IMP 2012 FULL "COMPETITIVE" PAPER

Making identical network pictures by international on-time deliveries – Paper machine upgrade projects

Markku Halinoja

markku.halinoja@tut.fi – Finland - Tampere University of Technology

Olavi Uusitalo

olavi.uusitalo@tut.fi - Finland -Tampere University of Technology

Abstract:
In process industries the need to upgrade the existing machinery quickly either to other paper grade or a more cost efficient process required by customers is becoming more important. In other words a machinery supplier should think "outside-in" instead of "inside-out". This paper has two goals. First, we aim to show the importance of international industrial machinery upgrade on-time delivery (OTD) project for a machinery manufacturer to realize its "outside-in" philosophy. Second, we aim to make network picture dynamic.

In the real case the network pictures of IKEA and Heindl were different and also rigid mainly because of the risk of Heindl losing its other customers. Had Heindl and its paper machinery manufacturer thought "outside-in" instead of their existing thinking "inside-out", Heindl's network picture could have been switched in short period of time close to that of IKEA. In our scenario the network pictures were also different but not as rigid thanks to OTD.

The use of the network picture model and the IKEA Heindl case brought up both the philosophy of "outside-in" and the risk involved in the change of paper grade in process industries. In this paper we apply several IMP related fields of literature. We propose new managerial views and tools to manage successfully market oriented OTD projects.

Keywords: production machinery, upgrade project, on-time delivery management /risk, network picture

Category: Inter and intra organisational consequences of business relationships

Submission: 59

20th June, 2012

INTRODUCTION

The customer expectations, technical requirements, machinery space restrictions, (sub-) supplier procurement and collaboration, and environmental changes outline in an upgrade a dissimilar environment compared to a new machinery delivery (Aalto, 2011). Project planning and delivery contain uncertainties which increase the risk to fail the upgrade on-time delivery (OTD).

Different understanding between the parties of the needed capabilities, deliverables but especially the time could become critical. The machinery upgrade customer and stakeholders expect close and confidential technical, organizational and commercial collaboration particularly in culturally distant embedded and short shut-down machinery delivery (Aalto, 2011).

Ford et al. (2002) have created network picture model which refers to the views of the network held by partners in the network in question. Usually each partner will have a different picture which forms the basis for their analysis and actions. The network picture depends on each experience, relationships and position in the network.

Since complexity and embeddedness dominate the information required in upgrade project procurement the relationship becomes the key differentiator between competing suppliers (Ulaga and Eggert, 2006). Buyer-supplier relationship should be observed critically because suppliers often force their own business logic to buyers (Gadde and Snehota, 2000). Particularly, in buyer-supplier relationship creation mutual attraction is important (Hald et al. 2008). Value in supplier-buyer relationship is created to a buyer in efficiency, effectiveness and network functions (Möller and Törrönen, 2003). However, too many directions and too much control may impede innovation of a supplier (Gadde and Jellbo, 2002).

This paper has two goals. First, we aim to show the importance of "outside-in" philosophy based international industrial machinery upgrade on-time delivery (OTD) project for the customers of machinery manufacturer. Second, we aim to make network picture (Ford et al., 2002) dynamic which means to introduce ways to make several parties network picture better adaptable to each others' pictures. Our tentative research question is: Is it possible to adapt different network pictures of supplier and buyer by upgrading the machinery in on-time delivery (OTD) project?

This study methodology is based on existing IKEA Heindl case (Ford et al., 2002) of which a new scenario is developed. To understand the upgrade OTD risk phenomena we briefly look at the literature in network pictures, challenges in delivery risk management, requirements for stakeholder collaboration, and time perception in international context. Based on this we create our conceptual framework. Thereafter we introduce IKEA Heindl case to discuss about their different network pictures based on the illustration of Ford et al. (2002). In consequence, the role of OTD to make a network picture dynamic is discussed. This dynamism of network picture helps suppliers to see customers also from "outside-in" instead of "inside-out" philosophy. Finally, we give managerial implications and further research.

LITERATURE

Our aim of this brief literature review is to suggest the theoretical foundation how to manage "outside-in" philosophy in network picture with on-time delivery (OTD). In this chapter we provide the theory on network pictures, challenges in delivery risk management, requirements for stakeholder collaboration, and managing time perception in international context, see Figure 1.

