, Project ION had a strong influence on the development of assumptions, perspectives and contributions of my work.

3.2. Project ION: Inter-Organisational Networking:

Main publications from Project ION:

- | |
|---|
| Harland, C.M., Zheng, J., Johnsen, T.E. and Lamming, R.C. (2004) 'A Conceptual Model for Researching the Creation and Operation of Supply Networks'. <i>British Journal of Management</i> , Vol. 15, Issue 1, pp. 1-21. |
| Harland, C.M., Lamming, R.C., Zheng, J. and Johnsen, T.E. (2002) 'A Taxonomy of Supply Networks'. <i>IEEE Engineering Management Review</i> , Vol. 30, No. 4, 4th Quarter, pp 79-85. |
| Harland, C.M., Zheng, J., Lamming, R.C., and Johnsen, T.E. (2001) 'A Taxonomy of Supply Networks'. <i>The Journal of Supply Chain Management</i> , Vol. 37, No. 4, Fall, Issue, pp. 21-27. |
| Johnsen, T. E., Wynstra, F, Zheng, J, Harland, C, and Lamming, R. C: (2000) 'Networking Activities in Supply Networks'. <i>Journal of Strategic Marketing</i> , Vol. 8, No. 2, pp. 161-181. |
| Lamming, R.C, Johnsen T.E., Zheng, J, and Harland C.M. (2000) 'An Initial Classification of Supply Networks'. <i>International Journal of Operations and Production Management</i> , Vol. 20, No. 6, pp. 675 - 691. |
| Harland, C.M., Johnsen, T.E., Zheng, J., Lamming, R.C. and Wynstra, F. (2005) 'Networking Activities in Supply Networks'. In Michael Essig (Ed.) <i>Perspektiven des Supply Management – Konzepte und Anwendungen</i> . Festschrift für Ulli Arnold. pp 151-83. Germany: Springer-Verlag. |

Background

Launched in September 1996, Project ION (Inter-Organisational Networking) was jointly undertaken by a collaboration of the universities of Bath, Cambridge and Brighton. Project ION was sponsored by the UK Engineering and Physical Sciences Research Council (EPSRC), and directed by four senior academics: Richard Lamming and Christine Harland from the Centre for Research in Purchasing & Supply (CRiSPS) at Bath, John Bessant from the Centre for Research in Innovation Management at the University of Brighton, and Nick Oliver from the Judge Institute of Management Studies at the University of Cambridge. The project employed an administrator and four Research Officers (RO): I was employed as one of the two ROs, based at CRiSPS, working under the direction of Prof. Richard Lamming and Dr Christine Harland.

The purpose of Project ION was to identify the determinants of successful interfirm collaboration in three key areas: supply, innovation and learning. Thus, three types of network - supply, innovation, and learning - formed the core of the research. The main questions addressed by the research were:

- What type of business network should be built in different situations?

- Why have inter-organisational networks developed in different ways in seemingly similar situations?
- Are there any common characteristics that make a 'good' business network?
- Are there practices that appear to be 'good networking' that can be transferred between businesses and between industries?
- How can the new information technologies be exploited in business-to-business networking to improve performance?

The findings from Project ION were disseminated in academic journals and conferences, including *Journal of Supply Chain Management*, *International Journal of Operations & Production Management*, *British Management Journal*, and *Journal of Strategic Marketing*. Conference papers were presented at IPSERA, IMP, BAM, EurOMA etc. In addition to academic publications, reports were produced to the EPSRC and the industrial collaborators, with a view to providing documented guidance for industry to enhance understanding of the commercial benefits of networking. The main industrial collaborator in the project was British Telecom, who joined Project ION to provide and gain knowledge of appropriate technologies which can assist in the management of inter-organisational networks. Moreover, a Club for Inter-Organisational Networking (CION) was formed to provide a forum for dissemination of research results as well as feedback from industry on the research.

Findings on Supply Networks

For practical reasons each university took the lead in each type of network so that Bath led the work on supply networks, Cambridge led the work on innovation networks and Brighton led the work on learning networks. Although I was involved in researching all types of network, my main responsibility concerned supply networks. Therefore, the next section will focus on the findings on this particular type of network.

The first step of the project involved a literature review of inter-organisational networks. This aimed to examine the main schools of thought on inter-organisational network theory, with particular reference to the networks of supply, innovation, and learning. Specifically, the literature review:

- Identified different definitions of networks
- Identified and reviewed conceptual issues in network theory
- Developed a preliminary framework for analysis of networks, including a classification of networks
- Defined networks related to supply, innovation, and learning, based on an assessment of the main schools of thought which underpin the three types of network
- Identified gaps in the current state of research within the main schools of thought on the networks of supply, innovation, and learning
- Identified and formulated characteristics of the networks of supply, innovation, and learning

Main results from literature review on supply networks

The examination of five schools of thought related to the notion of 'supply networks' revealed a wide spectrum of origins, particularly, marketing, purchasing, and operations management. Some of these concepts have a clear strategic focus and thereby cross-functional relevance. There is no one theory *per se*, however, which incorporates a unified view of supply networks.

The literature review identified a number of characteristics or variables (Zheng et al, 1997). Project ION classified these according to: environment, strategy, structure, process, network evolution, and product/ service dimensions. We found that little existing research, had examined

these in detail. The majority of research on supply networks examined the structural and strategic issue of vertical integration, but on a general level, non-specific to particular circumstances. There were few empirical comparisons of supply networks across industries (although e.g. Womack, Jones and Roos, 1990, among others, have made comparisons within the automotive industry). The lack of research into contextual factors meant that companies were left with little guidance on the appropriateness of the concepts and ideas developed in the literature in different contexts. Generally, little guidance on how to develop and manage supply networks had been provided to companies. The work on lean supply (Lamming, 1992) provided some guidance in terms of best practice examples and concepts, although this was largely focused on the automotive industry, which has its own unique features. Therefore, it was viewed as an important contribution to the field to develop classifications and taxonomies of network creation, operation, evaluation and re-creation in different circumstances.

Empirical findings

Following the literature review, Project ION embarked on empirical data collection. The total data collection on supply networks comprised an exploratory survey, in-depth case studies, and a final validating survey. These three pieces of research progressively examined issues related to network creation, operation, evaluation, and re-creation.

The first survey explored a set of features of supply networks thus generating broad knowledge and understanding of the nature of these across a variety of sectors and how to best research and analyse factors of supply network creation, operation, evaluation, and re-creation. The survey indicated that supply networks differed substantially according to a variety of complex environmental, strategic, structural, processual, and developmental characteristics. Thus an initial classification of supply networks based on the product/service package delivered by the network to key end customers, was constructed (Johnsen et al, 1998; Lamming et al, 2000). This classification identified two dimensions: degree of product uniqueness-innovativeness, and degree of product complexity, which both seemed to have important implications for the management of networks at different stages of development.

Methodologically, it emerged that a particular product/service package was a useful way of capturing individual (product) supply networks, as it enabled the drawing of a network boundary and the isolation of the individual product supply network from the overall company supply network (Zheng et al, 1999). However, the problem of network boundary and the inherent complexity of networks suggested that it would be difficult to measure the performance of supply networks as a whole in any reliable manner.

The empirical findings and the methodological lessons from the exploratory survey fed into the design of eight in-depth case studies of supply networks. The conceptual framework was published in the *British Journal of Management* (Harland et al, 2004). The research thus focused on supply networks positioned in a wide range of industries in both the UK and continental Europe, each case focusing on a focal company and key upstream and downstream actors involved in the supply of a specific product or product family. Semi-structured interviews were conducted with key actors in each supply network, examining a set of networking activities related to network creation and operation, which formed the conceptual basis of the research, and important contextual factors likely to influence the performance of these. In each case app. 10 interviews were conducted, resulting in a total of eight supply network and about 80 interviews.

The analysis of networking activities unveiled different patterns in different circumstances and a series of network effects (Johnsen et al, 1999). Despite the apparent problems of measuring network performance it was attempted to measure process and output performance which both proved to be useful for establishing the effectiveness of networking within supply networks and

areas of potential improvement. Subsequent analysis of the possible relationships between network characteristics and patterns of networking revealed that the nature of process volume and variety, and the maturity and dynamics of markets, appeared to affect information processing, frequently evident as demand management problems. It also seemed that some focal firms were in a much better position to manage their supply networks than others; factors influencing this started to emerge. Finally, it was evident that confidentiality concerns often restricted the extent of strategic communication in networks as a result of innovative and unique focal firm products and technologies, thus inhibiting the effective performance of a range of networking activities. An initial taxonomy began to evolve.

Having gained an in-depth understanding of the factors influencing the successful creation, operation, evaluation, and re-creation of supply networks in different circumstances, a second, structured, telephone survey was conducted to externally validate the findings and the evolving taxonomy of supply networks. Cluster analysis provided indications of possible links between network characteristics and networking activities. Subsequent cross-tabulation of a small set of factors confirmed and refined the two critical dimensions affecting patterns of networking in supply networks: 1) dynamic versus routinised supply networks, and 2) high degree of focal company influence versus low degree of focal companies influence supply networks (Harland et al, 2001).

Project ION Contributions: A Taxonomy of Supply Networks

A taxonomy of supply networks emerged from more than three years of intensive research (Harland et al, 2001). It was based on both theory related to supply and networks and substantial empirical data. Before arriving at this taxonomy our research considered many different alternative options; there is no one right way of classifying supply networks. The taxonomy presented was based on two dimensions which proved to be particularly important for managers who are faced with the task of trying to create, operate, and re-create their supply networks i.e. manage them at different stages of development. These dimensions were: degree of *dynamics*, and degree of *focal firm supply network influence*.

Four Types of Supply Network

Each of the four types of supply network identified in the taxonomy, has different external and internal characteristics which makes the task of managing within them distinctly different from other types. This means that the networking activities identified in this research should be applied differently in different types of supply network, as are the problems and ways of overcoming problems. The challenge for managers is to correctly identify which type of supply network they belong to and to apply networking activities in an appropriate manner according to the circumstances.

The first dimension – degree of *dynamics* – is a measure of the conditions under which the network operates, both internal and external conditions. Two types of supply network are distinguished along this dimension i.e. dynamic and routinised supply networks. The dynamics factor describes the internal operations process dynamics and the external market dynamics, which both determine the difficulty of the process of supply. The second factor – degree of *focal firm supply network influence* – is a measure of the focal firm's ability to manage the network.

The first dimension of the taxonomy i.e. degree of dynamics has been derived from both the in-depth case studies and the larger scale second survey (and theory). The second dimension has been derived largely from the case studies (and theory) as the underlying issues of this dimension are difficult to examine by using large scale structured methodologies. Table 1 provides more detail and illustration of the specific measures and the literature underpinning the dimensions of

the four types of supply network, and Figure 3 provides some examples of typical companies whose supply network would fit into each of the four types.

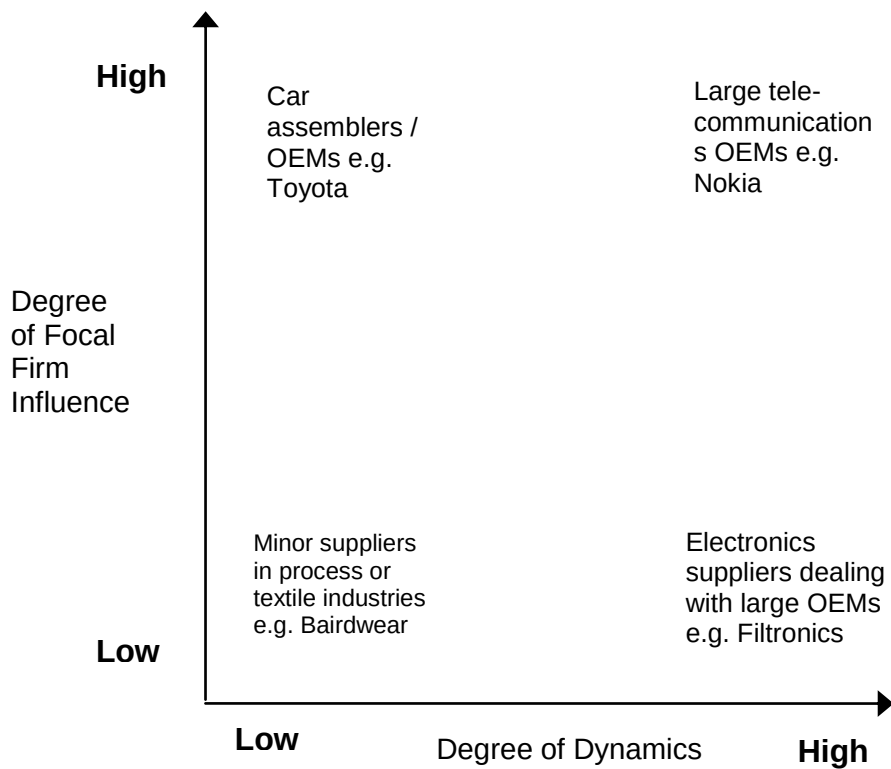
Table 1. Measures & Underpinning Literature

	Supply Network Influence	Dynamic
Measures ³	- Direct and indirect value functions of network relationships: - Direct: - profit (product margin) - sales volume - Indirect: - technological innovation (e.g. patents) - knowledge (e.g. market knowledge) - market access (references to potential customers) - Power: - dependency i.e. percentage of business with one relationship - resource scarcity/asset criticality – uniqueness Examples of high level of influence: Nokia, Dyson, Land Rover	- high process variety → dynamic - basic variety - configurations - promotional activity - low volume → dynamic - uncertain market/demand conditions → dynamic - No. of competitors supplying similar products/easy of customer switching - frequency of product launches in the market - industry maturity → new emergent industries more dynamic: have not had time e.g. to develop advanced supply chain management Examples of high dynamic: Nokia, Dyson, HP
Literature	- Walter <i>et al</i>, 1999: Concept of direct and indirect value functions of relationships (incl. measures). See also Anderson <i>et al</i>, 1994; Gemünden <i>et al</i>, 1992; Håkansson and Johanson, 1993. - Cox (1996, 1999): Power - Lamming <i>et al</i> (2000): uniqueness	- Achrol and Stern: environmental dynamism - Fisher (1997): effect of functional versus innovative products on supply chain focus - Snow <i>et al</i> (1992): stable networks and dynamic networks

Harland, C.M., Zheng, J., Lamming, R.C., Johnsen, T.E. (2001) 'A Taxonomy of Supply Networks'. *The Journal of Supply Chain Management*, Vol. 37, No. 4, Fall, Issue, pp. 21-27.

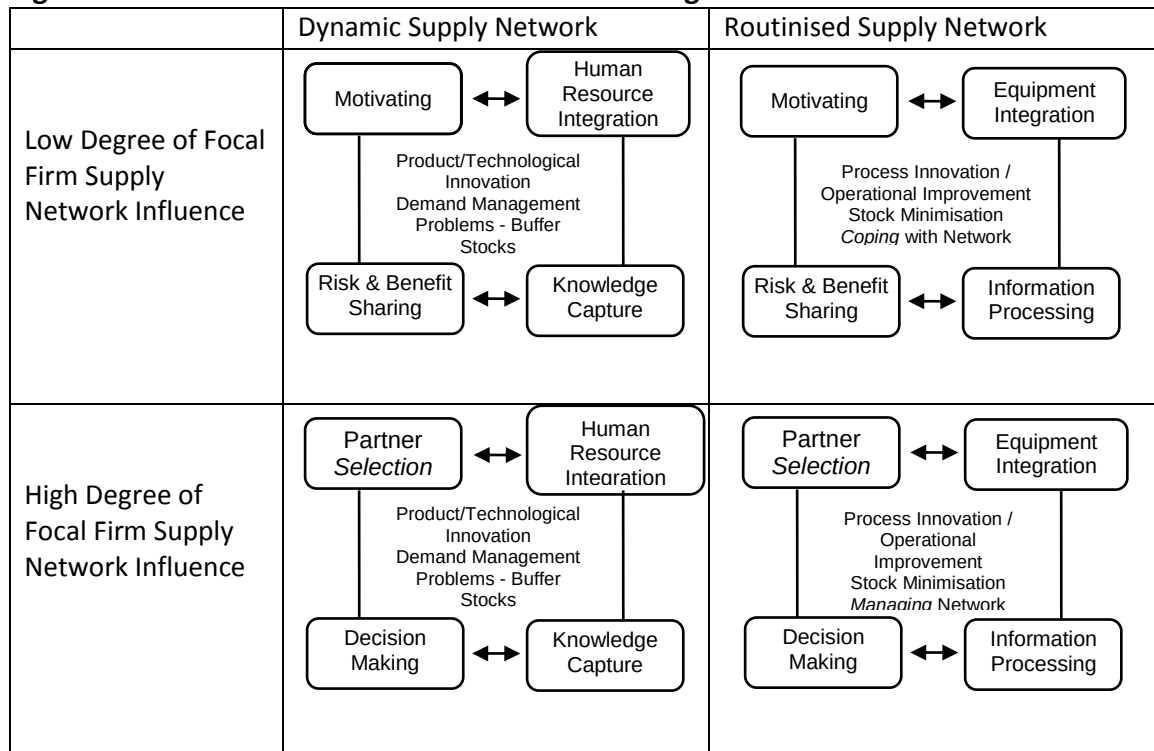
³ Measures constructed after case studies and 2nd survey as outcomes of data collection i.e. *post hoc*

Figure 3. Typical Examples of Supply Network Types



Harland, C.M., Zheng, J., Lamming, R.C., Johnsen, T.E. (2001) 'A Taxonomy of Supply Networks'. *The Journal of Supply Chain Management*, Vol. 37, No. 4, Fall, Issue, pp. 21-27.

As the four types of supply network present different management challenges to companies, the pattern of networking activities is different according to the different circumstances. Figure 4 illustrates typical management themes within the four types and the clusters of networking activities that this research has uncovered are typically applied to deal with these themes.

Figure 4. Network Themes & Distinctive Networking Activities

Harland, C.M., Zheng, J., Lamming, R.C., Johnsen, T.E. (2001) 'A Taxonomy of Supply Networks'. *The Journal of Supply Chain Management*, Vol. 37, No. 4, Fall, Issue, pp. 21-27.

Project ION therefore contributed to inter-organisational network, in particular, supply network theory. Existing research on networks, as conducted for example by the IMP group (Håkansson et al, 1982) was largely descriptive and conceptual, having provided useful language to studying networks, but provided little managerial guidance as to how to create and operate networks. This was the gap that ION sought to bridge. The frameworks that resulted from the project, most notably the initial classification of supply networks (Lamming et al, 2000), the taxonomy (Harland et al, 2001) and the conceptual framework (Harland et al, 2004) were key deliverables from the project. The papers that were published have also achieved excellent citation impacts e.g. Lamming et al (2000) has been cited 204 times (5 November 2010), and Harland et al (2001) has achieved 117 citations (5 November 2010).

3.3. PhD Thesis: Collaborative Innovation in Networks:

Main PhD Publications:

Johnsen, T.E. and Ford, D. (2007) 'Customer Approaches to Product Development with Suppliers'. *Industrial Marketing Management*, Vol. 36, pp. 300-308.

Johnsen, T.E. and Ford, D. (2005) 'At the Receiving End of Customer Supply Network Intervention'. *Journal of Purchasing and Supply Management*, Vol. 11, No. 4, pp. 183-192.