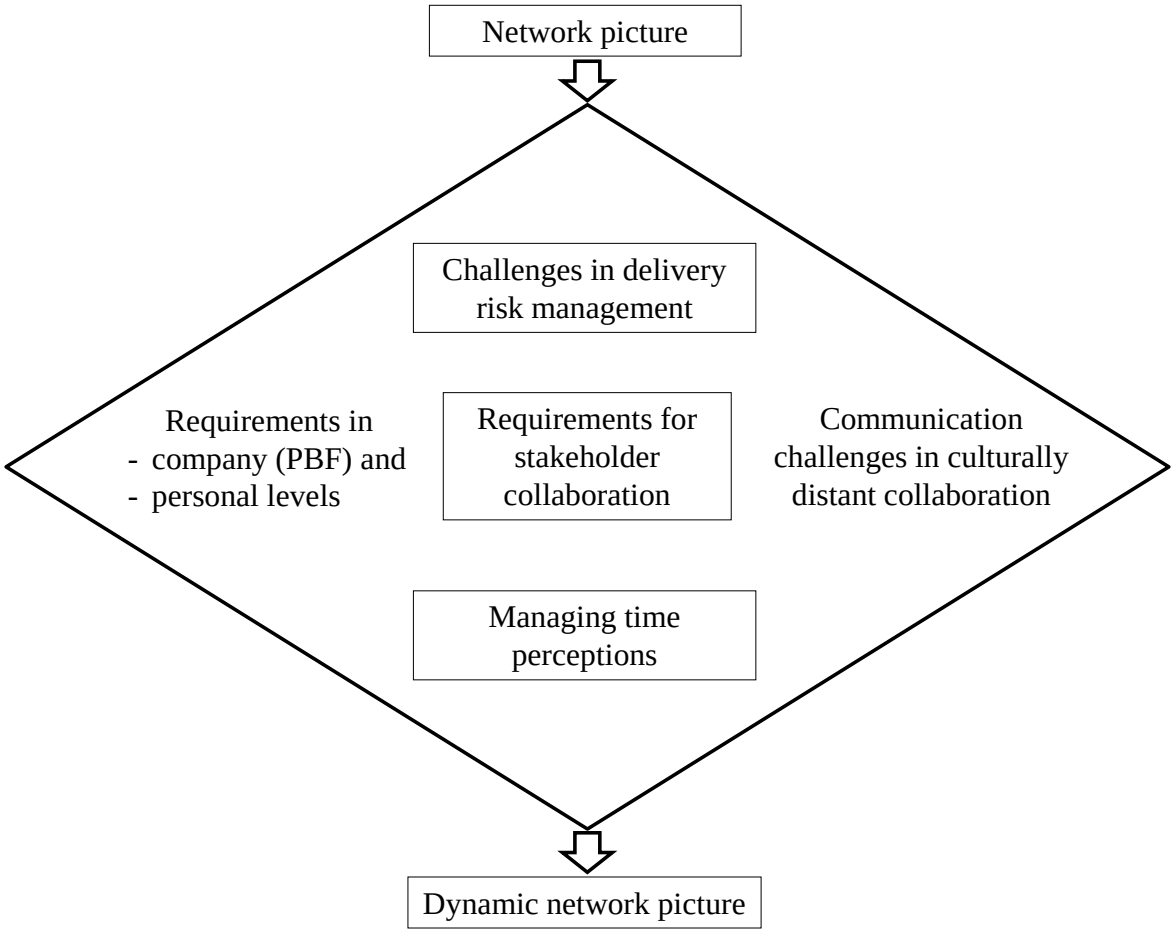

Figure 1. Dynamic network picture via "outside-in" philosophy based OTD

Network picture

Network in the business context comprises nodes as business units and the connecting structure as a business market (Håkansson and Ford, 2002). Ford et al. (2002) business networks model has three components: 1) Networking, 2) Network outcomes, and 3) Network pictures (later NP). The authors emphasize that a firm's existing relationships are tied to its present operations and which prevent the development of the network. Thus, a firm needs to evaluate the choices in network position and how to network. Researchers are not able to forecast the actual development of a network. However, they can create tools to help managers to understanding their situation (Håkansson and Ford, 2002; Ford and Redwood, 2005). The position in a network may be changed only in a long run but this still depends on the individual context and the network situation (Håkansson and Ford, 2002). Håkansson and Ford (2002) suggest evaluate internal and external relationships "from the perspective of others" in network positions. According to them in order to change the own position in the network is important to understand of other's relationships

Network outcome is a result of activities between actors and relationships to become aggregated, dis-aggregated, dis-intermediated, or intermediated. The utilization and development of resources has an important role in networking (Ford et al. 2002). However, NP is the network participant's view of the network (Ford et al. 2002; Leek and Mason, 2009). More precisely, NP's are "depictions of the past events and reinforce current positions" (Henneberg et al. 2006). They define NP as an "environmental space" perceived by its actors,

and tool for managerial activities. Thus, NP is an interpretation of network 1) *boundaries* between actors, 2) *centre/periphery* positioning, 3) *actors/activities/resources*, 4) *focus* in relationship relatedness, 5) *directionality of interactions* one or both direction relationships, 6) *time/task* relationship, 7) *power* issues between parties, and 8) *environment* outside of visible network pictures (Henneberg et al. 2006; five dimension version in Leek and Mason, 2009). NP provides managers a framework for strategic decision making even though continuous variations in communication and relationship atmosphere (Leek and Mason, 2009). Ramos and Ford (2011) suggest a three step model to perceive environment findings systematically for NPs.