My PhD thesis was initiated shortly after the beginning of the ION project and continued until after the end of the ION project. It built on early lessons from ION regarding buyer-supplier relationships and networking, but was distinctive in two respects: 1) the project was supervised by Professor Ford, one of the founders of the Industrial marketing & Purchasing (IMP) group, so the project adopted an IMP interaction perspective (e.g. Håkansson, 1982); 2) the project focused on

new product development and innovation within a buyer-supplier and network context. The objectives of the thesis were to:

1. Identify a set of activities that companies apply during technological innovation (focus on product innovation or NPD) to draw upon individual dyadic relationships and gain access to resources and technologies available in the wider network
2. Examine how companies draw on networks when managing the identified set of activities
3. Examine the extent to which networks pose a constraint on the management of the identified set of activities

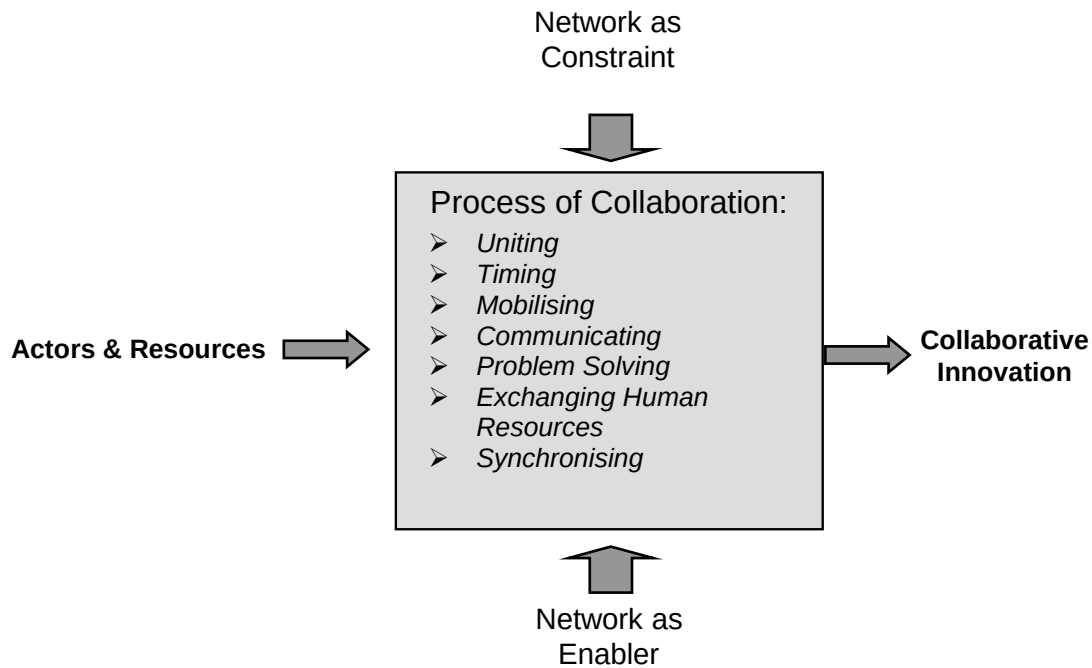
Theoretical background

Research on the management of collaborative innovation has largely concentrated on analysing relationships between two companies, for example research into early supplier involvement in NPD (Wynstra, 1999). There has been a paucity of research on how innovating companies deploy the resources and technologies available within their wider industrial networks whilst at the same time coping with the problem of loss of control of knowledge through the very same networks. This dilemma was the topic of my PhD thesis.

The thesis built on research into early supplier involvement in product development (e.g. Wynstra, 1999) and IMP network theory (e.g. Håkansson, 1982). As the early supplier involvement literature largely focuses on dyadic supplier relationships, network theory was used to examine how companies can access indirect suppliers in the wider network and the consequences of this. The thesis therefore sought to contribute to research on strategies that companies can employ to access indirect suppliers that reside in their wider supply network, for example in terms of how they delegate NPD responsibilities and in which ways they seek to intervene in NPD decisions within supply networks. This is important both because the performance of direct suppliers depends on lower tier suppliers and because sources of innovation often stem from distant relationships within the wider network (Håkansson, 1987; Birkinshaw *et al.*, 2007).

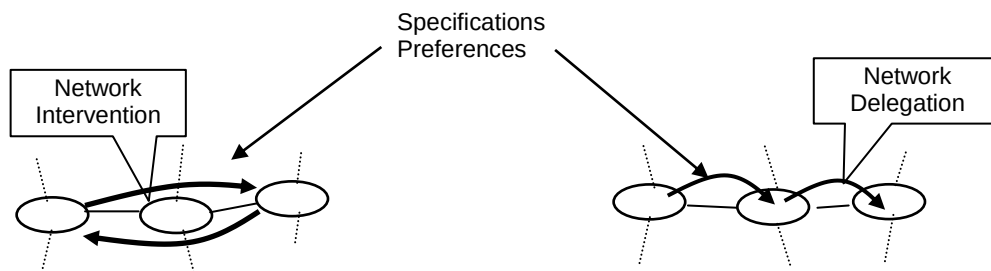
A conceptual framework was developed, structured around a set of activities that companies apply during product innovation (Figure 5). These activities were: uniting, mobilising, synchronising, communicating, problem solving, exchanging human resources and timing. The conceptual framework provided an analytical structure for examining the positive, enabling, effects of networks on the management of collaboration activities, and the negative, constraining, effects.

Figure 5. PhD Thesis Conceptual Framework



Two ‘network strategies’ were conceptualised based on earlier work by Lamming (1996) and research findings from Project ION (Lamming et al, 2000): network delegation and intervention. These represented different ways in which network effects may manifest themselves during product development projects.

Figure 6. Conceptualisation of Delegation and Intervention Strategies



Johnsen, T.E. and Ford, D. (2007) ‘Customer Approaches to Product Development with Suppliers’. *Industrial Marketing Management*, Vol. 36, pp. 300-308.

The empirical data collection comprised an exploratory mini-survey involving five interviews with companies in the automotive and pharmaceutical sectors, and four in-depth case studies involving 46 interviews with a range of companies in the automotive and telecommunications sectors. Each case included interviews across supply networks, extending to interviews with sub-tier suppliers and end customers.

Findings and Contributions

Overall, the study contributed to the debate on the different forms of network effect on innovation management processes, in particular in relation to supplier involvement in NPD. The study further explored how companies can cope with and exploit paradoxical network effects that result from some manufacturers seeking to use the network as an enabler of their activities through supply network intervention and suppliers finding themselves on the receiving end of customer intervention (Johnsen and Ford, 2005). The findings showed that more than any other activities, uniting and communicating appeared to be affected by the surrounding network in which they take place, both enabling and constraining the management of these two activities. In addition to the Johnsen and Ford (2005) paper that focused on one automotive case study, further publications from the PhD included Johnsen and Ford (2007) reporting the circumstances in which customers are most likely to use intervention and/or delegation during NPD projects involving suppliers based on four cases, and Johnsen (2011, forthcoming) building on 3 cases of supply network involvement in NPD and further conceptualising the concepts of supply network intervention and delegation and the multi-actor implications of these two strategies.

3.4. Project ISN: Innovation in (Healthcare) Supply Networks:

Main ISN Publications:

- Phillips, W., Johnsen, T.E., Caldwell, N. and Chaudhuri, J. (2010) The Difficulties of Supplying New Technologies into the Healthcare Market: The Case of Tissue Engineering, *Technology Analysis et Strategic Management*, forthcoming.
- Johnsen, T.E. Phillips, W., Caldwell, N. and Lewis, M. (2006) 'Centrality of Customer and Supplier Interaction in Innovation'. *Journal of Business Research*, Vol. 59, Issue 6, pp. 671-678.
- Phillips, W., Johnsen, T.E., Caldwell, N. and Lewis, M. (2006) 'Investigating Innovation in Complex Healthcare Supply Networks: An Initial Conceptual Framework'. *Health Services Management Research*, Vol. 19, Issue 3, pp. 1-11.
- Phillips, W., Caldwell, N.D. and Johnsen, T.E. (2006) Early public procurement involvement in emerging technologies? The case of tissue engineering. In K. Thai and G. Piga (Eds.) *Advancing Public Procurement: Practices, Innovation and Knowledge-Sharing*. Raton, USA, Praacademics Press: 452-470.
- Caldwell, N., Phillips, W., Johnsen, T.E., Lewis, M. (2006) 'Procurement Ethics and Telecare Innovation in UK healthcare'. In Yhati, K. and Stefano, G. (Eds) *Advancing Public Procurement: Practices, Innovation and Knowledge-Sharing*. Boca Raton, FL, USA: Praacademics Press.

The IMRC-funded Project ISN, on which I was Project Manager, was undertaken as a CRiSPS project in collaboration with Bath Institute of Medical Engineering (BIME) and Department of Chemical Engineering, University of Bath. The project was funded by the Innovative Manufacturing Research Centre (IMRC) of the UK Engineering and Physical Sciences Research Council (EPSRC). Furthermore, Smith & Nephew and NHS Purchasing & Supply Agency (PaSA) were formal collaborators on the project, sponsoring the project in kind. Their participation in the project provided a vehicle for knowledge transfer to private and public sector, especially considering PaSA's role in NHS policy making. Project ISN employed two Research Officers and a Project Administrator. Prof. Christine Harland and Prof. Michael Lewis were Principal Investigators. Project ISN reviewed existing research into the problems of leading and managing innovation in complex supply networks in the health care industry. Informed by evidence from the fields of tissue engineering and assistive technology, Project ISN sought to identify the principal enablers and constraints affecting innovation in complex supply networks, and how these could be managed to improve innovation outcomes.

The specific objectives of the project were:

- To collate relevant published research and existing data, and map findings against the objectives of the Purchasing and Supply Bath IMRC theme
- To evaluate existing knowledge of innovation processes, and of factors which enable or constrain the management of innovation in supply networks within healthcare
- To investigate the management of innovation in two empirical fields: tissue engineering and assistive technology for sufferers of dementia
- To develop a framework for involving different types of supply network partners in technology and product innovation within healthcare
- To present the evaluation and its implications in the form of a report, and a paper suitable for publication in a double-refereed journal
- To consider the implications of the project findings for future research and practice

Methods

Project ISN first set out to conduct a literature review of innovation in supply networks with a particular focus on the healthcare sector. Building on the literature review findings, the research team then carried out an exploratory survey across different sections of the healthcare industry. The survey explored the role and significance of different supply network actors in developing and exploiting a range of healthcare innovations. The exploratory work resulted in conceptual developments and frameworks that were then further investigated in a set of in-depth case studies, focusing on tissue engineering and assistive technologies. The case studies explored how interaction between healthcare suppliers and a range of stakeholders involved in the development of new innovative technologies (such as suppliers, customer, NHS, and regulators) might impact – positively or negatively – on innovation success.

Conceptual Framework

Tidd & Trehwella, (1997) among others, have put forward models which propose that in terms of external sources of technology (innovation) certain key sectors could be mapped against certain types of external sources. For example the energy and electronics sectors would source technology from suppliers and customers, and contract researchers. Whilst in the drugs and biotechnology sectors, these would be unimportant sources of technology compared to alliances and universities. Such models clearly speak to one of the central concerns of this project; the likely sources of technical innovations in healthcare.

However, in order to explore one *specific* sector, rather than make comparisons between sectors, Pavitt's taxonomy of sectoral patterns of innovation (Pavitt, 1984), was selected. This taxonomy recognises that different types of firm may obtain technologies by different means and from different sources. Acknowledging that the role of science and learning differs between sectors, Pavitt has identified four sectors comprised of the following types of firm:

1. Supplier-dominated firms
2. Scale-intensive firms
3. Science-based firms
4. Specialised equipment suppliers

A firm may fit in two or, in some cases, three of these different categories. The taxonomy demonstrates that with respect to a particular technology firms interact with firms of another type or category rather than with firms of the same industry. Supplier-dominated firms acquire the majority of their technology from production-intensive and science-based firms, and there is a link between science-based and scale-intensive firms as well as a bilateral transfer of technology between both scale-intensive and science-based firms and specialised equipment suppliers.

Thus, the central research question driving the survey was whether industry and company differences, in terms of their innovation life cycle position, are a key factor in determining the degree and type of customer-supplier interaction. The exploratory survey focused on 12 UK-based healthcare organizations. The research team conducted in total 22 semi-structured interviews to explore the research questions generated in a comprehensive literature review. Companies were approached using personal contacts, contacts from our research collaborators and colleagues from the Engineering Department of Bath University and also from one of our industrial sponsors, PASA.

Findings and contributions

The ISN exploratory survey investigated whether customers and suppliers are always the important actors with whom to interact during the innovation process. The findings generally supported the proposition: the majority of respondents representing the first two stages of innovation did not regard suppliers as important actors in the innovation process, although they usually described customers as critical. Once innovations entered the mature and specific stage respondents saw suppliers as playing an important role in bringing innovations to market successfully. Table 2 provides an overview of the implications.

Table 2. Relationships across Three Phases of Industrial Innovation

	Fluid - Emerging Phase: TE1, TE2, TE3, T2	Transitional - Growth Phase: T1, T3, C1	Specific - Mature Phase: AT1, AT2, AT3, M1, M2
Supplier Relationships	Early exploration of viable supply chain models, but supplier relationships still to be developed.	Generally weak supplier relationships – suppliers generally perceived as unrelated to industry and not seen to form an integral part of the innovation process.	Supplier relationships seen as important factor not least for cost reduction. One company emphasized quality in terms of traceability of ingredients.
Customer/User Relationships	Strong and defined user relationships e.g. surgeons, clinicians, and user groups.	Strong and defined relationships e.g. with surgeons and clinicians: product champions seen as critical.	Established customer (and distributor) relationships with hospital trusts, charities etc.
Regulatory Relationships	Perceived as critical for regulatory framework and policy development, albeit overly stringent and slow.	Perceived as very important: lobbying and PR activity seen as critical.	Regulation perceived as well-established: limited interaction with regulators.
Research/University Relationships	Considered critical. Many projects undertaken in partnerships with universities and research centers.	Only one company had extensive links with universities and research centers.	Generally seen as less significant, although one company had linked up with research centre to employ its ergonomics design capability.

Johnsen, T.E. Phillips, W., Caldwell, N. and Lewis, M. (2006) 'Centrality of Customer and Supplier Interaction in Innovation'. *Journal of Business Research*, Vol. 59, Issue 6, pp. 671-678.

One conceptual implication from our research therefore related to the role of different forms of horizontal and vertical business relationships during different stages of innovation. We argued that current models of supplier involvement in (product) innovation (e.g. Håkansson and Eriksson, 1993; Wynstra and ten Pierick, 1999; Handfield *et al*, 1999; LaBahn and Krapfel, 2000; Takeichi, 2001), lack an appreciation of the context in terms of the degree of industrial maturity, and we argued that managers need to better understand the positioning of new technological developments on the innovation life cycle. Specifically, the survey explored the proposition that for emergent and fluid technological innovations supplier involvement may not be so important, because the actors have not yet reached the problem of specific product/service application. Our

findings supported this proposition and further indicated that suppliers may not even be critical during the transitional phase.

Another conceptual implication involved re-defining what we understand by 'suppliers'. The traditional view of 'suppliers' is that these are the companies that provide tangible components and materials (along with a range of services of course). The findings indicated that increasingly the suppliers that matter are those 'supplying' intangible knowledge and ideas in the quest for innovative new product and process technologies. In that sense we may be moving away from the perhaps simplistic idea of vertical and horizontal relationships, as some of the most relevant supplier relationships become increasingly 'horizontal'.

The main managerial implication from the exploratory survey was that innovating companies need to assess the form of innovation in which they engage, particularly in relation to the phase of development. Customer and/or user relationships are clearly critical throughout the innovation process, albeit in different guises. Based on a large body of existing research and our empirical survey, we would still recommend that companies consider options for supplier involvement and, more generally, supply models as early in the transitional phase as possible. However, supplier relationships are unlikely to become relevant until innovations enter the specific phase during which product/service applications become the major business priority.

Project ISN pursued these themes in a small set of in-depth case studies, for example in assistive technologies and tissue engineering. These represented differences industrial innovation phases and provided more in-depth findings. For example, our in-depth case study of the tissue engineering industry identified various challenges posed by such innovative health technologies especially regarding the need to create a new supply networks and the role of regulation. The tissue engineering case study found in line with many other studies that the regulatory environment in fact contributed towards the shaping of innovative products/services (Phillips, Johnsen, Caldwell, and Chaudhuri, 2010). We further explored the influence of reimbursement, posing the question: "Does reimbursement influence the adoption and use of new technologies?" The results showed starkly contrasting initiatives for the operationalization of tissue-engineered products within Europe and the US, resulting in major differences in their adoption and use. Drawing on the findings, we concluded by calling for public procurement involvement earlier on in a technology's life cycle and closer engagement with relevant stakeholders (Phillips, Caldwell and Johnsen, 2006).

The research team disseminated the findings from the project through a range of conference presentations, seminars, workshops, book chapters, and journal articles, for example in *Journal of Business Research*, *Technology Analysis & Strategic Management*, *Health Services Management Research*, and presentations at IPSERA, EurOMA, IPDM and IPPC conferences.

3.5. Defence Industrial Supply Strategy (DISS):

Main Publications from DISS project:

Johnsen, T.E., Howard, M., and Miemczyk, J. (2009) 'Changing UK Defence Environment and its Impact on Supply Chains and Relationships'. *Supply Chain Management: an International Journal*, Vol. 14, Issue 4, pp. 270-279.

Howard, M., Miemczyk, J. and Johnsen, T. (2007) 'Exploring Supply Strategy and Through-Life Management in the UK Defence Industry'. *Supply Chain Practice*, Vol. 9, No. 2, pp. 34-53.

Howard, M., Johnsen, T. and Miemczyk, J. (2006) Defence Industrial Supply Strategy: Exploring In-Service Support for the UK Armed Forces, UK Ministry of Defence report, September, pp. 1-97.

The Defence Industrial Supply Strategy (DISS) project was undertaken with colleagues at University of Bath: Mickey Howard and Joe Miemczyk. The DISS project investigated the development of a Defence Industrial Supply Strategy and was funded by BAE Systems and MoD, designed to impact on supply strategy practice in the defence sector. DISS was thus originally a consultancy project so focused particularly on developing recommendations for the defence industry. However, despite the normative agenda that characterised the project, it was managed as a research project and delivered valuable research findings.

The DISS project was undertaken in the context of emerging procurement and supply management practice in the UK Armed Forces. It investigated the implications for the UK defence industry of In-Service Support and Through-Life Capability raised by the Defence Industrial Strategy white paper in 2005. It engaged with senior management from both MOD and industry in the pursuit of constructing an emergent model based on the findings from current UK procurement and supply practices. There were three issues addressed by the study: How will the relationship between defence suppliers and the MOD be affected by the demand for in-service support and through-life capability? What model of purchasing and supply best fits the 21st century military supply chain? What are the long-term implications for the UK defence industry? The research objectives were to:

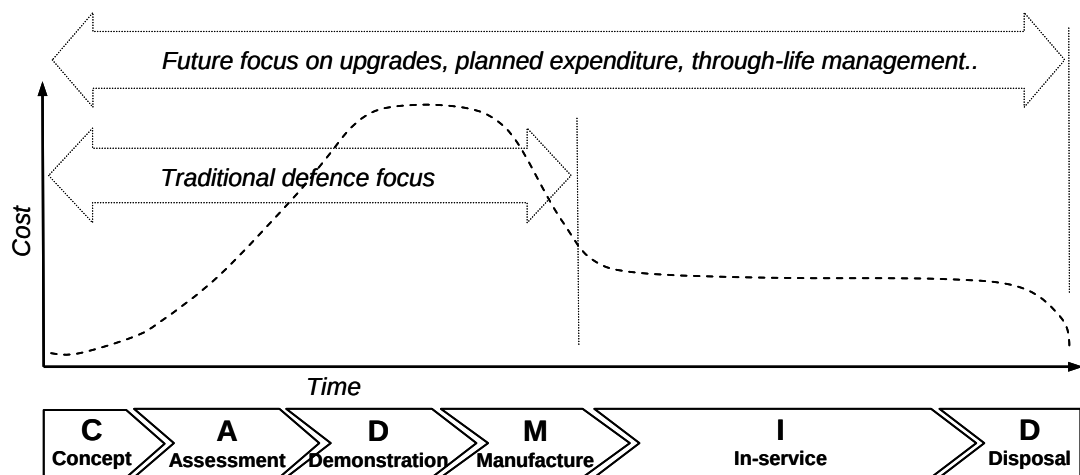
- Define in-service support and TLCM in the context of current procurement and supply practices across UK Armed Forces policy and practice.
- Review supply chain literature that is relevant to the UK defence industry, including tools and approaches such as Lean, Agile and relationship portfolios.
- Investigate the implications of in-service support and TLCM through a set of semi-structured interviews with senior managers both public and private defence industry organizations (e.g. DPA, DLO, QinetiQ, contractors).
- Construct an emergent model based on the findings from current practice which supports the concept of the 21st century military supply network.
- Make recommendations for change in terms of policy and practice to the UK defence industry.