Challenges in delivery risk management

Risk management is useful when the project involves significant novelty, complexity, size or the cost of failure is high or the planning horizon is long (Ward and Chapman, 2004). The risk strategizing is "almost always" beneficial but, in consequence, the response to the risks is strongly judged on the cost-benefit bases (Miller and Lessard, 2001).

Project practices from the critical perspective are viewed even as a mental prison (Lindgren and Packendorff, 2006) which increases project risks particularly in culturally critical situations. However, Teece et al. (1997) propose that "soft assets like values, culture, and organizational experience, distinctive competencies and capabilities cannot be acquired; they must be built". Particularly, socially complex resources and capabilities—organizational phenomena for example reputation, trust, friendship, teamwork and culture—while not patentable, are much more difficult to imitate (Barney, 1995). Therefore, the management of culture specific processes, routines, skills and behaviour may offer competitive advantages (Barney, 1995).

Risk knowledge, risk management, and decision making under uncertainty are keys to success of the project based firm (PBF) business (Artto, 2001). Project delivery risks should be managed with strategic approach starting early preparation for anticipated risks and to develop the reaction ability for any disruptive events (Floricel and Miller, 2001). Increasing embeddedness in an international market context mounts emergent uncertainty in companies (Orr, 2005). Uncertainty is additionally connected to evolution: "if you do not have uncertainty, you do not have any evolution" (Perminova et al. 2008). The deviations are managed through a combination of information, experience, and networking (Hällgren and Maaninen-Olsson, 2005).

Requirements for stakeholder collaboration in culturally distant environment

In this chapter we look at the stakeholder collaboration in company-, and personal levels particularly in culturally distant environment.

Requirements for a project based firm

The diversity of cultural-cognitive, normative, and regulative institutions in foreign projects causes expenses much over budget (Orr and Scott, 2008). Project success differences might be explained with relationship between the project stakeholders necessary to fulfil the project tasks (Jensen et al. 2006). In consequence, the "differences in national culture, religion, history, politics, and ethnicity are very important to understanding of daily life in megaprojects" (van Marrewijk et al. 2008). Perminova et al. (2008) suggest that learning and

sensemaking with flexibility and rapidness enable to manage uncertainty. A machinery upgrade investment with handful of embedded customer and project specific information requires trust in customer-supplier relationship (Aalto, 2011). Trust-based collaboration develops increasingly the general project knowledge and participants behaviour in team-building processes and project-wide communication (Kadefors, 2004).

The level of trust perception influences project performance and is considerably affected with creative teamwork and partnering (Kadefors, 2004). The author defines that detailed contractual specifications, close monitoring of supplier performance, systems to monitor relations, and manage conflicts are signals of distrust. Trust-based collaboration develops increasingly the general project knowledge and participants behaviour in team-building processes and project-wide communication (Kadefors, 2004).

There is limited research about success factors in customer-supplier relationship at company level (Sharma, 2006). According to the author, no theoretical neither empirical study exists in individual customer level. However, supplier success with key customers is evaluated in eight dimensions: 1) supplier's relational assets, 2) transaction-specific investments by the buyer, 3) quality of alternatives, 4) high level of knowledge of seller, 5) lack of innovation, 6) dissatisfaction, 7) personal/social bonds, and 8) changes in environment (Pillai and Sharma, 2003). In consequence, suppliers need to monitor closely customer satisfaction and perform corrective action immediately in case of dissatisfaction particularly in trust and fairness (Sharma, 2006; Ryals and Rogers, 2006).

Stakeholder's salience, namely their power-, legitimacy-, and urgency- attributes, become critical for project success if managed improperly (Aaltonen et al. 2008). Therefore, project managers are encouraged to engage efficiently and continuously with stakeholders (Aaltonen, 2010). Consequently, the stakeholder's demands and influence effect in planning, implementation, and completion of any project (Olander and Landin, 2005). When managed properly the stakeholder participation improves effectiveness (Ruuska et al. 2010).

Personal characteristics and competence requirements

While project price shows the weakest potential for differentiation the personal interaction is the core differentiator followed by a supplier's know-how and its ability to improve a customer's time to market (Ulaga and Eggert, 2006). In the industrial sector the most essential skills and personal characteristics for an engineer are technical knowledge, standards of engineering practise, the ability to communicate effectively with stakeholders in at least two languages, solve problems logically, and to devote to engineer's work, loyalty, honesty, and understanding the role within society (Nguyen, 1998).

However, a delivery project needs multiple skills and competences in project definition phase for "analysing the need", during preliminary design the "conceptualizing the solution", and finally during all phases "seeing the future" (Frank, 2006). He found three primary behavioural competences: 1) management skills (team leader, building and controlling the work plan, defining boundaries, considering non-engineering factors, 2) good human relations (team player, communication skills, and interpersonal skills), and 3) autonomous and independent learner (strong learning skills).

Culturally distant communication challenges

Culture may be defined as an individual's values, beliefs, and/or expectations within the employment setting (Very et al. 1997). Cultural differences are stated to play significant roles

in determining the efficacy of technology transfer transactions (Kedia and Bhagat, 1988). Particularly, the culture differences is categorized to geographical proximity, common language group, religion, politics, degree of modernity, educational and social development (Brodbeck et al. 2000). However, the committed and motivated entrepreneurially minded personnel would beneficially focus on intensive decision making and communication (Artto, 2001).

Cultural comparison and differences are subdivided into six categories (Hofstede et al. 2010): 1) power distance (society setup for defined order), 2) uncertainty avoidance (degree how much the society is willing to accept ambiguity and risk), 3) masculinity-femininity (degree of stereotypical materialistic values), 4) individualism-collectivism (role of individual vs. group), 5) long-short term orientation (time perspective), and 6) indulgence-restraint (tolerance in subjective well-being). The subdivision of culture differences is additionally categorized to geographical proximity, common language group, religion, politics, degree of modernity, educational, and social development (Brodbeck et al. 2000). The geographical clustering is subdivided in Europe to Nordic, Anglo, Germanic, Latin and Near East (Ronen and Shenkar, 1985).

The individual self construals and values are better predictors of low (LC)- and high (HC)- context communication styles across cultures than cultural individualism-collectivism (Gudykunst et al. 2006). Scandinavians, Germans, and the Swiss, communicate predominantly using text and speech, and they are thus LC cultures whereas Latin cultures are in the middle in the scale towards extremely HC culture in Japan (Würtz, 2005). However, the study of Mintu-Wimsatt and Gassenheimer (2000) indicates different problem solving levels between HC and LC groups but absent of gender differences. They suggest that buyer's and seller's experience influence positively in relationship and cooperation particularly when the negotiators are from LC culture. However, the globalized Anglo-American organization philosophy should aim individualism for increased creativity and innovation in global and local contexts (Korac-Kakabadse et al. 2001).

Managing time perceptions

Approximately half of construction projects, which could somehow be compared to machinery upgrade project, overrun with "typically between 40 and 200 per cent" (Gardiner and Stewart, 2000). According to the study of Alsakini et al. (2004) project schedule deviations are embedded primarily in the cultural background of a customer, local foreign sub-contractors, suppliers, and officials.

Culture dependent time is determined according to its usage in three aspects: 1) time-activity meaning polychronic versus monochronic, 2) time-priority meaning work versus social/leisure, and 3) time-setting meaning individualistic versus collectivistic (Manrai and Manrai, 1995). Low context cultures (see also previous chapter) treat time monochronicly linear as tangible asset to save time and keep schedules while high-context cultures multiple contemporary social activities are more important than keeping schedules (Manrai and Manrai, 1995). Thus, project time analysis is subdivided in isochronism, timing norms and temporal misfit/fit (Dille and Söderlund, 2011). According to Dille and Söderlund (2011) the concept of misfits is what speed of activities are aligned as a consequence of the difference in timing norms among the actors involved.

Internal inefficiency in delivery and insufficient project scheduling and trouble-shooting mechanisms are significant predictors of project failure (Pinto and Mantel, 1990). The authors suggest target measures for internal efficiency, comprehensive scheduling procedures and updated project trouble-shooting mechanisms. Thus, Wright (1997) recommends the following

two functions to minimize overruns in time and budget: firstly, “every project should have a brief specifying scope, time, and budget” and secondly, “the project manager is involved in obtaining data for the brief, a contingency allowance should always be included.” Alsakini et al (2004) recommend proactive schedule management instead of traditional detailed plan and schedule. It is based on a “rolling window” for detail planning on periodic basis. Additionally, a “generic solution” contains a regulation management plan, a client relationship plan, and a subcontracting plan (Alsakini et al. 2004).

Coordination is extensive and important in on-time deliveries and temporary network when activities require tight interaction between the actors (Dubois and Gadde, 2000; Gadde and Snehota (2000). Although large number of projects is unable to meet the goals set in terms of time, budget, and quality particularly the essence of using time effectively has not got appropriate attention in project management practices (Hameri and Heikkilä, 2002).

Dynamic network picture framework

The management of networks, contracts, information, and knowledge are relevant issues and important both in theoretical and business perspectives (Artto and Wikström, 2005). Particularly, the network picture of supplier should become identical to customer’s network picture for sustainable collaboration. Using “outside-in” philosophy based on-time delivery (OTD) the supplier’s network picture becomes dynamic as described in the following IKEA Heindl case and the consequent OTD scenario.