Methods

The project focused on one large case study of the UK defence industry and built on primary (i.e. interviews) and secondary (i.e. archival) data. It included interviews with personnel in the UK armed forces as well as private defence contractors and MOD organizations. In total we carried out 27 semi-structured interviews in addition to five scoping interviews. It aimed to represent a balanced and objective view of defence industry strategy in terms of the current situation and how this can be improved. A protocol of questions were prepared for the interviews, based on the literature as a means of structuring as well as stimulating discussion around the subject of in-service support and Defence Industry Supply Strategy.

Findings and Contributions

The findings suggested that the current UK military model did not explicitly account for the changing needs of defence procurement over the total lifecycle of products and services. While lean supply had been adopted for the purposes of cost reduction, little connection was made with the concepts of agile manufacturing or supply chain partnerships. Where firms were considering a greater role in In-Service Support, specific capabilities must be developed in lifecycle costing and the ability to adapt to changing demands. Figure 7 (Johnsen et al, 2009) illustrates the principle of through life management, indicating that supplier involvement are no longer restricted to the front end of the cycle but extends into a longer cycle that includes in-service support and disposal.

Figure 7: Typical cost profile during the CADMID cycle (Adapted: MOD 2005)

Johnsen, T.E., Howard, M., Miemczyk, J. (2009) 'Changing UK Defence Environment and its Impact on Supply Chains and Relationships'. *Supply Chain Management: an International Journal*, Vol. 14, Issue 4, pp. 270-279.

The study contributed a definition of through life management (TLM) as:

'The management of products and their associated services, primarily in the business to business market, from the specification, design, manufacture, use, including service, repair, re-use and ultimate disposal in order to reduce cost, enhance revenue or otherwise maintain and improve performance of the interacting organisations.'

This was further linked to supply strategy, as shown in Table 3

Table 3. Through Life Management and Implications for Supply Strategy

TLM core theme	Implications for Supply strategy
1. Designing for 'X'	• Earlier involvement of suppliers • Technology search or scanning by suppliers • Designing 'solutions'
2. Supply network management	• Greater industry scope, outsourcing and tiering • Operational activities such as lean or agile inventory policy • Dynamic network structures
3. Changing product characteristics	• Dynamic innovation requires active and early involvement of buyers and suppliers • Negative impact on 2nd tiers (as consolidated through 1st tiers)
4. Coping with uncertainty & risk	• Greater responsibility = more exposure and risk • Impact of changing power and dependence in relationships difficult to predict • Predicting product and supplier behaviour through contracts difficult – need for partnership relationships (risk and reward sharing needed) • More knowledge sharing required over the short and long term (Who holds the product information/knowledge in future)?
5. Cost management	• Greater financial risk and reward sharing required • Need for greater cost transparency, but questions over open book accounting • Need to integrate information systems better over product life and through supply chains, especially in total cost of ownership analyses

Miemczyk, J., Howard, M., and Johnsen, T. (2010) Through-Life Management: Exploring Product-Service Supply Dynamics In The Defence Industry, *in review*

The project therefore resulted in concepts related to through-life management (TLM), and it explored how this might affect supplier involvement within a case study of the UK defence industry. Linking TLM with other purchasing lifecycle concepts such as total cost of ownership (TCO) and lifecycle analysis (LCA), the project also provided a useful basis for studying sustainable procurement and supply chain management, which is discussed later.

3.6. Global Supply Chain Development (JIBS):

Main Publications from GSCD Project:

- Hultman J., Johnsen R., and Johnsen T, Hertz S.: An Interaction Approach to Global Sourcing: A Case Study of Ikea. Re-submitted to *Journal of Purchasing & Supply Management* 2 December 2010 (1st revision).
- Naldi, L., Hertz, S., Hultman, J., Johnsen, R., and Johnsen, T. (2010) The Effects of Internationalization on Supplier Integration in SMEs. In *Proceedings of the 22nd NOFOMA Conference*, 10-11 June, Kolding, Denmark.
- Hultman, J, Hertz, S., Johnsen, R. and Johnsen, T. (2009) 'Global Supply Chain Development – a Case Study on Supply Chain Internationalization'. In *Proceedings of the 25th IMP Conference*, Marseille, France, September.
- Johnsen, T.E., Johnsen, R.E. and Hertz, S., (2007) 'Supply Chain Internationalisation: Towards a Conceptual Framework'. In *Proceedings of 16th IPSERA Conference, Bath, UK, April 1-4*.

The development of international supply chains has become a critical success factor for Scandinavian and European companies, and should be seen as important in gaining entry into emerging international markets such as East Asia. However, many companies have experienced problems in shifting their supply chain abroad into low cost regions, and supply chains often end up as disconnected and disintegrated as a result.

Funded by Vinnova, the Global Supply Chain Development project was a three-year project (2006-2009), which I took part in as Visiting Professor at JIBS. The project examined the challenges that companies face when seeking to integrate their international supply chains and international market developments. Specifically, the project aimed to:

- Identify how integration with existing supply chains may be used for developing new international supply chains.
- Examine how the integration of existing supply chains is influenced by the development of new international supply chains over time.
- Investigate how development of new and existing supply chains differs depending on the nature of outsourcing and internationalization.

Research methodology

The project was conducted through a three-stage methodology:

- 1) Two exploratory case studies investigating the supply chain development of Swedish multinational companies.
- 2) Three to four in-depth case studies investigating the supply chain development of medium-sized Swedish companies. Each case involved approx. 10 interviews and focused on one supply chain selected jointly by the research team and the focal company involved.
- 3) A large scale survey to test the case study findings on a larger scale.

The case studies focused on Swedish companies that have long-term collaboration with JIBS, including Ikea, Husquarna, Schenker Logistics, Itab and Sapa. I took part mostly in the Ikea case study which included Sapa as one of the main actors. The research team conducted a large number of interviews across several supply chain tiers, for example in the Ikea case more than 30

interviews were done in Sweden and China (to 3rd tier suppliers). I personally participated in some interviews in Sweden but not in China.

Findings and Contributions

The project contributed to two scientific areas: Internationalization theory and Supply Chain Management (SCM). The outcomes of the project were delivered through:

- Workshops and seminars with academic and industrial speakers and facilitators
- Written reports documenting the findings from the project, including managerial models and toolboxes guiding companies on the development and integration of international supply chains and markets
- Research papers presented at conferences such as Nofoma, IMP, IPSERA, Academy of Management and subsequently published in academic journals
- PhD and Master / bachelor theses exploring issues related to the project
- Case studies to be used in executive training and education

The Ikea case was presented at various conferences and is currently in review at *Journal of Purchasing and Supply Management* (JPSM). The case illustrates the global sourcing process, adopting a network perspective. Thus, the findings show that the global sourcing process is influenced by complex interactions and network effects between customers and suppliers at different levels of the global supply network which influence the pace and depth of the global sourcing process. Global sourcing decisions therefore need to be understood and coordinated across global supply networks. Large and influential companies need to capitalise on the role of suppliers in the global sourcing process and engage with suppliers located in the far reaches of the supply network to ensure that the effectiveness of global sourcing decisions is maximised across the network. Suppliers have a vital role to play in ensuring the efficiency of the global sourcing process through their local knowledge and indirect connections within the supply network that may be beyond the reach of customers based in other parts of the globe. The paper contributes a synthesis of the existing global sourcing literature, integrated with established literature on the interaction and network approach to the internationalization process of firms and provides insights into the process of global sourcing from a network perspective.

3.7. Supplier Relationship Assessment

Main publications from Project:

Johnsen, Johnsen and Lee Chiajung: Towards a Managerial Model for Supplier Relationship Evaluation. Presented at IMP conference 2010: to be submitted to *Supply Chain Management: an International Journal*.

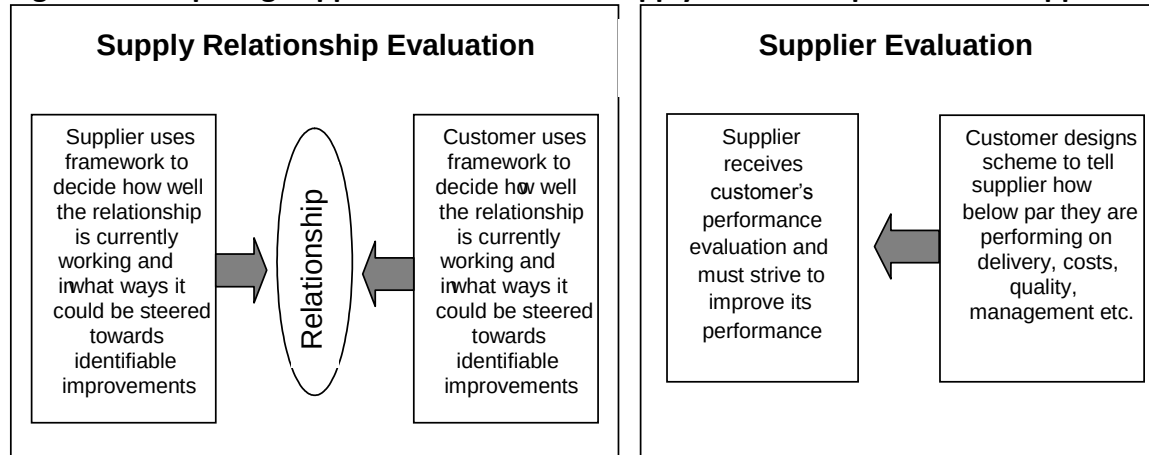
Johnsen, T.E., Johnsen, R.E., and Lamming, R.C. (2008) 'Supply Relationship Evaluation: The Relationship Assessment Process (RAP) and Beyond'. *European Management Journal*, Vol. 26, pp. 274-287.

Johnsen, T.E., Johnsen, R., and Lamming, R. (2006) 'Customer-Supplier Relationship Evaluations'. In *Proceedings of 14th IPSERA Conference, San Diego, 6-8 April*.

My research into supplier relationship assessment is a research theme rather than one research project. The recurring theme within this work is assessment of performance within a purchasing and supply context. The work includes two projects: 1) a conceptual piece of work that re-visited a CRiSPS project called the Relationship Assessment Programme (RAP); 2) a PhD project, which I co-supervised as part of Project ISN, focusing on performance measurement and management and 'evidence-based procurement'.

The first project was purely conceptual. A model for supplier relationship assessment (RAP) had been developed by Lamming et al (1996). The background for this project was the practice of supplier (or vendor) assessment schemes. RAP argued that the common purchasing and supply management practice of evaluating supplier performance may be inappropriate, as it focuses on evaluating the performance of the supplier rather than the supply *relationship*. The logic of this argument is shown below:

Figure 8. Comparing Supplier Evaluation and Supply Relationship Evaluation Approaches



Johnsen, T.E., Johnsen, R.E., and Lamming, R.C. (2008) 'Supply Relationship Evaluation: The Relationship Assessment Process (RAP) and Beyond'. *European Management Journal*, Vol. 26, pp. 274-287.

The RAP project resulted in a conceptual model and a managerial model. Following the research, the intellectual property was sold to a large management consultancy, which trialed implementation but without success, apparently because the concept was not sufficiently "near market." Managerial RAP-derived models spread to the Society of British Aerospace Companies (SBAC) as part of its Supply Chain Relationships in Aerospace (SCRIA) initiative, but the model struggled to gain widespread acceptance. The RAP model and the tools that followed from it struggled with conceptual problems as well as practical problems of implementation.

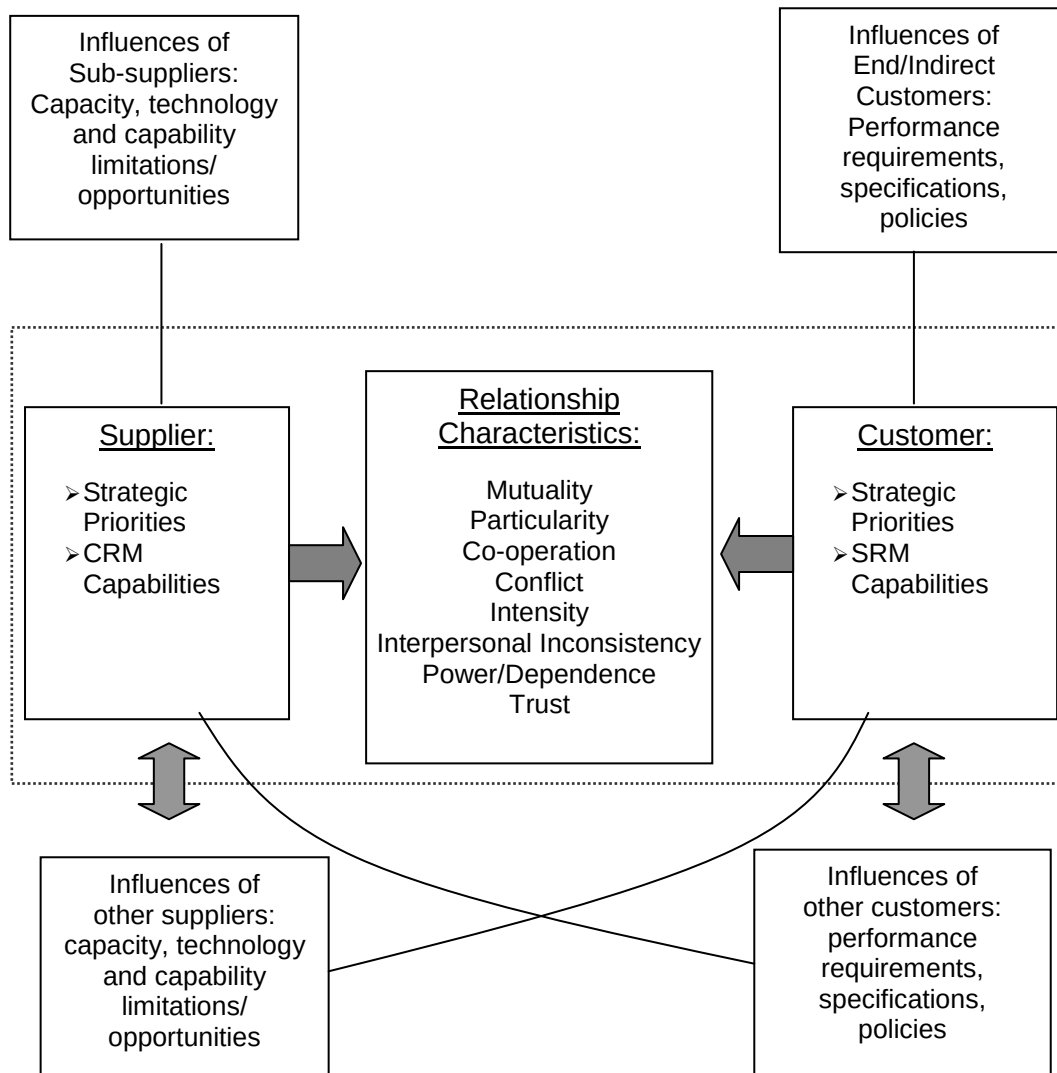
Findings and Contributions

In this conceptual research into supplier relationship assessment we critically evaluated the conceptual basis of the RAP model and the attempt to implement the model in practice. We identified that the RAP model was essentially dyadic, in fact the RAP facilitators learned that the externalities of the relationship being assessed in terms of other relationships and network influences were not taken into account in the model. Such network influences were often significant in the RAP experience as it was difficult to analyze, for example, dependency and power without understanding inter-connected customer or supplier relationships.

Furthermore, we found that problems with the heart of the RAP model - the relationship characteristics - specified: power, closeness, dependency, problem solving, benefits, and depth. Practically, these characteristics may be useful for two parties to discuss and evaluate their relationship, as they can reveal a multitude of supply relationship problems as well as opportunities. Conceptually, we argued that they were imperfect: some were evidently relationship variables, such as power and dependence, but others seemed less clear, for instance those reflecting *activities* within relationships, especially 'problem solving'. We therefore took up the challenge of developing a conceptual framework for supply relationship evaluation, seeking a wider and more conceptually consistent set of relationship characteristics, and a way to capture

external network influences on the dyadic relationship. A revised conceptual model (Figure 9) was published in the *European Management Journal* (Johnsen, Johnsen and Lamming, 2008).

Figure 9. Supply Relationship Evaluation Model



I recently continued this work by seeking to make the model more dynamic and managerial. The set of characteristics as presented in Johnsen et al (2008) was re-evaluated and trust was added as it is emphasized in much customer-supplier relationship literature. We identified that all the relationship characteristics are structural in nature and as such they set the conditions for the relationship context in which customers and suppliers interact and in which processes such as adaptation and exchanges of information, knowledge, or finances take place. However this structural nature implies that the set of characteristics is largely static. As relationships develop over time it is important to identify how relationship characteristics evolve; this is particularly important from a relationship evaluation perspective as any evaluation would depend on the level of relationship maturity. The relationship characteristics can therefore become more dynamic by considering the stage of relationship development.

Building on existing purchasing models of supplier evaluation (including RAP) and literature on customer-supplier relationship characteristics and stages of development, a conceptual model was therefore developed. Drawing on findings from five in-depth dyadic case studies of Taiwanese customers and suppliers, which involved 50 interviews with matching pairs of customers and suppliers, a model was developed with descriptions of each relationship characteristic along the

three relationship maturity stages (Johnsen, Johnsen, and Lee, 2010). Table 4 shows the model presented at the IMP conference in 2010.