THE IKEA HEINDL CASE

Hendl is one of the largest German paper producers. It had in the 1990s a long term relationship with well-known Swedish furniture and household distributor, IKEA. To fulfil our research goals we use the IKEA and Heindl case illustrated by Ford et al. (2002) and the on-time delivery (OTD) scenario of the same case (in the following chapter). Based on its customer needs IKEA wanted to have environmentally friendly paper for its catalogues (see the enclosed citation).

> *IKEA produces more than 100 million copies of its catalogue each year. This requires a lot of paper, approximately 40,000 tons per year. IKEA believed that its customers were becoming more environmentally aware and it was keen to show an environmentally friendly image itself. Its catalogue was an obvious place for this and in the early 1990's the company started to investigate the use of "green" paper for the catalogue. This required it to do some active networking (Håkansson and Waluszewski, 2002).*

The paper producer (Heindl) refused to change to the new paper grade because “it could not combine its existing relationships with other customers with the new type of relationship required by IKEA”. The mismatching network pictures of IKEA and Heindl caused changes to the value chains of a number of pulp and paper produces.

The networking part of the Ford et al. (2002) model for the IKEA Heindl case is illustrated in six phases (see Figure 2). First, IKEA requested new environmentally friendly recycled chlorine free paper. Second, printing houses did not have new type of paper and thus, could not deliver the catalogues. Third, IKEA contacted paper machine manufacturers to get the new paper grade. Fourth, Nordic paper producers accepted to supply environmental friendly paper, but they had to import recycled paper for the production. Fifth, the printing house, Springer switched their

production machinery for recycled paper. Sixth, IKEA encouraged other paper users to switch to lower quality but more environment friendly paper.

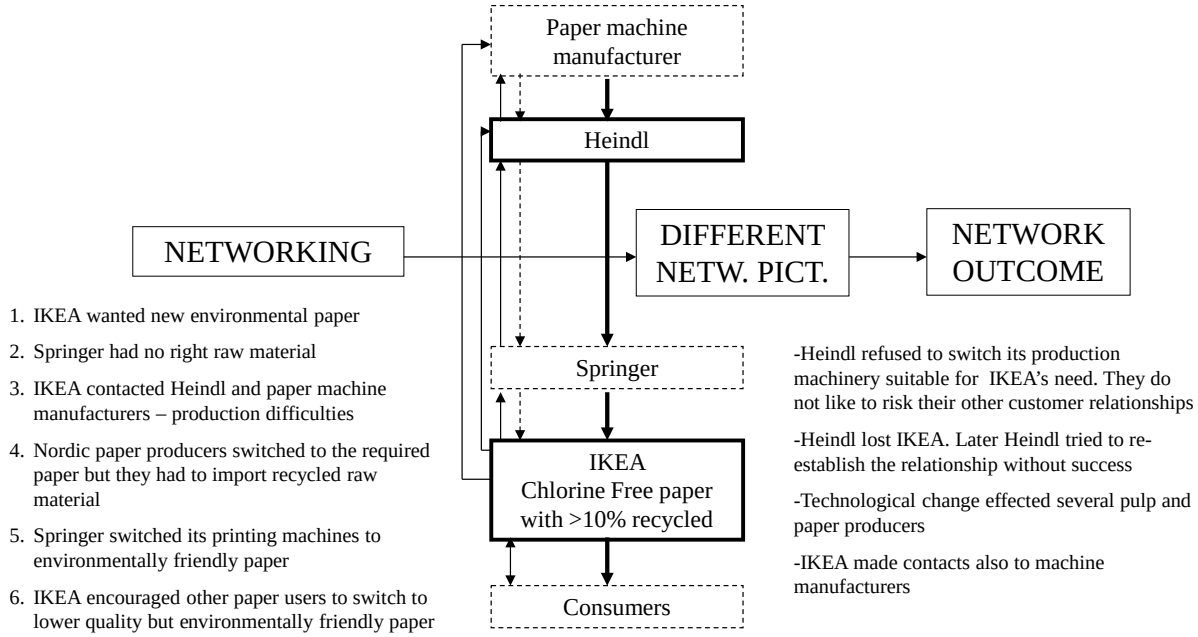

Figure 2. Situation in IKEA Heindl case

Paper machines run 24/7 cycle without any interruptions and they are expensive. Heindl did not take in the risk of losing its other customers during the production switch over process. Due to Heindl refusal to switch to the environmentally friendly paper the relationship with IKEA was terminated. The network pictures of Heindl and IKEA were too different. Later on it was impossible for Heindl to re-establish the relationship with IKEA which had found new suppliers. New environment friendly paper grade changed dramatically pulp and paper producer's business and technology. Moreover, IKEA had extended its relationship directly to a paper machine manufacturer. Thus, IKEA networking changed the network pictures permanently.

OUR ON-TIME DELIVERY (OTD) SCENARIO

In this section we create an on-time delivery (OTD) scenario for the case reported in the earlier section. It is illustrated in Figure 3.In this scenario Heindl as paper supplier is more market oriented and thus it is prepared for unique request from their large customers such as IKEA. In this scenario Heindl's paper machine manufacturer has knowledge to offer flexible, fast risk free OTD projects. With this flexible offering package Heindl is capable for supplying quickly environmentally friendly paper to IKEA's printing house Springer. Compared to the real case reported in the previous section IKEA saved a lot of energy since there is no need to find either a new paper supplier or to contact paper machine manufacturers. Heindl is also able to keep IKEA as its customer. A quick, risk free OTD project made this quick production change possible.

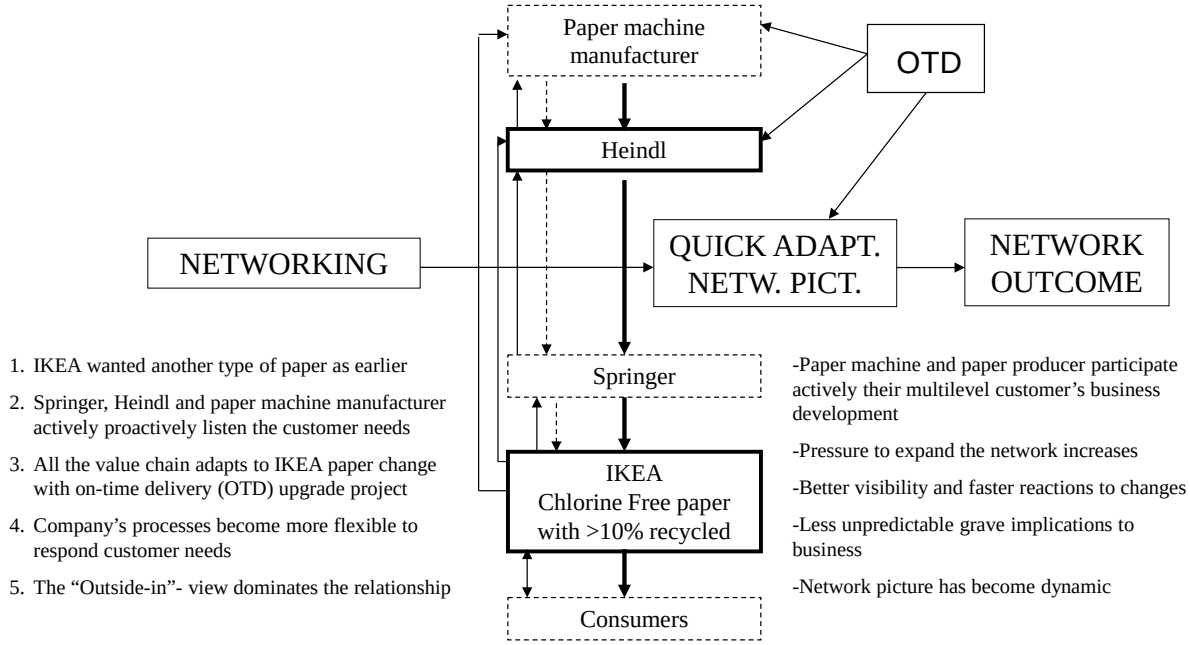

Figure 3. Network picture with OTD

ROLE OF OTD FOR A DYNAMIC NETWORK PICTURE

The on-time delivery (OTD) "diamond" is based on "outside-in" philosophy as illustrated in the literature chapter (Figure 1.). The dynamic network picture requires complete adaptation of both "outside-in" philosophy and OTD as presented in our IKEA Heindl scenario, see Figure 4. The answer to the research question "Is it possible to adapt different network pictures of supplier and buyer by upgrading the machinery in on-time delivery (OTD) project" is suggested: network pictures may sustainably be controlled with OTD projects through market oriented "outside-in" philosophy.

In IKEA Heindl case had paper producer (Heindl) networked "outside-in" with its stakeholders, particularly with customers customer (IKEA), intermediate printing house (Springer), and paper machine manufacturer (and paper fibre supplier) the collaboration would have generated a suitable solution for IKEA with OTD. The necessary modifications in network would have satisfied the key stakeholders. However, Heindl did not take the risk had weak "outside-in" and was forced out of OTD (see Figure 4.).

Similarly, number of historical cases could have been resolved by using "outside-in" philosophy based OTD or applying the risk handling OTD in the "outside-in" philosophy. Lahti Glass Works case provides an example for the latter one. In 1973 Lahti Glass Works invested in two additional Pittsburgh machines because of the boom in the construction industry and prospects for exports. One major reason for the investment was the agreement made with a Swedish Emmaboda to deliver 18 000 tons/year of flat glass. However, the delayed delivery of machines, their malfunction and quality problems delayed the start of production for five months. The long delivery times, nearly a year, created a shortage of flat glass in the Finnish market. When production in Lahti Glass Works was in order again in the late 1974, the market situation had changed dramatically. A Finnish wholesaler imported huge amounts of flat glass and controlled the distribution system (Uusitalo, 1995). This case shows that Lahti Glass Works was active in "outside-in" market oriented philosophy but suffered in OTD. They decided to take the delivery risk but could not manage it (see Figure 4.). In consequence, Lahti Glass Works failed and was dropped out of OTD.