Table 4. A Model for Supplier Relationship Evaluation

	Maturity Stage		
	<i>Exploratory & Tactical</i>	<i>Developing</i>	<i>Stable & Strategic</i>
<i>Mutuality</i>	- Goals differ for each party: no strategic alignment - Win-lose strategy	- Current goals aligned to achieve profitability for both parties - Partial strategic alignment	- Goals for future developed in tandem - Strategic alignment - Win-win: shared risks & rewards
<i>Exclusivity</i>	- Limited adaptation of each party - Limited relative commitment to relationship	- Concessions made by each party for mutual benefit - Security sought through commitment to relationship	- Long-term investment, adaptation & commitment over & above that of other relationships
<i>Co-operation</i>	- Initial ideas for cooperation explored - Cooperation depends on performance evidence - Limited information sharing: knowledge is power	- Joint projects & plans established to achieve improved capabilities for each party - Parties becoming more open with each other, but still guarded	- Long-term projects for enhancement & achievement of capability development e.g. supplier development programme - Transparency: high level of information sharing
<i>Conflict</i>	- Conflicts arise through lack of knowledge of other party's systems, processes and responsibilities: destructive conflicts - One-way conflict resolution/blaming	- Disagreements arise over integration of roles, responsibilities & targets - Partial moves towards joint problem-solving	- Experience of conflict & its resolution enhance debate and depth of understanding: constructive conflicts - Joint problem-solving
<i>Intensity</i>	- No commitment to regular interaction between individuals and teams - Single-interface - Low level operational involvement	- Regular pattern of interaction established with clearly defined roles & routines - More functions involved in relationship - Middle-management involvement	- Friendships and close professional ties underpin long-term interaction & patterns of behaviour/responses - Multi-interface & corporate (director) involvement
<i>Inconsistency</i>	- Different approaches to relationship within each party e.g. across functions - Different approaches to relationship over time creating inconsistent communication	- Common approaches to relationship begin to be defined - Communication patterns become established	- Both parties work to shared principles & patterns for communication - Behaviour & communication consistent over time & across functions
<i>Power/Dependence</i>	- One-sided relationship - Stronger party controls strategic and tactical decisions e.g. ordering process, quality and prices - Weaker party concerned with proving capability/attractiveness	- Domains of expertise becoming defined and separate - Inter-dependent relationship strategy developing	- Commonly understood & firmly established distribution of power & expertise in different areas - Inter-dependent relationship strategy established
<i>Trust</i>	- Ensuring contractual compliance - Controlling performance through tight measures	- Focus on competence-based trust in defined areas for each party	- Focus on goodwill trust: helping each other out when necessary - Equal commitment to long-term health & growth of relationship

This work is still ongoing and the aim is to submit an article based on the IMP 2010 conference paper to *Supply Chain Management: an International Journal*.

3.8. Supplier Involvement in New Product Development

Main Publications from Project:

Johnsen, T.E. (2009) 'Supplier Involvement in Product Development and Innovation – Taking Stock and Looking to the Future'. *Journal of Purchasing & Supply Management*, Vol. 15, Issue 3, pp. 187-197.

Johnsen, T. E. (2005) 'Supplier Involvement in Product Development: Challenges and Ways Forward', *DILF Orientering (Danois Achat & Logistiques Forum)*, June, pp. 16-21.

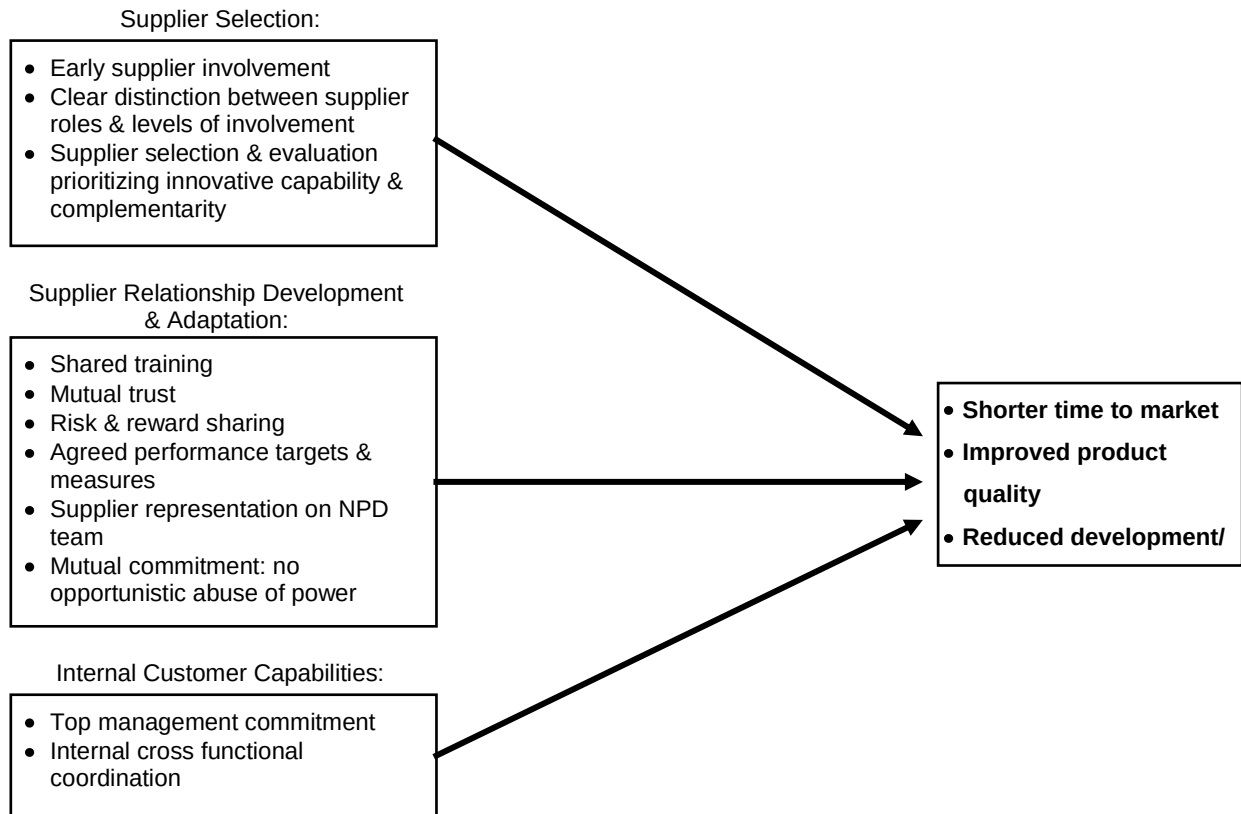
Johnsen, T.E. and Lewis, M. (2009) 'Supplier Involvement in the Development of the A380 Super Jumbo'. In *Proceedings of the 17th Annual IPSERA Conference, Wiesbaden, Germany, April*.

Much of my research has focused on the dual issues of supplier relationships and new product development (NPD) and innovation. In 2007 I began an extensive and critical review and synthesis of the current state of empirical research into supplier involvement in new product development (NPD). This research resulted in a paper published in JPSM (Johnsen, 2009). The paper defined supplier involvement in NPD and evaluated the rationale for supplier involvement in NPD. The research suggested that early and extensive supplier involvement in NPD projects has the potential to improve NPD effectiveness and efficiency, however, it also pointed out that existing research remains fragmented and that empirical findings to date show conflicting results. The paper took stock of the research on supplier involvement in NPD, tracing the origins of the literature to the late 1980s, and evaluating the development of the field up to the present day. From this broad base of empirical research the analysis identified a set of factors affecting the success of supplier involvement projects. The paper concluded with a discussion of two emerging themes: 1) supplier relationship development and adaptation; 2) supply network involvement in product innovation. Figure 10 shows a model of success factors for supplier involvement in NPD, derived from the literature review.

Findings and Contributions

The literature review study into supplier involvement contributed a set of success factors and a critical assessment of supplier involvement benefits in relation to the level of technology uncertainty. This is a research theme I have since pursued in an empirical study of supplier involvement of the Airbus A380 superjumbo. Whilst still employed at University of Bath, I embarked on a case study of Airbus, focusing on the Airbus sites in Filton near Bath and Broughton (Wales). Having supervised several Executive MBA students working in procurement at Airbus, I built in this work to further pursue the question of supplier involvement in the A380 when I started as Associate Professor at Audencia. Conducting interviews with Airbus personnel in Toulouse, Nantes and St. Nazaire, I focused on how Airbus adapted the timing of supplier involvement, its approach to risk and reward sharing, how Airbus managed the challenges of increased delegation of design and development responsibility to suppliers, and to what extent Airbus sought to reach into distant supply network relationships in identifying innovative solutions for the A380. Given the scale and complexity of the A380 project this research sought to contribute to knowledge on supplier involvement in highly complex NPD, especially in relation to timing decisions, risk and reward sharing mechanisms, issues of delegation and the feasibility of involving distant suppliers in order to identify innovative solutions. A paper was presented with at the IPSERA conference in 2009 (Johnsen and Lewis, 2009) and a further paper is currently in review.

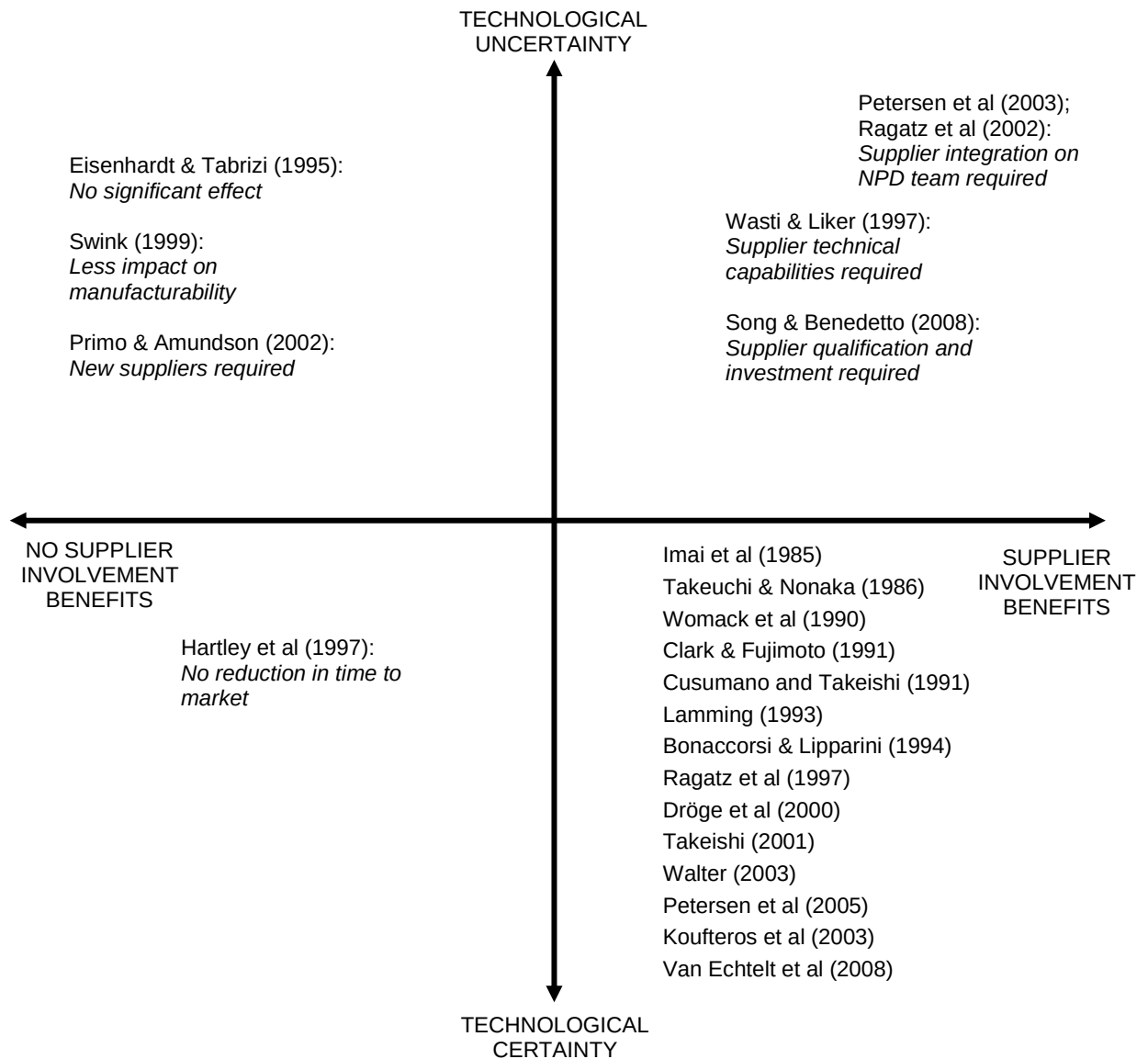
Figure 10. Factors Affecting Supplier Involvement Success



Johnsen, T.E. (2009) 'Supplier Involvement in Product Development and Innovation – Taking Stock and Looking to the Future'. *Journal of Purchasing & Supply Management*, Vol. 15, Issue 3, pp. 187-197.

Figure 11 provides an overview of the analysis of supplier involvement benefits in relation to the level of technological uncertainty (degree of innovation). As the figure shows the close occupation of the bottom right hand corner indicates the large bulk of research that has provided evidence in favour of supplier involvement under conditions of low technological uncertainty i.e. typically incremental NPD projects. In comparison, there is little research showing no benefits from supplier involvement under conditions of low technological uncertainty (Hartley et al, 1997). One likely explanation may be that companies are simply improving their supplier involvement efforts and thus more likely to reap the benefits. Conditions of high technological uncertainty have caused concern for conflicting results and debate. Eisenhardt and Tabrizi originally raised the point and called for caution in extending the assumption of supplier involvement benefits from technological predictability to conditions of technological unpredictability. Swink (1999) and Primo and Amundson (2002) have later supported this concern. Nevertheless, contradictory results have been published, especially by Ragatz et al (2002) and Petersen et al (2003), suggesting that technological uncertainty calls for careful supplier integration of suppliers on customer NPD teams. Wasti and Liker (1997) and Song and Benedetto (2008) share some of these views, emphasizing the particular need for supplier technical capabilities and supplier qualification and investment (high asset specificity) when companies are dealing with radical innovation projects.

Figure 11. Synthesis of Supplier Involvement Benefits and Level of Technological Uncertainty



Johnsen, T.E. (2009) 'Supplier Involvement in Product Development and Innovation – Taking Stock and Looking to the Future'. *Journal of Purchasing & Supply Management*, Vol. 15, Issue 3, pp. 187-197.

The theme of supplier involvement in radical – or discontinuous – innovation is a theme that I am currently pursuing and it constitutes a key area of my future research plans. This is discussed in further details in section 6.2.

3.9. Synthesis of Research

Table 5 provides an overview of all the major research projects and themes I have worked on the last 15 years or so. It identifies the aim, context, method and results and contributions of each project. The table shows how the aims of much of my research have revolved around developing understanding of buyer-supplier relationships and different types of industrial network. Several projects focused on identifying collaboration or networking activities and also enabling and constraining factors in the networking process. NPD and Innovation are also recurring themes that

I have investigated within a network context and from a network perspective. The table also shows a progression in the empirical context of my studies: early studies focused on private sector manufacturing and more recent research focuses on public sector and also on services. Research methods employed have predominantly been in-depth case studies, but also include purely conceptual work and some survey-based research. Contributions from the research are discussed in more depth in the following section.

Table 5. Overview of Main Research Projects

Project	Aim	Context	Methods	Results/Contributions
<i>Project ION</i>	- to identify the determinants of successful inter-firm collaboration in three key areas: supply, innovation and learning	Cross-industry: automotive, telecommunication s/computers, pharmaceutical, FMCG...	-Exploratory survey - 20 In-depth case studies (8 supply networks: app. 80 interviews) -Survey	-A taxonomy of inter-organisational networks -An initial classification of supply networks -A taxonomy of supply networks
<i>PhD</i>	- Identify a set of activities that companies apply during technological innovation (focus on NPD) to draw upon individual dyadic relationships and gain access to resources and technologies available in the wider network - Examine how companies draw on networks when managing the identified set of activities - Examine the extent to which networks pose a constraint on the management of the identified set of activities	Automotive, pharmaceutical and tele-communications	-Exploratory survey (5 interviews) - 4 in-depth case studies (46 interviews)	- Developed <i>interactive</i> set of activities for collaborative innovation: uniting, timing, mobilising, communicating, synchronising, assigning human resources, problem solving. - Showed that companies may be unable to collaborate because they operate under network constraints i.e. subjected to customer network intervention in uniting and communication
<i>Project ISN: Innovation in (Healthcare) Supply Networks</i>	-To evaluate existing knowledge of innovation processes, and of factors which enable or constrain management of innovation in supply networks within healthcare -To develop a framework for involving different types of supply network partners in technology and product innovation within healthcare	Healthcare sector: UK NHS, tissue engineering, assistive technology for sufferers of dementia etc -Focus on sectors of different levels of maturity/industrial innovation	- Exploratory survey across different sections of UK healthcare industry. - A set of in-depth case studies, focusing on tissue engineering and assistive technologies.	- Showed how interaction between healthcare suppliers and a range of stakeholders involved in the development of new innovative technologies (e.g. suppliers, customer, NHS, and regulators) might impact positively or negatively on innovation success. - E.g. showed the role

				of suppliers, customers and horizontal stakeholders in different types of innovation (fluid, transitional, mature)
<i>Supply strategy in defence sector</i>	- Define in-service support and TLM in defence procurement context -Review supply chain literature including lean, agile and relationship portfolio models relevant to defence industry -Investigate implications of in-service support and TLM -Construct model and make recommendations for change in terms of policy and practice to UK defence industry	UK Defence industry	Case study of UK defence industry: interviews with MoD, UK suppliers and various stakeholders	- Defined and conceptualised Through-Life-Management: TLM - Investigated the link between TLM and supply strategy, especially focusing on the role of supplier involvement within long product-service lifecycles
<i>Global Supply Chain Development (JIBS)</i>	- Identify how integration with existing supply chains may be used for developing new international supply chains. - Examine how integration of existing supply chains is influenced by development of new international supply chains over time. - Investigate how development of new and existing supply chains differs depending on nature of outsourcing and internationalization	Swedish companies sourcing globally e.g. in China. Furniture (e.g. Ikea), appliances etc.	- Two exploratory case studies investigating the supply chain development of Swedish multinational companies. - Three to four in-depth case studies investigating the supply chain development of medium-sized Swedish companies. - A large scale survey to test the case study findings on a larger scale.	- Results showed intertwinement between downstream sales and upstream sourcing market developments. - Ikea case showed that the global sourcing process is influenced by complex interactions and network effects between customers and suppliers at different levels of the global supply network which influence the pace and depth of the global sourcing process.
<i>Supplier Relationship Assessment</i>	RAP (previous CRISPS project) re-visited Also informed by PhD thesis at Bath & CRISPS project on Evidence-based procurement	Conceptual Evidence-based procurement draws from case studies in UK healthcare sector	Conceptual but reflecting on experience of RAP model implementation Evidence-based procurement draws from PhD student data collection through case	Conceptual model for supplier relationship assessment

			studies	
<i>Supplier Involvement in New Product Development</i>	Literature review Case study if supplier involvement in development of Airbus A380	-Conceptual -Airbus A380/aerospace	One literature review One empirical case study of Airbus A380	- Synthesis of supplier involvement literature. - Identification of supplier involvement in NPD success factors - Identification of future research avenues including the question of supplier involvement in radical and discontinuous innovation - A380 project contributes to knowledge on supplier involvement in highly complex NPD, especially in relation to timing decisions, risk and reward sharing mechanisms, issues of delegation and the feasibility of involving distant suppliers in order to identify innovative solutions.

4. OVERALL CONTRIBUTIONS TO RESEARCH

My contribution to the field is specifically focused on developing a richer understanding of the development and management of technological innovation within buyer-supplier relationships and networks. My research is grounded in the interaction approach and industrial network theory as developed by the IMP group (e.g. Håkansson, 1982), although I tend to divert from IMP theory by having a more managerial and sometime normative ambition. As the interaction and network theory developed by the IMP group is strongly influenced by resource-dependency theory (Pfeffer and Salancik, 1978) this is also an influential theory in my work. In contrast, I do not rely on theories that tend to focus on short-term issues and assume opportunistic behaviour i.e. transaction cost economics (e.g. Williamson, 1975, 1985).