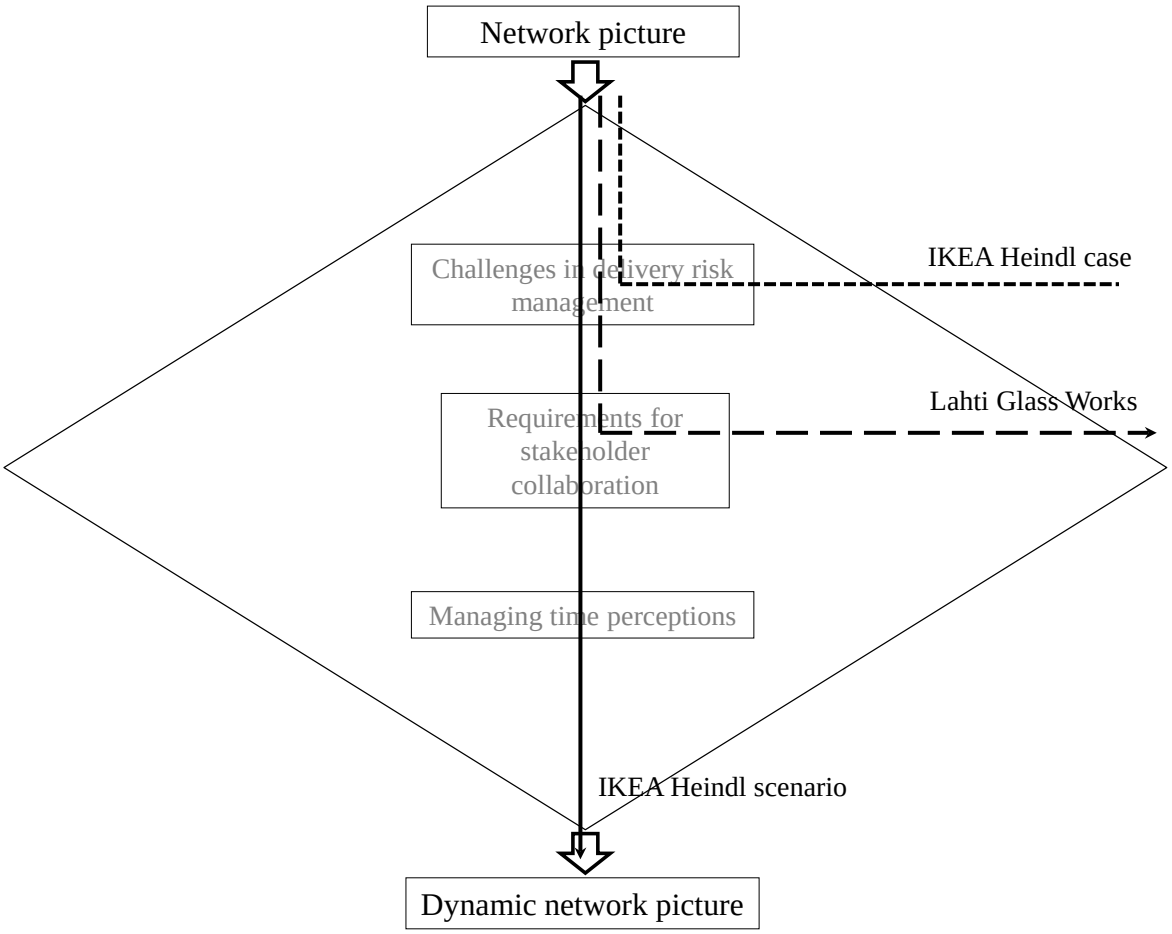

Figure 4. Two failed business cases and IKEA Heindl scenario in dynamic network picture framework

Complex, risky, and embedded machinery upgrade on-time delivery (OTD) projects contain uncertainties which could compromise reach of objectives for all stakeholders, particularly for customer and supplier as we saw in the Lahti Glass Works case. It is interesting to see that OTD requires delivery risk, stakeholder capabilities and collaboration, and time perception. And finally, network picture to be managed in supplier's company and personal levels requires market oriented "outside-in" philosophy instead of production oriented "inside-out" philosophy. Thus, the OTD information may be retrieved networking actively with stakeholders (see position 1 in Figure 5).