Figure 12 below shows the connections and progression of my research. From an early interest in buyer-supplier relationships and industrial networks, I embarked on research into inter-organisational networking (ION), which essentially focused on networking activities for creating and managing different types of network. Project ION adopted a more normative perspective than the IMP Interaction approach (e.g. Håkansson, 1982), refuting the IMP assumption that networks cannot be created and managed (Håkansson and Snehota, 1995). Participating in Project ION gave me a thorough conceptual understanding of buyer-supplier relationships and different types of network, especially supply networks, a concept which I helped to develop through several publications (Lamming, Johnsen, Harland and Zheng, 2000; Harland, Zheng, Johnsen, and Lamming, 2004 were some of the earliest papers to introduce the concept of supply network and remain frequently cited sources for supply networks).⁴ Particularly, I gained an understanding of the importance of studying different levels of relationship and network analysis, an analytical framework I have made much use of over the years (e.g. Phillips, Johnsen, Caldwell and Lewis, 2006; Johnsen, Lamming and Harland, 2008; Miemczyk and Johnsen, 2010).

My PhD thesis diverted from Project ION in two ways: it focused on NPD and innovation within the context of buyer-supplier relationships and networks, and it was undertaken from an IMP Interaction perspective (as my supervisor was one of the founders of IMP: Prof. David Ford). The focus on NPD and innovation had also been part of Project ION, but I was not personally closely involved in this part of the project, where the focus was again effectively on multi-party alliances – innovation networks. The network perspective was the most important difference between my PhD thesis and Project ION: rather than viewing a network as an extended enterprise – or a multi-party alliance – my PhD thesis viewed networks as context. In the IMP tradition networks represent the environment in which a focal firm is embedded and connected through actor bonds, activity links, and resource ties (Håkansson and Snehota, 1995). Networks may enable and/or constrain relationships between dyadic actors, and my PhD therefore focused on how a focal firm's attempts to collaborate with suppliers during NPD and innovation projects would be enabled and/or constrained by the network in which the dyad is embedded. I developed the concepts of supply network intervention and supply network delegation, inspired by an initial conceptualisation of intervention and cascade by Lamming (1996) and Lamming, Johnsen, Harland and Zheng, (2000), and this is a theme I still pursue (Johnsen and Ford, 2005; Johnsen and Ford, 2007, Johnsen, 2011 forthcoming).

My research into NPD and innovation within buyer-supplier relationships and supply networks continued with the ISN project, but shifted the industrial context from private sector manufacturing to the healthcare sector, which included public sector perspectives through the key role of the UK NHS as an important customer. The more focused research into supplier involvement in NPD was continued with my literature review (Johnsen, 2009) and the Airbus A380

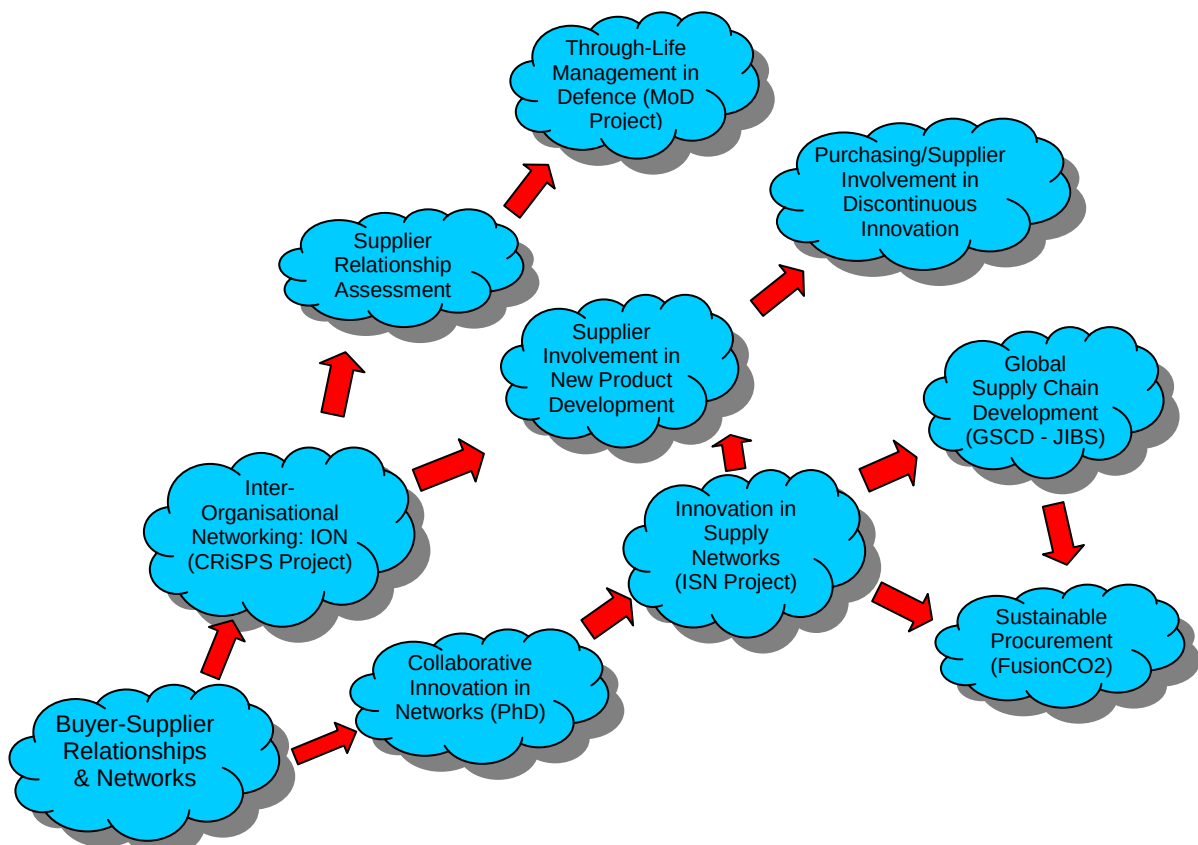
⁴ These two papers have relatively high citations e.g. on Google scholar (4 February 2011) Lamming et al (2000) is cited 212 times and Harland et al (2004) is cited 122 times.

case, the latter focusing on a highly complex NPD project. These themes are being pursued further in the latest research project, which I am launching on purchasing and supplier involvement in discontinuous innovation, investigating many of the same issues as in previous research but changing the focus to highly radical technological change i.e. discontinuous innovation. This particular project will be discussed further under future research projects). But, once again, my contributions in these projects have centred on the need to understand the implications of supply networks on dyadic collaboration, for example, Johnsen (2009) identified the need to consider the involvement of indirect suppliers in NPD projects and the project on purchasing and supplier involvement in discontinuous innovation seeks to explore the relevance of existing supplier involvement within this particular innovation context.

Other research projects have diverted into other research areas, but still focused on aspects related to buyer-supplier relationships and networks: The conceptual research on supplier relationship assessment, reflected on the RAP model (Lamming et al, 1996), extending the original model to take into consideration network influences on dyads; the research into TLM, which focused on the implications on recent changes in the UK defence industry on relationships between the MoD and defence suppliers; the GSCD project at JIBS focused particularly on global sourcing and global supply chain development, but my contributions to the project (especially the case of Ikea) again focused particularly on managerial problems arising as a result of various forms of networking, especially customer (Ikea) intervention in supplier global sourcing choices and activities.

Finally, another recent project focuses on sustainable procurement (also discussed later under future research projects). Although the wider project focuses on various aspects of how to improve sustainable procurement performance, at least partly this project makes use of the same analytical framework to investigate sustainability at different levels of analysis i.e. dyadic supplier relationships, supply chain and networks (Miemczyk and Johnsen, 2010).

Figure 12. Research Projects & Themes



In summary, my research has contributed to:

1. Network theory by investigating and developing frameworks for how to create and manage different types of network. In particular, I have contributed to the development of the concept of supply networks.
2. Network theory by developing classifications and typologies of networks, especially supply networks.
3. Supplier involvement in NPD by extending this body of research from dyadic to network level of analysis. In particular, I have showed how and why companies access indirect suppliers and the implications of such supply network intervention' on suppliers.
4. Purchasing and supply management knowledge by developing frameworks to better understand, manage and assess supplier relationships in a variety of (private and public sector) contexts.

5. RESEARCH PHILOSOPHY AND METHODOLOGY

As explained in the previous section my research is grounded in resource-dependency theory and industrial network theory. My research explores the management of purchasing, supply and innovation at dyadic relationship, chain and network levels of analysis. I have tended to rely on in-depth case studies in much of my research as I believe that researching such inter-organizational phenomena, which invariable exist within a dynamic context, requires rich insights.

However, there are very different approaches to case study research, and diverse perceptions of what makes good case study research that stem from different, often unspoken, philosophical assumptions and standpoints. Indeed, although purchasing and SCM scholars are required to provide extensive details of their methodologies, when submitting a research paper to a journal, most research papers tend to say little about abstract issues such as research philosophy – probably due to a fear that such explanations quickly become highly abstract and can take over the main subject of the paper. The avoidance of research philosophy explanations also stretches to PhD theses, at least in the Nordic countries; comparing the time periods of 1991-2001 with 2002-2008, Zachariassen and Arlbjørn (2010) found a decreasing tendency towards including philosophy of science in Nordic theses within SCM (out of 70 theses during 2002-2008 only 20 included a discussion of philosophy of science).

Submitting a case study-based research paper to a highly ranked management journal tends to bring the problem of different implicit research philosophies to the fore. During the review process it is more than likely that the two or three reviewer comments one receives, whilst often sharing some similar concerns, differ fundamentally in terms of how they expect good quality case study research to be carried out. In fact, reviewer concerns are often so dissimilar that they may even be incompatible and authors are left with hard decisions as to how to respond to conflicting requirements.

Research philosophies are therefore both frequently implicit and underestimated yet significantly affect the likelihood of getting one's research published. Research philosophy is often broken down into epistemological, ontological and methodological choices. The following section provides a brief overview of how I perceive the dominant research philosophies, especially related to studying inter-organisational phenomena within a purchasing and supply management context, including my personal standpoints and choices. I continue with some personal reflections on using case studies as a research methodology, including a brief discussion of the question of the research process i.e. whether the researcher begins with theory (deduction) or empirical data (induction) and the less known alternative process of abduction which has become more popular in case study research on buyer-supplier relationships and networks.

5.1. Research Philosophy

Purchasing and supply management has been researched using many different research philosophies. Often the choice of philosophy in social science is considered in terms of ontological, epistemological and methodological views that are often placed on a continuum from realism to relativism. At the heart of these views is how one understands reality and how a researchers goes about discovering reality. According to Guba (1990, p. 18) there are three issues to consider:

1. *Ontological*: what is the nature of the 'knowable'? Or, what is the nature of 'reality'?
2. *Epistemological*: What is the nature of the relationship between the knower (the inquirer) and the known (or knowable)?
3. *Methodological*: How should the inquirer finding knowledge?

In management research three research philosophies are often used: positivism, phenomenology and critical realism. These will be briefly discussed in the following with a view to identifying what I believe to be the most appropriate for researching purchasing and supply management phenomena.

Positivism

Positivism is based firmly on the premise that knowledge has to be observed empirically in the form of testing hypotheses that have been derived through a process of deductive reasoning. Hence, the positivist researcher examines existing theory and deduces hypotheses to be tested empirically on a large number of representative cases so that these can be statistically analysed for correlations and patterns in events. These correlations or patterns are then assumed to reflect causes and effects (rather than simply co-variances) and generalisations can be made. Law-like relationships are hypothesised among a set of operationalised, and therefore empirically measurable, constructs and data are collected and analysed to identify correlation (Easton, 1998). The more tests that are applied, the more confirmation or disconfirmation.

In positivism, which continues to dominate social sciences in various forms (not least in the USA), 'explanation' - or causality - is uncovered through the identification or analysis of event regularities within systems (Ramsay, 1998). Ontologically, human actors are assumed to be passive agents observing and recording events. The problem with positivism is that few social systems, including business systems, can be described as 'closed'. In fact, according to Bhaskar (1978) three conditions have to be fulfilled if a system is to be described as fully closed:

1. The extrinsic condition:

A closure thus depends upon either the actual isolation of a system from external influences or the constancy of those influences (Bhaskar, 1978, p. 74).

As an example, it is practically impossible to establish whether the overall success of a company (such as increase in turnover) over a given period of time is the result of a specific internal initiative (for example a business process re-engineering programme) or the result of some external change, such as a decrease in interest rates amongst other factors.

2. The intrinsic condition:

This condition is also very difficult to satisfy in social systems. Bhaskar (1978) calls for the necessity for the 'internal structure' of the object, individuals, or processes making up the system to be constant. This condition is very difficult to satisfy in human systems as people undergo changes and interpret and reflect upon events as they go along. It is a condition that truly distinguishes social systems from machines.

3. The non-additive principle:

Finally, Bhaskar (1978) develops the non-additive principle which stipulates that closure can only be attained if the overall performance or behaviour of the system can be derived as an additive function of the behaviour, or states of the individual system components (Ramsay, 1998). This is clearly related to the intrinsic and extrinsic conditions, but seeks to confirm that no other factors influence the object being studied.

The positivist conditions for closed systems, as interpreted by Bhaskar (1978) are arguably difficult to fulfil in social systems research. One may think of examples and (brute) data that satisfy the conditions, such as number of employees, sales turnover, or purchasing expenditure. However, inter-organisational relationships and networks do not easily fit these conditions as they are defined as open systems. In other words, they have no boundary even if for the purpose of analysis one may draw an arbitrary boundary around a network based on, for example, selected inclusion of those relationships related directly or indirectly to the unit of analysis (Cova et al, 1998; Harland et al, 2003).

Thus, I believe that a positivist orientation is inherently problematic for fully understanding purchasing and supply management phenomena especially if one focuses on inter-organisational phenomena. Nevertheless, there is much research into purchasing and supply management that relies on a positivist approach, in fact the positivist tradition still dominates research conducted by North American institutions and academic journals that are based in North America. Therefore, as a researcher one has to understand and deal with positivist viewpoints for example when submitting journal papers that are likely to rely on US reviewers.

Phenomenology (or constructionism)

The premise of phenomenology is that reality is merely a social construction rather than an objective phenomenon: there is not one reality but many, depending on the observer. Phenomena studied by researchers only exist to the extent that they are studied and interpreted by the researchers, there is no underlying objective or ultimate truth (Mir and Watson, 2001). Human interpretations of meanings perceived in phenomena and events, rather than events themselves, are what matter to the Phenomenologist. Ontologically, humans are assumed to be active, self-aware, and capable of perceiving and generating meaning (Ramsay, 1998). Phenomenological research therefore focuses on human interpretations of meanings perceived in phenomena and events, rather than events themselves.

Phenomenology is often adopted for the study of buyer-supplier relationships and business networks. There is perhaps an intuitive logic and appeal in seeking to uncover the different perceptions of reality of the multiple actors that make of business or supply networks. For example, I have found that when researching supplier partnerships it is vitally important to interview not only respondents within the buying firm but also respondents representing the supplier firm: the two sides of the dyad often have widely differing perceptions of how well a partnerships is functioning. To many this will not come as a surprise but, for example, survey-based research hardly ever collects data from dyads and consequently are left with one (arguably limited) perception of reality.

Different forms of phenomenology exist, where some are more radical and uncompromising than other more moderate versions (Kwan and Tsang, 2001). Järvensivu and Törnroos (2010) advocate moderate constructionism as suitable for the study of business networks, arguing it is a better alternative to those forms of constructionism that tend to assume a naïve relativism. The background for this argument is that the risk of a pure phenomenological orientation is that if philosophical positions determine research findings, then reality has no input to and control over scientific research (Kwan and Tsang, 2001, p. 1164). Hence, no research findings can be objectively assessed and theories are but an act of the researcher's generation instead of a formalisation of underlying reality (Mir and Watson, 2001). For many researchers, therefore, a phenomenological philosophy does not offer a satisfactory solution: viewing reality simply in terms of perceptions is an uncomfortable position for many scholars, but is there an alternative position?

Critical Realism

Easton (1998, 2002) advocates a critical realist philosophy the study of relationships and networks as a better alternative to e.g. positivism and phenomenology. According to Easton the fundamental assumption of realism is that “there is a reality ‘out there’ waiting to be discovered and that reality is independent of us” (1998, p. 76). He stresses that we are not talking about a naïve reality, which is easy to discover or self-evident, but he disputes the argument that it is socially constructed. Easton suggests that the researcher has to remain critical and objective and thereby try to uncover ‘reality’ rather than assume it is an entirely social construction in the mind of the researcher. According to Lewis (2001) “critical realism asserts that the world investigated by science consists of objects that are structured and intransitive: structured in the sense that they are irreducible to the events of experience; and intransitive in the sense that they exist and act independently of their identification” (p. 487). Hence, reality does exist in an independent form away from the researcher but it is not a simple objective reality in the positivist sense.

Critical realism has been applied in much research on buyer-supplier relationships and business networks, and it was the position I took in my PhD. However, Järvensivu and Törnroos (2010) argue that critical realist studies often fail to take into account the multiple perspectives to reality that different business communities have. Indeed, I have often made great efforts to compare different perceptions of reality in my research, most recently in my study of the UK defence UK where my analysis compared the views of defence suppliers, the buyer (the MoD) and analysing the ‘official truth’ as published, for example, in government white papers (Johnsen et al, 2008). My own standpoint is that although critical realism may provide a useful compromise between naïve realism (positivism) and naïve relativism (classic phenomenology), it may downplay the importance of the different perceptions of reality that inevitably exist in buyer-supplier relationships and business (or supply) networks. The debate between Mir and Watson (2001) and Kwan and Tsang (2001) shows that there is much uncertainty as to the differences between constructivist (or phenomenological) and critical realist philosophies, and that there are different interpretations of their respective merits. Nevertheless, I tend to increasingly lean towards a moderate constructionism view. Table 6 provides a comparison of the different views adapted from Järvensivu and Törnroos (2010): typical research strategies across the four philosophies added here.

Table 6. Comparison of research philosophies and views

	Naïve Realism	Critical Realism	Moderate Constructionism	Naïve Relativism
Ontology	Only one, true reality exists; universal truth claims apply	There is a reality; specific local, contingent truth claims apply.	There may be a reality: specific local, contingent truth claims apply.	There is no reality beyond subjects
Epistemology	It is possible to know exactly what this reality is through objective, empirical observations	It is possible to move closer to local truths through empirical observation, bounded by community-based critique/consensus.	It is possible to understand local truths through community-based knowledge creation and empirical observations bounded by subjectivity.	It is possible to form an understanding of the subjective reality through an analysis of the subject's account of knowledge
Methodology	Direct empirical observation	Empirical observations bounded by subjective and community-based critique/consensus.	Community-based knowledge creation through empirical observations bounded by subjectivity.	Analysis of knowledge structures and processes by observing texts.
Research Strategy	Quantitative surveys	Qualitative, in-depth case studies	Qualitative, in-depth case studies	Qualitative, action research
Research Process	Deductive, theory testing	Abductive: theory generating and testing.	Abductive: theory generating and testing	Inductive: theory generating.

Source: Adapted from Järvensivu, T. and Törnroos, J-A (2010) Case study research with moderate constructionism: conceptualization and practical illustration. *Industrial Marketing Management*, Vol. 39 (1), p. 101.

5.2. The question of deduction, induction and abduction

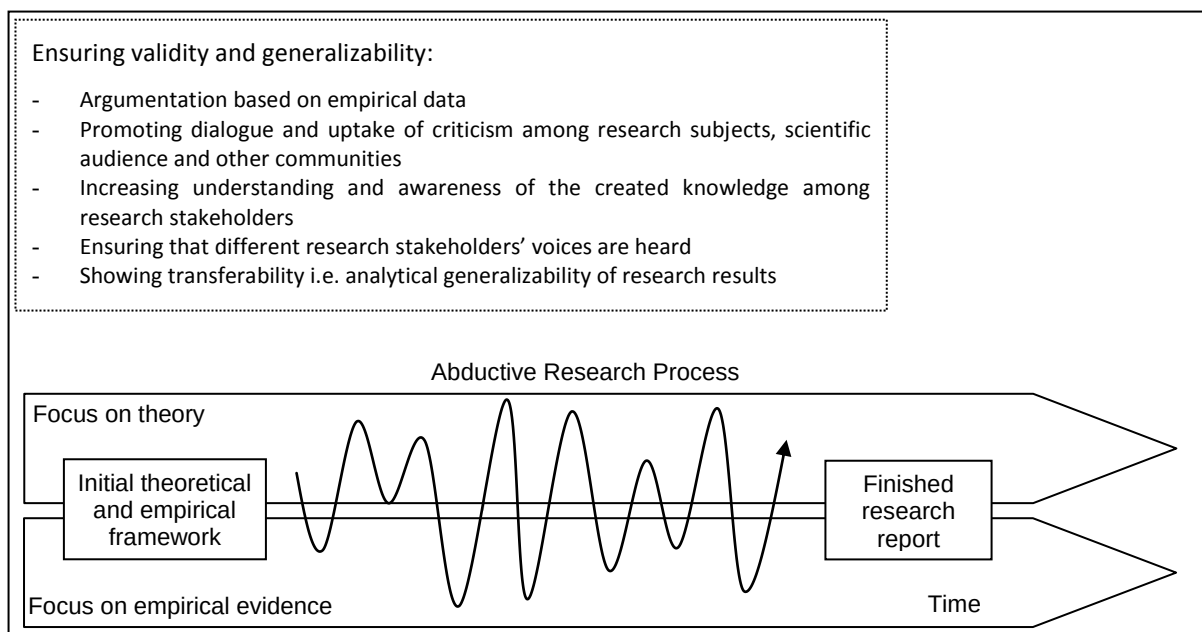
As Table 5 shows the research process differs within the various research philosophies. Traditionally, researchers distinguish between the two opposing processes of deduction and induction. A deductive approach logically follows from a positivist philosophy, testing a hypothesis derived through deductive reasoning, whilst an inductive approach follows from a phenomenological philosophy i.e. formulating theory from empirical data. At the most extreme it is a question of theory testing or theory generating. A deductive approach is usually based upon quantitative data, whilst an inductive approach is usually based on a qualitative approach. In general, an inductive approach is more open and flexible, providing opportunities to address any unexpected issues that may arise during the research. As identified by Preece (1994), the conclusion of a piece of inductive research can contain new ideas, which may be enhanced by additional supporting evidence arising from the research undertaken.

The inductive approach has been regarded by many qualitatively-orientated European buyer-supplier relationship and business/supply network researchers as the best way to approach research projects. In comparison, US researchers tend to rely on a deductive approach, systematically deducing hypotheses from the literature that are then testing empirically in a large scale survey. Such research tends to dominate the most prestigious US journals, such as the *Journal of Operations Management* and the *Journal of Product Innovation Management*.

It has been argued that research projects that examine inter-organisational relationships and networks are often neither entirely inductive nor deductive (Dubois and Gadde, 2002); it may be necessary at times to rely on theory (literature), whilst other times one needs to rely on experience and empirical data. Dubois and Gadde describe the process as 'systematic combining' (2002), an iterative 'abductive' learning process rather than a systematic process of either deduction or induction.

Abduction is defined by Ayer as a process that “consists in studying facts and devising a theory to explain them” (1968, p. 85). Ayer’s definition implies that abductive research does not work from a preconceived conceptual framework derived from the literature, but rather is successively modified, partly as a result from unanticipated findings, but also from theoretical insights that are gained during the process. This approach creates a fruitful cross-fertilisation where new combinations are developed from established theoretical concepts and newly developed ones when confronted with reality (Dubois and Gadde, 2002). Systematic combining thus implies continuous improvement of the conceptual structure as well as the crucial role of theory in interpretation of empirical observations. It becomes a matter of going ‘back and forth’ (Dubois and Gadde, 2002 p. 555). Järvensivu and Törnroos (2010) use the following diagram to illustrate the process of abduction within a moderately constructionist orientation.

Figure 13. Case study process with a moderately constructionist orientation



Source: Järvensivu, T. and Törnroos, J-A (2010) Case study research with moderate constructionism: conceptualization and practical illustration. *Industrial Marketing Management*, Vol. 39 (1), p. 101.

An advantage of an abductive approach is that as researchers we do not have to claim to have been free from the influence of prior knowledge, as implied by methodologies such as grounded theory (Glaser and Strauss, 1967). The abductive process presents an accurate and authentic picture of the iterative process that characterises my own research. However, in my experience there is also a risk that this middle position becomes messy and disorganised and fails in both testing and generating rigorous theory. Abduction can be a useful research process but should never be a choice simply because the researcher cannot decide between pursuing an inductive or deductive process. In my experience the less well-known process of abduction can be difficult to explain and justify and although the research process perhaps in reality may look something like the ‘wave’ illustrated above it might be safer for researchers (including PhD candidates) simply to explain the process as mainly inductive or deductive.

5.3. Reflections on using case studies as research strategy

My research seeks to uncover reality, which I assume to be neither a simple, nor naïve, objective reality in the positivist sense, nor purely a social (naïve) construction: the careful reader of my

research articles may notice that I have at times suggested that my research is critical realist and at other times described it as phenomenological. As discussed earlier, the moderate constructionism suggested by Järvensivu and Törnroos (2010) comes closest to describing my personal research philosophy.

Thus, I do not seek to identify causality through simple correlation analysis, but rather through developing an understanding of extrinsic and intrinsic contingencies, which explain why certain practices seem to work in particular situations and the mix of mechanisms that enable and/or constrain these (Easton, 2002). I try to uncover the different perceptions of reality that exist across dyadic relationships, supply chains and networks. Therefore, my case study research relies on multiple face-to-face interviews and observations that span organizational boundaries, often across entire supply networks (e.g. Johnsen and Ford, 2007, Johnsen et al, 2000).

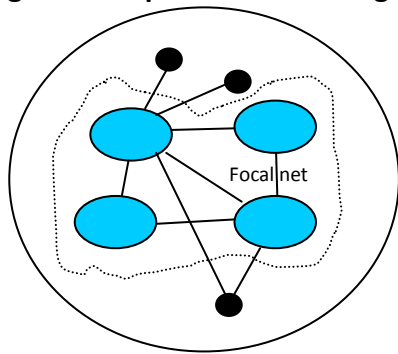
Case study research is often associated with qualitative inductive and phenomenological research, but case studies can also be carried out from a more positivist approach. I have found that some of the main references of case study research actually represent very different and sometimes conflicting approaches to case study research. For instance, some case study 'bibles' suggest that researchers should conduct multiple case studies (say, 4-10) in order to improve generalizability (e.g. Yin, 2009; Eisenhardt, 1989) whereas others advocate single case studies (e.g. Easton, 2002). A more useful logic is that the question of number of cases really depends on the purpose of the case study: if for example the purpose is discovery of new areas for research and theory development in-depth or longitudinal case studies are appropriate whereas for theory extension or refinement multiple case studies may be more appropriate (Stuart et al, 2002). One should always remember that conducting a larger number of case studies comes at the expense of individual case study depth so that, simplistically, if a research budget and time allow for 40 interviews one can either conduct four interviews per case, thus resulting in ten cases, or ten interviews per case resulting in four cases. Both options are relevant but if the research seeks to explore inter-organisational phenomena within a network context, it is often more useful to conduct a larger number of interviews per case, especially if one collects data from different network actors.

Some references suggest that case study researchers still need to operationalise their theoretical concepts and constructs (e.g. Eisenhardt, 1989), and in my experience this is a critique one often encounters when submitting case study-based papers to high profile US-based journals in particular.⁵ Some journal articles proposing case study methods in operations management (e.g. Voss et al, 2002, Stuart et al, 2002) more or less ignore the question of different research philosophies and approaches, thereby seemingly suggesting that there are generic best practices of conducting case studies regardless of one's philosophical stance (even if these articles, and especially Stuart et al, 2002, have many other very useful recommendations for how to conduct case study research).

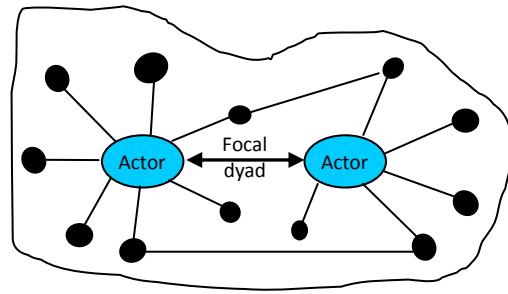
The issue of number of case studies concerns how one defines a case, which in turn is related to the question of unit of analysis. All too often there is an assumption that a case study equals a company. In my view a more useful way to make the most of the case study method in purchasing and supply management research is to define the case across organisational boundaries. Then, for example, an NPD project may be a case study, involving several supply network actors. In my experience the problem of drawing network boundary presents a real challenge to studying (supply) networks, but Halinen and Törnroos (2005) provides good examples of how one can tackle this issue.

⁵ See Dyer and Wilkins (1991) for a critique of Eisenhardt's (1989) suggested approach, which they argue is too concerned with the development of constructs and measurement instruments.

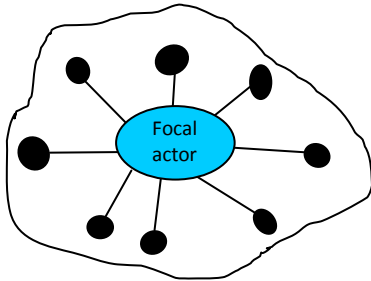
Figure 14. Options for drawing network boundaries



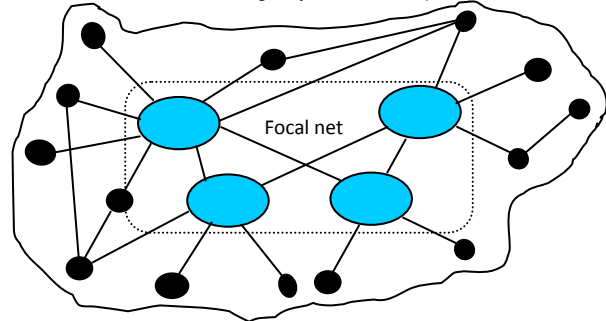
A. Case boundaries through an intranet perspective



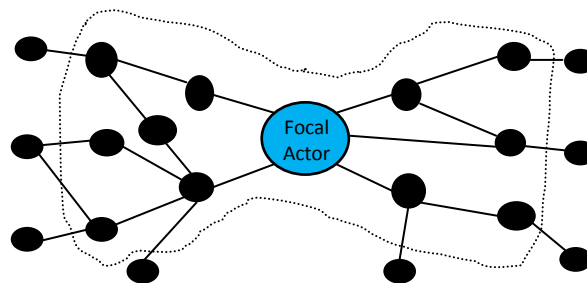
B. Case boundaries through dyad-network perspective



C. Boundaries through a focal actor perspective



D. Boundaries through a micronet-macronet perspective



E. Boundaries through focal actor supply network perspective

Source: Adapted from Halinen, A. and Törnroos, J-A. (2005) Using case methods in the study of contemporary business networks. *Journal of Business Research*, Vol. 58, p. 1289.

The four ways of drawing boundaries in business network research proposed by Halinen and Törnroos (2005) in Figure 14 (A-D) reflect my own methods of working. My case studies have often focused on supply networks (E added to the original four options proposed by Halinen and Törnroos, 2005), and have thus included interviews with upstream suppliers and sub-suppliers as well as downstream customers or distributors. Case 'E' is similar to case 'C' in Figure 14 these cases are usually focused around a focal actor, typically a manufacturer. In Project ION (e.g. Harland et al, 2001) the case supply network boundary followed a particular product or product family, whereas in my PhD (e.g. Johnsen and Ford, 2007) each case was defined by an NPD project. In these projects it was still necessary to draw a boundary around a section of the overall network for the purpose of analysis and for data collection to remain feasible. I have found that using a product or a project as unit of analysis is useful as it helps to decide which actors to include in supply network analysis and which to exclude. Lessons from doing network research in Project ION were also discussed in Zheng et al (1999).

In summary, I would recommend to future researchers in purchasing and supply management that they consider critical realist and moderate constructionist perspectives as these are suitable

for case studies of inter-organisational phenomena, such as buyer-supplier relationship or supply network research. Inductive and abductive approaches fit these philosophical standpoints. In my experience there is often confusion about what makes a case study: a case study is not the same as a study of a company. Instead, there is much scientific value in defining case studies across organisational boundaries. I have offered ways to draw case study boundaries at different levels of analysis. Studying for example buyer-supplier relationship issues arguably requires insight through data collection from both sides of the relationship. This is a good and often missed opportunity for researchers.

6. FUTURE AVENUES OF RESEARCH

My plans for future research projects are varied. For example, I am still working on the topic of supplier relationship assessment, seeking in particular to convert the IMP conference paper from last year (Johnsen et al, 2010) into a journal paper. I am also still working on global sourcing, both through publication of the Ikea case study, which was part of the JIBS Global Supply Chain Development project, and through exploitation of the data from the recent International Purchasing Survey (IPS) where Audencia/PASCA was one of the 11 international partners.⁶ I am currently co-authoring a work-in-progress paper for the 2011 IPSERA conference focusing on links between global sourcing and commodity strategies. I am also becoming more involved in studies of public procurement and I intend to contribute to the study of public procurement in France, which seems like a good opportunity as so little research has been done in this area. I have also recently been asked to be part of a 3-year Danish research project on “Innovation in Business Networks” at Southern Denmark Business School (TBC). Finally, I intend to begin a small project analyzing the state of purchasing research in France, analyzing French contributions in national and international journals. However, these projects are relatively short term; they either seek to exploit existing data and future research plans have not yet been formalized or they are relatively minor avenues of research. As there are many opportunities it is also likely that not all will materialize and chosen need to be made.

There are two research programmes that I intend to focus on the next three-five years: Programme A) Sustainable procurement and Programme B) Purchasing and supplier involvement in discontinuous innovation. These are briefly discussed in the following. Overall, the plan for these two programmes is as follows:

Table 7. Research Plan 2011-2014

	Programme A: Sustainable Procurement	Programme B: Purchasing and supplier involvement in discontinuous innovation	Other Potential Projects
2011:	FusionCo2 project under way ORA application to be submitted (joint European project) Co-editing JPSM special issue “Sustainable Procurement” in progress	Preparing proposal and literature review/conceptual paper for IPSERA 2011 conference Exploring funding options	Publishing findings from IPS survey Preparing and submitting supplier relationship assessment paper to journal Revising papers on global sourcing and TLM Possibly join Danish innovation in business networks project (late 2011)
2012:	FusionCo2 project completed: disseminate	Beginning project: workshop and case studies	Research for paper on the state of purchasing research

⁶ The IPS survey examines the link between purchasing strategy and purchasing performance, looking for correlation between category (commodity) strategy, category performance and purchasing performance. The IPS survey is an international comparative survey designed to be repeated on an annual or biannual basis

	findings ORA project to begin Co-edited JPSM special issue "Sustainable Procurement" published		in France
2013:	ORA project under way	Project under way/completed	Other projects possibly under way Chairing IPSERSA conference at Audencia
2014:	ORA project completed	Explore options for new project within same theme	Other project options to be explored

6.1. Programme A: Sustainable Procurement

Perhaps the single most important challenge and opportunity to purchasing and supply management is the trend towards sustainable economic development. This is not a new trend but one that has certainly gained momentum during the last ten years or so, where concepts such as ethical sourcing (e.g. Preuss, 2009), corporate social responsibility in the supply chain (e.g. Maloni & Brown, 2006), socially-responsible buying (e.g. Maignan et al, 2002) and green supply chains (e.g. Mollenkopf et al, 2010) have emerged.

My interest in this area is relatively recent and is essentially motivated by a recognition that sustainable procurement, or whichever term one chooses to use, is not a passing fad but is here to stay and it may even become even more important. At the latest IPSERA conference in Finland in 2010 I noticed that approximately 30% of all the paper presented concerned issues to do with sustainability: the purchasing community has really woken up to the seriousness of this challenge. Many companies view sustainability negatively, as a pricy hurdle they have to cope with. Others, however, view it as an opportunity, for example, in a recent article in the Harvard Business Review Nidumolu, Prahalad and Rangaswami (2009) argue that sustainability is now a key driver of innovation – it is an opportunity that companies need to grasp. Likewise, I have also realised that sustainable procurement is an opportunity both for research and for teaching programmes. In fact, the trend towards sustainability positively seems to draw more interest from the outside world (politicians, consumers etc.) into purchasing and supply chain management. The logic behind this trend is that, as Krause, Vachon & Klassen (2009) put it: a company is no more sustainable than the suppliers it sources from. This puts purchasing and supply management in a central position on the road to achieving sustainability. Moreover, fully understanding a company's sustainability profile requires a view of not only direct suppliers but also the extended supply chain or even the wider network it operates within.

I conducted initial research into issues that relate to sustainable procurement when I took part in a literature review of green buying, which resulted in a conference paper on 'A network approach to green buying' (Xu, Walker, and Nairn, 2007) presented at the 2007 IMP conference. Since then I conducted further literature reviews into green supplier maturity models (Miemczyk, Johnsen, and Bernadin, 2009) and a wider review of the sustainable purchasing and supply chain management literature (Miemczyk and Johnsen, 2010). I currently have a more advanced version of this paper in review with *Supply Chain Management: an International Journal* (Miemczyk, Johnsen and Macquet), which seeks to identify the extent to which research has spanned dyads,

supply chains and wider industrial networks and the extent to which extant research has embraced both ethical and environmental issues.

In addition to early literature reviews and conceptual developments, I co-chaired an IPSERA workshop on sustainable purchasing and supply management in 2010 and I am co-editing a special issue in *Journal of Purchasing & Supply Management* (with Walker, Spencer, and Miemczyk). But most importantly I am now co-leading a funded French research project called 'FusionCo2' funded by the French body PREDIT focusing on 'Evaluation of green supply chains through a criteria risk/carbon footprint' and 'Supplier relationship management & environmental performance'.⁷ Project FusionCo2 is an 18-month long project that involves a large research team examining both logistical and purchasing issues. Having begun in January 2011 the project commences with a literature review work package, which I lead. I also lead the theme on purchasing and supplier relationship management roles in improving environmental performance, which involves a research team of five PhD students as well as senior colleagues (Dr Joe Miemczyk and Prof. Thierry Sauvage). FusionCo2 will involve in-depth case studies with companies such as Airbus, Valeo and Danone and is due to be completed in mid-2012; it will be instrumental in furthering my research into sustainable procurement.

I am also involved in putting together a proposal for the Open Research Area (ORA) in Europe for the Social Sciences, which supports collaborative European research projects through national funding bodies (ANR in France, DFG in Germany, ESRC in UK and NWO in Netherlands). The title of the project is "Sustainable supply chain management: case studies from the public and private sector in France, Germany, the Netherlands and the UK". This 36-month project is to be undertaken with Professors Helen Walker (UK), Michael Essig (Germany), Dirk-Jan Kamann (Netherlands) (and I am to lead the French part). The research will entail the investigators in each country conducting in-depth case studies in the public and the private sectors. Cases will be sought in different industries and parts of the public sector. Each investigator will conduct a product and a service case in the public and private sectors, leading to a total of 16 cases across the 4 countries. Data collection is to involve three stages: (1) tender document analysis, (2) interviews and a (3) survey. The plan is to submit the proposal in 2011.

6.2. Programme B: Purchasing and Supplier Involvement in Discontinuous Innovation

Much of my research has focused on the interface between supplier relationships and innovation. My PhD focused on collaboration processes within customer-supplier relationships but also on wider supply network effects on this collaboration process, including how innovating companies could access and involve indirect suppliers through delegation and intervention strategies. The four projects I studied in my PhD were new product development projects that involved some innovations but could most accurately be described as incremental innovations. In the ISN project the relevance of different external partners for different types of innovation was a key theme. Our paper called 'Centrality of customer and supplier relationships in innovation' (Johnsen et al, 2006) used empirical findings from the healthcare industry to question the relevance of supplier, customer/user, and university research centre involvement. The ISN project also included studies of the tissue engineering industry: an emerging industry where supply models have not yet emerged hence early supplier involvement was not an issue (Phillips et al, 2011). Finally, my recent literature review paper of supplier involvement in product development and innovation (Johnsen, 2009) identified that existing studies have identified that early and extensive supplier involvement may not be beneficial when companies are faced with radical innovation (Figure 11).

⁷ PREDIT is a programme of research, experimentation and innovation in land transport, founded by the ministries in charge of research, transport, environment and industry, the ADEME (French Agency for the Environment and Energy Management and the ANVAR (French Agency for Innovation).

Although studies show some disagreement (see Petersen et al, 2005), research is beginning to evolve suggesting that existing suppliers may be less important than new suppliers in conditions of technology uncertainty i.e. radical innovation.

Bessant et al (2005) and Phillips et al (2006) have taken this further and explored the role of suppliers in discontinuous innovation; in other words innovations that fundamentally break with existing technological paradigms, suggesting that under the conditions of discontinuous innovation the “rules of the game” change necessitating the need to look unfamiliar “dark” areas and developing relationships with organisations from unfamiliar zones. Such innovations are rarer than ‘normal’ NPD (including incremental and radical) NPD, but when they do happen they discontinue or disrupt existing business models and make existing products redundant. Arguing that discontinuous innovation calls for involvement of suppliers located outside existing supply chains, Phillips et al (2006) suggested that long-term stable supplier partnerships may have limited innovative potential; supplier ‘dalliances’ (new unknown suppliers) rather than alliances are required. According to this emerging idea, innovating companies should therefore seek to develop short-term relationships with actors that are located on the periphery or even outside the company’s usual perceived supply chain boundary. Pursuing traditional ESI may therefore be the wrong strategy if companies want to pursue discontinuous innovation. Very little research exists that have explored how discontinuous – or disruptive – innovation may change the need for and processes of ESI and the role of Purchasing in facilitating this process is more or less entirely unknown a represents and major research gap. Therefore this emerging research project raises the question: *what is the role of Purchasing and supplier involvement in discontinuous innovation?*

I have recently put together an initial research proposal with Prof. Richard Calvi and Dr Wendy Phillips and a work-in-progress paper is to be presented at the IPSERA 2011 conference. We are currently in discussion with potential sponsors of the project through a new French initiative called Input² (an international purchasing think tank created by senior purchasing executives and academics). Essentially, this new project aims to examine the role of purchasing and supplier involvement in discontinuous innovation. Within the overall research aim the specific objectives are to:

- identify how purchasing can play a role in facilitating strategic dalliances with new and unknown suppliers
- investigate how purchasing and supplier involvement practices for discontinuous innovation can become established and routinised within companies
- identify how the issue of timing of supplier involvement is affected by a discontinuous innovation context
- explore how to attract unknown suppliers from outside existing supply chains and industries

Thus far, only literature review and conceptual work has been conducted, but the plan is to carry out a small set of in-depth case studies. These may span several countries in order to enable country comparisons and represent different degrees of change i.e. both discontinuous product innovation and ‘normal’ incremental NPD projects. It is envisioned that four case studies will be conducted per country and the target is to replicate the studies in three-four countries.

7. CONCLUSIONS AND REFLECTIONS

7.1. Research Experience: Part of an Emerging Discipline

This report begun by explaining that purchasing and supply management is a growing field – or ‘emerging discipline of study’ (Harland et al, 2006). Many companies have changed their view of, and approach to, purchasing to the extent that purchasing is regarded as a strategically critical function in many modern organisations and purchasing can even play a key role in driving competitive advantage. It is to this emerging discipline of purchasing and supply management that I have sought to contribute during the last 15 years of research and the HDR report has described my efforts and achievements.

I found myself at the heart of the development of purchasing as an emerging discipline when I joined CRiSPS at the University of Bath as a Research Officer in 1996. Bath was the first university in the UK to create a professorial chair in purchasing funded by the UK Chartered Institute of Purchasing & Supply (CIPS) and I was working under the direction of this professor: Richard Lamming. CRiSPS was for many years the flagship of purchasing research in Europe and I was fortunate enough to do my research (and teach) at Bath over a period that spans in total approximately ten years (1996-2000; 2002-2008). The majority of my research has therefore taken place within this stimulating and productive research environment. I have taken part in the development of a range of new concepts, models and general academic debate, initially as a ‘one of the research team’ and more latterly as a research leader. Indeed, I have worked for - and with - many leading capacities in the field, including Professors Richard Lamming, Christine Harland, David Ford, John Bessant, Mike Lewis, Nick Oliver, and I continue to be inspired not only by their theoretical concepts but also by their ways of working and their drive. I now seek to build on this experience and direct the research of others using the same methods and principles that I learned over the years. This is challenging - especially in a different language - but rewarding.

The report provided an overview of the major research projects in which I have been involved. All these projects have concerned issues to do with purchasing and supply management. More specifically, the general themes of my research have been customer-supplier relationships, the embeddedness of dyadic relationships in wider supply networks, and the management of new product development and innovation within a supply network context. It is this interface between inter-organisational management and development/innovation of new products that forms the core of my research. My contribution to the field of purchasing and supply management is specifically focused on developing a richer understanding of the development and management of product development and innovation within buyer-supplier relationships and networks.

This report has described how my research is grounded in the Interaction Approach and industrial network theory as developed by the Industrial Marketing & Purchasing (IMP) group (e.g. Håkansson, 1982), although I tend to divert from IMP theory by having a more managerial ambition. This stand was originally shaped by having carried out my PhD thesis under the direction of Prof. David Ford (one of the founders of the IMP group) and at the same time working under the direction of four professors (Lamming, Harland, Bessant and Oliver) who used many of the concepts and models developed by the IMP group but had more managerial and even normative objectives. Working within and across the two academic communities of IMP and IPSERA (International Purchasing & Supply Education & Research Association) has often been very difficult given their sometimes opposite viewpoints, but it has also been a great source of knowledge and inspiration.

More than any other project the Inter-Organisational Networking (ION) Project developed me as a researcher. ION essentially focused on networking activities for creating and managing different types of network, including supply, innovation and learning networks. It built on and related to IMP research but adopted a more normative perspective, refuting the IMP assumption that

networks cannot be created and managed (Håkansson and Snehota, 1995). Participating in Project ION gave me a thorough conceptual understanding of customer-supplier relationships and different types of network, especially supply networks, a concept which I played a role in developing through several publications (e.g. Lamming, Johnsen, Harland and Zheng, 2000; Harland, Zheng, Johnsen, and Lamming, 2004). Particularly, I gained an understanding of the importance of studying phenomena at different levels of relationship and network analysis, an analytical framework I have made much use of over the years (e.g. Phillips, Johnsen, Caldwell and Lewis, 2006; Johnsen, Lamming and Harland, 2008; Miemczyk and Johnsen, 2010).

My PhD thesis introduced me to a different research community (the IMP) and it made me understand some perspectives on industrial networks which I did not fully appreciate through Project ION. Most importantly, it made me realise that the question of whether or not companies can manage networks is not so much ontological but almost purely semantic. In other words, it is not only a question of how active and powerful one assumes companies (or actors) in networks to be but also a question of what one understands by 'manage' and 'network'. As the IMP group defines networks as boundary-less (it is only for purposes of analysis that one can draw a boundary around a network) it makes little sense to talk about managing a network. By contrast, the concept of supply networks is much more closely aligned with the concept of supply chain, so it is more feasible to conceive of supply network management (although based on IMP logic I often also question the idea of supply chain - or network – management as I find that there can be rather naïve ideas about the extent to which a company can manage (control) the chain of suppliers and customers that make up supply chains/networks).

I began my research, like so many other scholars in the field, by examining private sector manufacturing industries. This included studies of the automotive, telecommunications, pharmaceutical and fast moving consumer goods (FMCG) industries. The ISN project shifted the industrial context from private sector manufacturing to the healthcare sector, which included public sector perspectives through the key role of the UK NHS as an important customer. This diversification of research contexts from private sector manufacturing into public and service sector spheres also continued with my study of the UK defence industry. This diversification is important to reflect the realities of western world economies that rely increasingly on both public and service sector industries; there is undoubtedly a research gap and a need that needs to be filled.

I have tended to use an in-depth case study methodology to study these wide empirical contexts. This report has evaluated my approach to the case study method, reflecting on my philosophical assumptions and on practical methods for dealing with case studies of inter-organisational relationship and network. Based on this experience, I recommended to researchers in purchasing and supply management that they consider critical realist and moderate constructionist perspectives as these are suitable for case studies of inter-organisational phenomena, such as buyer-supplier relationship or supply network research. Inductive and abductive approaches fit these philosophical standpoints. In my experience there is often confusion about what makes a case study: a case study is not the same as a study of a company. Instead, there is much scientific value in defining case studies across organisational boundaries. I discussed the problem of determining network boundaries. In several parts of the report I related these issues to the problem of publishing research results especially in journals that accept purchasing and supply management research.

7.2. Future Research Projects

My HDR report outlined my plans for two research projects on which I intend to focus my work over the next five years or so. One of these is sustainable procurement; a theme that I strongly believe provides both a challenge and an opportunity for a significant amount of purchasing research for a foreseeable future. The FusionCO2 project, which started in January 2011 at Audencia/PASCA, provides an opportunity to deliver empirical findings on this emerging topic; I am also pursuing this theme through other activities such as guest editing a special issue in the *Journal of Purchasing & Supply Management*.

The other future project I outlined concerns the role of suppliers and purchasing in discontinuous innovation: innovations that fundamentally break with existing technological paradigms. Much of my research has examined the involvement of supplier in new product development (incremental innovation). However, recent research suggests that discontinuous innovation requires involvement of suppliers located outside existing supply chains and that new supplier relationships are required for such ventures. I have recently put together an initial research proposal and a paper with Prof. Richard Calvi and Dr Wendy Phillips and I intend for this project to provide a major focus of my research in near future.

7.3. Leading Purchasing Research in France: a Vision

The purpose of my HDR is to be able to supervise and direct research in France both through funded projects and doctoral students. I have already supervised one PhD student to completion in the UK and evaluated several PhD theses. I have also co-supervised doctoral students at Audencia but I am keen to assume the responsibility of lead supervisor and this was one of the main incentives for me to complete the HDR.

I feel confident that there is scope for making a real contribution to purchasing research in France and to help improving the international visibility of purchasing research in France. I see a major opportunity for making purchasing research in France much more visible internationally; since I assumed my role at Audencia, I have helped to put Audencia and France on the international academic purchasing and supply management 'map' by:

- representing France in major international comparative studies such as the International Purchasing Survey (IPS) and the International Public Procurement Research Study (IRSP)
- leading the Audencia certification as IPSERA centre of excellence and regional node (as one of three such centres together with IAE Grenoble and the European Institute for Purchasing Management (EIPM))
- joining the 9-strong editorial board of *Journal of Purchasing & Supply Management* (first ever French member)
- hosting and chairing the IPSERA 2013 conference at Audencia

My vision is therefore to continue to contribute to international purchasing and supply management research and, within France, to improve the international visibility of French research. There has been a relative lack of international visibility of French purchasing research: for example since the inauguration of JPSM in 1994 there have been 10 articles written by authors with French affiliations. By comparison, in the same period there were 28 Italian and 27 German authorships. If we consider the most prestigious journal in the field (*Journal of Operations Management: JOM*) there were 12 Italian-based papers during the same period and only two French (both from INSEAD). However, this does not seem to be due to a lack of research activity; for example there is currently much research on sustainable procurement and supply chain management funded by French funding bodies. International publications do not seem to be a

major priority amongst purchasing French academics.⁸ Given the size of the French economy and the general level of academia in France this is a missed opportunity for purchasing research.

The challenges of publishing research findings in international journals are significant. Even during the last 10 years the 'publishing game' has become more difficult. For example, JPSM has developed from a new learned journal with both a practitioner and academic focus (and inevitably with a low or no ranking) to a fully developed scholarly journal with ISI impact factor approval (Lamming, 2010). This has naturally made publishing in JPSM more difficult and there is little doubt that this higher standard is reflected in the other journals in the field (not least as other journals acquire ISI approval such as the Journal of Supply Chain Management). As it becomes more difficult to publish in the international journals, the standard of research produced must increase, both by doctoral students and by professors.

There may also be a need for reassessment of what constitutes good research: in France there seems to be (at least in the business schools/grand ecoles) a tendency to focus on the development and testing of managerial models, that is, a strong normative orientation. Such research can be highly problematic to publish in international academic journals. This is not to suggest that research should not seek to formulate managerial implications but in order to be published research must usually (unless the paper is conceptual) be based on rigorous primary data analysis. In addition to the language barrier that always exists whenever one tries to write in a foreign language, some French researchers may therefore need to tone down their normative ambition. I intend to play a facilitating role in this process. And my gaining the HDR will form an important part in continuing this project.

⁸ Doing the same journal analysis of publications in Industrial Marketing Management (IMM), where IMP researchers feature strongly, the picture is very different: 34 articles feature French authors 1994-2011 (February) where 15 of these by EM Lyon authors. This is comparable with Italy and Germany, in fact, during this period there were only 29 Italian (and 36 German) contributions.

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8. Johnsen, T.E. Phillips, W., Caldwell, N. and Lewis, M. (2006) 'Centrality of Customer and Supplier Interaction in Innovation'. *Journal of Business Research*, Vol. 59, Issue 6, pp. 671-678.
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3. Dickinson, G., Johnsen, T.E., and Harland, C. (2010) Evidence-based Purchasing: Does Evidence make any Difference to Purchasing Decisions? In *Proceedings of the 18th IPSERA Conference*, 16-19 May, Lappeenranta University, Finland.
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31. Zheng, J., Harland, C.M., Johnsen, T.E., Lamming, R.C., (2001) 'A Taxonomy of Supply Networks'. In the *Proceedings of the 10th International IPSERA Conference*, Jönköping International Business School, Sweden, pp. 895 – 908.
32. Lamming, R.C., Johnsen, T.E., Harland, C.M. and Zheng, J (2000) 'Managing in Supply Networks: Cascade and Intervention'. In *Proceedings of the 9th International IPSERA Conference*, University of Western Ontario, Canada.
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39. Zheng, J., Johnsen, T.E., Harland, C. M., Lamming, R. (1998) 'Initial Conceptual Framework for Creation and Operation of Supply Networks'. In *Proceedings of the 14th IMP Conference*, pp. 591 – 613, Turku School of Economics and Business Administration, Finland.
40. Johnsen, R.E. and Johnsen, T.E. (1998) 'Competitor Networks as a Mechanism for Internationalisation'. In *Proceedings of the 14th IMP Conference*, pp. 359 – 377, Turku School of Economics and Business Administration, Finland.
41. Zheng, J. Harland, C. M., Johnsen, T., Lamming, R. (1997) 'Features of Supply Networks'. In *Proceedings of the British Academy of Management Conference*, September, London, England.

SELECTED INVITED SEMINARS, GUEST LECTURES AND EXECUTIVE COURSES

'Beyond Early Supplier Involvement in Product Development: Strategies for Managing Innovation in Supply Networks' (2010) Keynote presentation at the international trade fair for the subcontracting industry, The Finnish Association of Purchasing and Logistics Association LOGY, 20 September Tampere, Finland.

"How can Procurement Contribute to Innovation? From Theory to Practice" Hosted Round Table organised by the Finnish Association of Purchasing and Logistics Association LOGY, 21 September Tampere, Finland.

'Vendor Management' (2010) 2 day executive development course, April, Dipoli, Helsinki, Finland.

'Vendor Management' (2009) 2 day executive development course, August, Dipoli, Helsinki, Finland.

'Supplier Involvement in the Development of the Airbus A380' (2009) Presentation at Audencia Nantes Ecole de Management (PASCA), April, Nantes, France.

'Vendor Management' (2008) 2 day executive development course, December, Dipoli, Helsinki, Finland.

'Vendor Management' (2008) 2 day executive development course, April, Dipoli, Helsinki, Finland.

'Supplier Involvement in Radical Product Innovation' (2007) Presentation at Audencia Nantes Ecole de Management, Purchasing & Supply Chain Atlantique (PASCA), October, Saint Nazaire, France.

'Supplier Involvement in Product Innovation: Managerial Challenges' (2007) Keynote speaker at the 14th European Round Table for Senior Purchasing Executives, The European Institute of Purchasing Management (EIPM), 8 June, Divonne les Bains, France.

'Managing Innovation in Healthcare Supply Networks' (2006) Presentation at evening seminar, 7 June. Centre for Research in Strategic Purchasing & Supply, University of Bath.

'Operations & Supply Chain Management' (2005) Jointly responsible for 30-hour elective on Full-Time MBA, Winter, Copenhagen Business School, Denmark.

'Supplier Involvement in Product Development' (2005) Keynote presentation at Nokia Sourcing Academy seminar, 2 December, Helsinki, Finland.

‘Supply Chain Management’ (2005) Responsible for 12-hour elective on Full-Time MBA, 6-9 June, Copenhagen Business School, Denmark.

‘Relationship Management: A Lean Supply Perspective’ (2005) presented at Southern Denmark Business School, 26 May, Institute for Entrepreneurship and Relationship Management, Denmark.

‘Managing Innovation in Supply Networks’: New Insights from the UK Health Care Sector’ (2005), presented at Jönköping International Business School, 12 May, Sweden.

‘Supplier Involvement in Product Development’ (2005) presented at workshop on supply chain management, Nässjö Näringsliv AB, Sweden, 11 May.

‘Managing Innovation in Healthcare Supply Networks’ (2004) presented at BAM SIG IOR workshop, 14 December, University of Bath, UK.

‘Product Development in Networks: Synergy Effects’ (2004) Keynote presentation at Danish Agricultural Council, 22 September, Copenhagen, Denmark.

‘Project CISN: Collaborative Innovation in Supply Networks’ (2001), presented at Center for Industrial Production, 29 November, Aalborg University, Denmark.

‘Project ION: Inter-Organisational Networking’ (2001), presented at Center for Industrial Production, 29 November, Aalborg University, Denmark,

‘Managing Collaborative Innovation in Complex Networks’ (2001), presented at Stockholm School of Economics, 6 April, Stockholm University, Sweden.

‘Managing Supply Networks: Myth or Reality?’ (2000) presented at the Centre for Organisational Effectiveness, 19 October, Bournemouth University, UK.

‘Projekt ION: Teori og Resultater’ (2000), keynote presentation at Den Danske Logistik Konference (2000), 14 – 15 June, Scandic Hotel, Copenhagen, Denmark.

APPENDIX 1: CV

Dr Thomas Johnsen, BSc, MSc, PhD, MCIPS

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Téléphone personnel +33 (0) 240 874 936
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PROFIL

Thomas est Professeur Associé en Achats et Supply Chain Management à Audencia Nantes Ecole de Management en France. Avant de rejoindre Audencia, il a été Lecturer en Achats et Supply Chain Management à l'Université de Bath en Angleterre et membre du Centre for Research in Strategic Purchasing and Supply (CRiSPS) (Centre de recherche en achats stratégiques). Suite à plus de dix années de recherches sur les relations acheteur-fournisseur et les réseaux, il s'intéresse aujourd'hui à la gestion de l'innovation technologique dans les réseaux d'approvisionnement. Thomas a été professeur invité à Jönköping International Business School en Suède, et membre du comité exécutif de l'International Purchasing & Supply Education & Research Association (IPSEERA). Il est actuellement Book Review Editor de la revue Journal of Purchasing & Supply Management. Ses plus récents articles ont été publiés dans des revues de renommée internationale, dont Journal of Business Research, Journal of Purchasing & Supply Management, Industrial Marketing Management, Supply Chain Management: an International Journal, European Management Journal, British Journal of Management, Journal of Supply Chain Management, et International Journal of Operations and Production Management.

EXPERIENCE

1) Professeur Associé en Achat & Supply Management

Septembre 2008 à aujourd'hui
Audencia Nantes Ecole de Management et PASCA (Pole Achat et Supply Chain Atlantique), France

Enseignement et encadrement pédagogique :

2009/2010 :

- Full-Time MBA : "Supply Chain Management", 12 étudiants
- M.Sc. (Master of Science / équivalent Master 2 en France) : "Purchasing Fundamentals", 12 étudiants
- Full-Time MBA : "Operations Management" (1 session)
- Programme Grande Ecole : "Logistics Management" (2 sessions d'une journée), environ 60 étudiants par groupe
- Mastère Spécialisé "Management Global des Achats et de la Supply Chain" (1 journée)
- Co-encadrement d'une thèse de Doctorat (doctorant : Amine Rachi / Directeur de thèse : Thierry Sauvage)
- Encadrement de deux mémoires de MBA et un mémoire de M.Sc.

2008/2009 :

- Full-Time MBA : "Supply Chain Management", 4 étudiants
- Programme Grande Ecole / Master International : "Successful Purchasing Management", 12 étudiants
- Full-Time MBA : "Operations Management" (1 session)
- Mastère Spécialisé "Management Global des Achats et de la Supply Chain" (1 journée)
- Programme Grande Ecole "Logistics Management" (8 sessions), environ 60 étudiants par groupe
- Co-encadrement d'une thèse de Doctorat (doctorant : Amine Rachi / Directeur de thèse : Thierry Sauvage)
- Formation continue : coaching de l'entreprise Magellan
- Encadrement d'un mémoire de Master recherche et de deux mémoires de M.Sc.

Recherche :

- Chair du projet de congrès annuel d'IPSERA à Audencia en 2013
- Coordinateur de la labellisation d'Audencia en tant que "Centre d'excellence en achats et approvisionnement" par IPSERA (*International Purchasing and Supply Education and Research Association*). Contact principal d'IPSERA.
- Co-chair d'un séminaire d'IPSERA sur les achats durables organisé les 16-17 Septembre 2010 par le PASCA / Audencia
- Coordinateur de l'étude de cas sur les marchés publics menée par Audencia en France dans le cadre de la 4ème étude internationale de recherche sur les marchés publics (*International Research Study of Public Procurement / IRSP*)
- Responsable du développement international du PASCA (en attente d'approbation)
- Contribution à la participation d'Audencia à la première enquête internationale sur les achats (*International Purchasing Survey / IPS*)
- Contribution à des demandes de financement (programme COST de l'Union Européenne par exemple)

2) Lecturer (Professeur Assistant) en Achat & Supply Management

Juin 2002 – Septembre 2008

Operations & Supply Group/Centre for Research in Strategic Purchasing and Supply (CRiSPS)
(Centre de recherche en achats stratégiques et approvisionnement), University of Bath School of Management, Grande-Bretagne

Enseignement et encadrement pédagogique :

2007/2008 :

- Electif MBA "Purchasing & Supply Strategy", 12 étudiants
- Bath Executive MBA in Athens : la moitié du module "Operations Management"
- MBA : "Managing Innovation in Supply Networks" (1 journée), 10 étudiants
- Formation continue : QinetiQ (entreprise anglaise) sur "Innovation & Creativity" : 12 groupes, environ 25 étudiants par groupe, 300 étudiants au total
- M.Sc. (Master of Science / équivalent Master 2 en France) : "Operations Management" (1 journée), environ 150 étudiants
- Master of Research : Méthodologie de recherche d'une étude de cas (3 heures)

Encadrement de mémoires et thèses de Ph.D :

- Encadrement de 7 mémoires de M.Sc. et MBA
- Co-encadrement d'un étudiant en Ph.D, Graham Dickinson (avec le Professeur Harland); thèse financée dans le cadre du projet "Innovation in Supply Networks" du CRiSPS.
Sujet de thèse sur la mesure de la performance et la gestion de l'innovation dans les réseaux de fournisseurs. Thèse soutenue en 2008.

2006/2007 :

- Electif "Supply Management" - 3^{ème} année de B.Sc. (équivalent à une licence en France) et M.Sc. en Management (Master 2 en France). Deux fois par an : 76 étudiants en semestre 2; 24 étudiants en semestre 1.
- Electif MBA "Supply Strategy: Concepts and Implementation", 10 étudiants
- Formation continue : QinetiQ (entreprise anglaise) sur "Innovation & Creativity"
- Executive MBA d'Athènes : la moitié du module "Operations Management"
- MBA : "Managing Innovation in Supply Networks", 15 étudiants
- MBA : "Product and Service Innovation", 15 étudiants
- BSc. et M.Sc. : "Operations Management", environ 150 étudiants
- Master of Research : Méthodologie de recherche d'une étude de cas (3 heures)

Encadrement de mémoires et thèses de Ph.D :

- Encadrement de 7 mémoires de M.Sc. et MBA
- Co-encadrement d'un étudiant en Ph.D, Graham Dickinson (avec le Professeur Harland)

2005/2006 :

- Electif "Supply Management" auprès d'étudiants de 3^{ème} année en BSc. et M.Sc. (Management) : 49 étudiants en semestre 2, 33 étudiants en semestre 1
- Electif MBA "Supply Strategy: Concepts and Implementation", 21 étudiants
- Executive MBA "Supply Chain and Network Management", 15 étudiants
- MBA : "Managing Innovation in Supply Networks", 15 étudiants
- MBA : "Product and Service Innovation", 15 étudiants
- BSc. et M.Sc. : "Operations Management", environ 150 étudiants
- Formation continue : QinetiQ (entreprise anglaise) sur "Innovation & Creativity", 25 participants

Encadrement de mémoires et thèses de Ph.D :

- Encadrement de 7 mémoires de M.Sc. et MBA
- Co-encadrement d'un étudiant en Ph.D, Graham Dickinson (avec le Professeur Harland), ancien étudiant en M.Phil (DEA en France), inscription en Ph.D en 2006. Aide dans l'obtention d'une bourse d'IPSER pour la présentation d'une communication à la conférence d'IPSER en 2006.
- Participation au jury de passage de la 2^{ème} année vers la 3^{ème} année de Ph.D de Jens Roerich en décembre 2006
- Participation au jury de Ph.D viva voce d'Angus Chang en décembre 2006

2004/2005 :

- "Supply Management" : environ 40 étudiants de 3^{ème} année en semestre 1; 20 étudiants en semestre 2
- MBA : "Supply Strategy: Concepts and Implementation", environ 15 étudiants
- Executive MBA : "Supply Chain Management", environ 15 étudiants

- Executive MBA d'Athènes : la moitié du module "Operations Management", environ 20 étudiants
- MBA "Managing Innovation in Supply Networks", environ 10 étudiants
- Formation continue : QinetiQ (entreprise anglaise) sur "Innovation & Creativity"

Encadrement de mémoires et thèses de Ph.D :

- Démarrage du co-encadrement d'un étudiant en Ph.D, Graham Dickinson (avec le Professeur Harland)
- Encadrement de 7 mémoires de M.Sc. et MBA
- Participation au jury de Ph.D *viva voce* d'Alex Hill en février 2005

2003/2004 :

- "Supply Management" : environ 50 étudiants de 3^{ème} année en semestre 1; 26 étudiants en semestre 2
- B.Sc. (Licence en France) : "Advanced Supply Management" : 8 étudiants de 3^{ème} année
- B.Sc. : "Operations Management" : environ 100 étudiants de 2^{ème} année
- MBA "Operations Management" : 3 sessions (de 9 heures), environ 25 étudiants
- Electif MBA "Product Innovation" : environ 8 étudiants (3 heures)
- Executive MBA d'Athènes: la moitié du module "Operations Management", environ 20 étudiants

Encadrement de mémoires et thèses de Ph.D :

- Encadrement de 7 mémoires de M.Sc. et MBA

2002/2003 :

- "Supply Management" : environ 60 étudiants de 3^{ème} année en semestre 1, 25 étudiants en semestre 2
- B.Sc. : "Advanced Supply Management" : 10 étudiants de 3^{ème} année
- B.Sc. : "Operations Management" : environ 100 étudiants de 2^{ème} année
- MBA : "Operations Management" (3 heures)

Encadrement de mémoires et thèses de Ph.D :

- Encadrement de 7 mémoires de M.Sc. et MBA

Enseignement et recherche :

Enseignement et management :

2007/2008 : Directeur des études : J'ai été nommé Directeur des études à l'occasion de la création d'un nouveau Mastère (M.Sc.) sur l'innovation et la gestion de la technologie, en collaboration avec le département d'ingénierie mécanique, en 2008. J'étais chargé du développement du programme (caractéristiques et réglementation), de la stratégie de marketing et communication en collaboration avec le service marketing de l'École, et de la formalisation des accords de collaboration entre le département d'ingénierie mécanique et l'École. J'ai préparé tous les éléments requis pour l'approbation de T&Q (*teaching and quality committee of the School*) en juillet 2007, du Conseil des études en septembre 2007, et du Conseil d'approbation des programmes de l'université en octobre 2007. Comme il s'agissait du premier programme M.Sc.

conjoint en gestion/génie mécanique de l'université, et donc d'un projet innovant et d'envergure, ce fut une responsabilité managériale complexe.

2006/2007 : membre du comité de pilotage stratégique de l'École : Le comité était constitué de 11 membres parmi le personnel chargés d'évaluer et de développer la stratégie d'entreprise de l'École.

2003/2008 : agent de liaison CIPS : J'ai fait le lien entre l'École et le *Chartered Institute of Purchasing and Supply (CIPS)*, qui a accrédité certains programmes de M.Sc. et MBA. J'ai mené des négociations avec le CIPS pour le renouvellement des accréditations annuelles. J'ai également représenté Bath lors du Forum académique du CIPS, qui vise à rassembler les universités du Royaume-Uni accréditées par le CIPS en vue d'échanger sur les expériences de conception et de gestion de cours en achats et gestion de l'approvisionnement, et d'évaluer le processus d'accréditation existant.

2005/2008 : Conseil des études: J'ai été membre du Conseil des études de l'École.

Recherche :

2004/2006 : Chef de projet ISN (Innovation and Supply Networks) financé à hauteur de 351 673 £ par l'IMRC (*Innovative Manufacturing Research Centre*) qui fait partie de l'EPSRC (*Engineering and Physical Sciences Research Council*) et emploie deux assistantes de recherche et un administrateur de projet. Ce projet consistait à étudier le processus de direction et de gestion de l'innovation dans des réseaux d'approvisionnement complexes, notamment dans les secteurs de la santé, de l'aérospatial et de la défense. Ce projet a duré deux ans. Une enquête exploratoire, une série d'études de cas approfondies et un rapport final sur le projet ont été réalisés.

Chercheur principal du projet DIF "Discontinuous Innovation Forum" (Forum de l'innovation discontinue) en collaboration avec l'Université de Cranfield, The OXIS Partnership et Thames Valley Technology Ltd, financé pendant 19 mois par la DTI (*Department of Trade and Industry*). Ce forum aide les entreprises à adopter des innovations discontinues par l'intégration et la gestion des technologies émergentes. Ce projet était à l'origine dirigé par le Professeur Richard Lamming, je l'ai repris à son départ de l'université.

2007/2008 : Conseiller scientifique : j'ai été membre du Conseil scientifique de l'École à partir de 2007, jusqu'à mon départ de Bath en 2008.

3) Visiting Professor (Professeur Associé) en management logistique

Septembre 2005 – Septembre 2009

Jönköping International Business School (JIBS), Suède

- Recruté comme Professeur affilié (Professeur assistant) en septembre 2005
- Nommé Professeur associé en mai 2007
- Membre du *Centre of Logistics & Supply Chain Management (CeLS)*, "Senior Academic" sur un projet de développement de la chaîne logistique financé par Swedish research council Vinnova (agence suédoise des systèmes de l'innovation) à hauteur d'environ 300 000 euros
- Co-encadrement d'un étudiant en Ph.D, Lianguang Cui (avec Susanne Hertz).
- Enseignant dans les programmes de B.Sc. (licence) et M.Sc. (maîtrise) et de formation continue

4) Senior Lecturer (Maître de conférence) en management international

Juin 2000 – Juin 2002

The Business School, Bournemouth University, Grande-Bretagne

- Programmes de Master (principalement le Master of Arts International Business Administration et le Master of Arts International Marketing Management) : "Cross-Cultural Management" et "Research Methodology"
- Encadrement de plus de 40 mémoires de Masters
- Création et mise en œuvre de procédures d'encadrement des mémoires
- Mise en place de procédures pour mettre en cohérence les mémoires des étudiants avec la stratégie de recherche de l'École et faciliter la publication du corps professoral (organisation par exemple d'ateliers d'écriture)
- Contribution à la recherche au sein du Centre d'efficacité organisationnelle (*Centre for Organisational Effectiveness* / COE)

5) Research Officer (assistant de recherche)

Septembre 1996 – Juin 2000

Centre for Research in Strategic Purchasing and Supply (CRiSPS), University of Bath
(Centre de recherche en achats stratégiques et approvisionnement), Grande-Bretagne

Travail sur le projet "Inter-Organisational Networking" (ION), d'une durée de 3 ans, mené conjointement par les Universités de Bath, Brighton, et Cambridge, et financé par le conseil de recherche anglais Engineering and Physical Sciences Research Council (EPSRC). Ce projet visait à identifier les facteurs expliquant les facteurs de réussite de la création, l'exploitation et l'évaluation des réseaux d'entreprise à entreprise.

- Conception méthodologique et développement stratégique du projet de recherche : cadre conceptuel, questions de recherche, échantillonnage, méthode d'entretiens et questionnaires.
- Conduite de deux principaux dossiers au sein de ce projet : une revue de la littérature de la théorie des réseaux inter-organisationnels et une enquête exploratoire de 42 entreprises, qui ont fait l'objet d'un rapport final pour l'EPSRC.
- Identification, animation et gestion de 8 études de cas des réseaux d'approvisionnement (soit plus de 70 entretiens).
- Analyse des résultats empiriques et développement de cadres opérationnels (dont une taxonomie des réseaux d'approvisionnement) pour la création, l'exploitation, la re-création et l'évaluation de la réussite des réseaux inter-organisationnels.
- Diffusion des résultats de recherche à travers des revues, des conférences et des séminaires et des ateliers.
- Révision de papiers pour la conférence IMP (Industrial Marketing & Purchasing), pour des revues (*Industrial Marketing Management*, *Journal of Business Research*), et dans le cadre de propositions d'ouvrages *ad hoc*.
- Enseignant dans les programmes IMML et DBA (niveau licence) en marketing et marketing international
- Correction d'examens de premier cycle.

6) Part-Time Lecturer en Management

Septembre 1995 – Juin 1996

The Business School, Paisley Université, Ecosse, Grande-Bretagne

Enseignant en gestion, notamment gestion des opérations internationales, développement de produits, marketing, tout en suivant un M.Sc. (Master) à Copenhagen Business School, Danemark.

AUTRES ACTIVITES

- Book Review Editor (rédacteur de recensions), *Journal of Purchasing & Supply Management* (2008 à aujourd'hui)
- Tuteur gestion logistique pour le EuroMBA, un programme d'enseignement à distance délivré par un consortium européen dont Audencia Nantes, EADA Barcelona, HHL Leipzig, IAE Aix-en-Provence, Kozminski University Warsaz, Maastricht University et Open University Netherlands (classé 4^{ème} mondial parmi les programmes MBA d'enseignement à distance).
- Ancien membre du Comité exécutif de l'International Purchasing & Supply Education & Research Association (IPSERA), responsable du marketing et de la communication et d'un bulletin biannuel (2004-2007).
- Ancien membre du groupe de pilotage de *Product Development Management Association (PDMA)* au Royaume-Uni et en Irlande
- Relecteur régulier pour *Journal of Purchasing and Supply Management*, *International Journal of Operations and Production Management*, et *Industrial Marketing Management*.
- Examineur externe, University of Exeter, School of Business and Economics : programmes de Licence en "Operations and Strategy" (2005-2009).
- Professeur Affilié, Copenhagen Business School, Danemark : Full-Time MBA 2005/2006, supply chain management.

FORMATION

Ph.D. (Doctorat) University of Bath Directeur de thèse : Prof. David Ford; Rapporteur : Prof. Håkan Håkansson Sujet de thèse : "On the Management of Collaborative Innovation in Networks"	1997 - 2004
Cand Merc / Master d'Économie & Administration des entreprises Copenhagen Business School, Danemark; Dans les 10 premiers sur 90 étudiants - Spécialisation en Marketing International & Management - Obtention d'un M.Sc. distinct de l'Université de Paisley en Ecosse Remise de la médaille "Court Medal" qui récompense les travaux remarquables	1993 - 1996
HA / B.Sc. (Licence) d'Économie & Administration des Entreprises Copenhagen Business School, Danemark	1990 - 1993

APPENDIX 2: EXAMPLES OF PUBLICATIONS – PAPERS IN FULL

1. Johnsen, T.E. (2009) 'Supplier Involvement in Product Development and Innovation – Taking Stock and Looking to the Future'. *Journal of Purchasing & Supply Management*, Vol. 15, Issue 3, pp. 187-197. AERES category B
2. Johnsen, T.E., Howard, M., Miemczyk, J. (2009) 'Changing UK Defence Environment and its Impact on Supply Chains and Relationships'. *Supply Chain Management: an International Journal*, Vol. 14, Issue 4, pp. 270-279. AERES category B
3. Johnsen, T.E., Lamming, R.C. and Harland, C.M. (2008) Inter-organizational relationships, chains and networks: a supply perspective. Chapter 3 in *The Oxford Handbook of Inter-Organizational Relations*, Huxham, C., Cropper, S., Ebers, M. and Ring, P.S. (eds), Oxford: Oxford University Press, pp. 61-87.
4. Johnsen, T.E. and Ford, D. (2007) 'Customer Approaches to Product Development with Suppliers'. *Industrial Marketing Management*, Vol. 36, pp. 300-308. AERES category B
5. Johnsen, T.E. Phillips, W., Caldwell, N. and Lewis, M. (2006) 'Centrality of Customer and Supplier Interaction in Innovation'. *Journal of Business Research*, Vol. 59, Issue 6, pp. 671-678. AERES category B
6. Lamming, R.C, Johnsen T.E., Zheng, J, and Harland C.M. (2000) 'An Initial Classification of Supply Networks'. *International Journal of Operations and Production Management*, Vol. 20, No. 6, pp. 675 - 691. AERES category A