An on-time delivery (OTD) project requires significant socio-cultural capabilities to be successful. In international industrial machinery upgrade OTD procurement phase initiates the project specific relationship which directly effect to network functions (Möller and Törrönen, 2003). In consequence, OTD stakeholder collaboration requires extensive resource capabilities, skills, and knowledge particularly in stakeholder's culture(s). Fundamentally, the philosophy in the whole project based firm (PBF) is inverted from production oriented "inside-out" to market oriented "outside-in". The collaboration actuality between stakeholders is sensed like "living in a same family". Trust, flexibility, partnership, positive behaviour, and mutual attraction describe "outside-in" relationship. This emphatic actuality creates fruitful foundation in sustainable stakeholder collaboration when prioritized in front of rigid contracts or rules.

Time perceptions management is the core element in on-time delivery (OTD). It requires culture specific understanding for delivery scheduling and control. Particularly culture dependent

mono- and polychronic time perception influences scheduling and therefore is a significant OTD characteristic. Scheduling in OTD may be managed with proactive time deviation forecasting and applied to delivery related properties (i.e. scope, quality, costs, and resources). In consequence, OTD becomes necessary for international industrial machinery upgrade deliveries in paper machinery business.

The development of OTD activities requires continuous learning for understanding and distributing the knowledge of relationship evolution in business network and for increasing sensemaking. Particularly, close relationship collaboration enables awareness for early risk recognition (see position 2 in Figure 5). Cultural distance influences resource allocation and learning programs particularly for international OTD projects. Stakeholder characteristics are managed systematically. Stakeholder collaboration data is collected, stored, analysed, and utilized for continuous learning in business strategy and activity development. The larger distance between cultures for instance in Low- and High-context measures more significant becomes cultural distance learning and need for innovation in stakeholder relationships. In consequence, the OTD project resources should be the most suitable and capable personnel in networking when selected and trained for that specific customer (and network picture) essential to both manage risks and obtain comprehensive "outside-in" understanding.

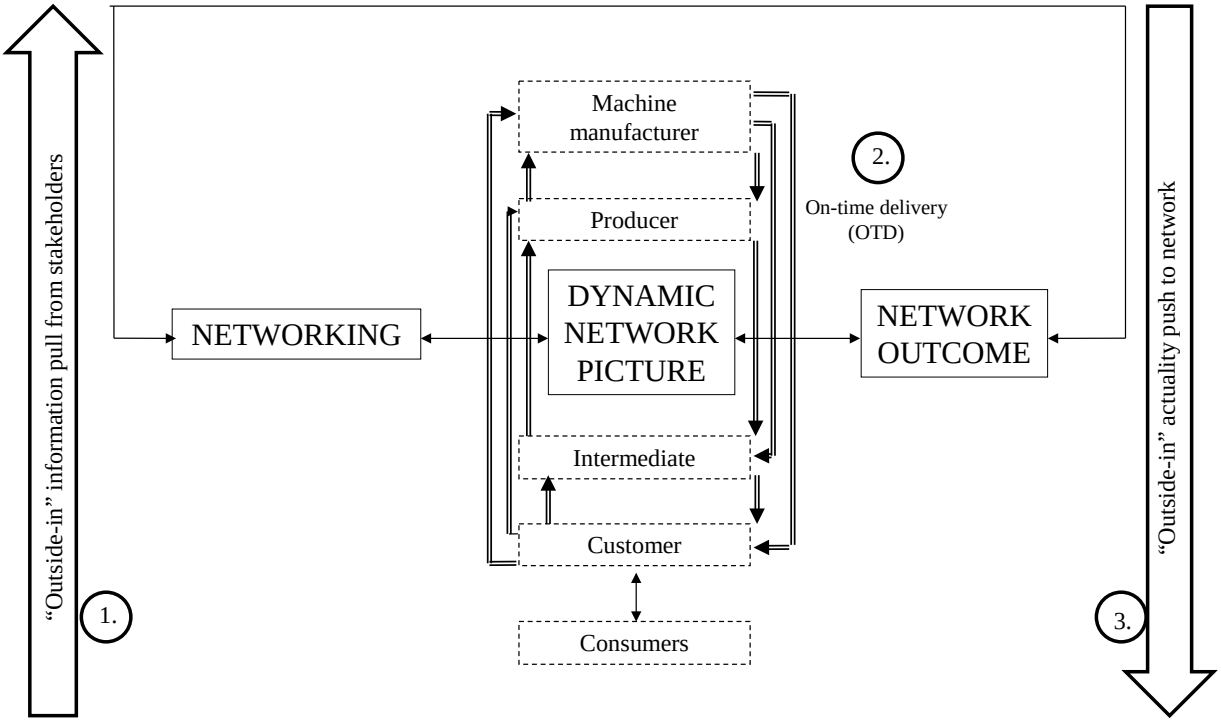

Figure 5. Dynamic network picture

Network picture becomes dynamic when customer's (and other stakeholder's) relationships are actively followed and managed with OTD from "outside-in" philosophy (see position 3 in Figure 5). Supplier centric "inside-out" processes, practices, and behaviour become undesired increasing the failure risks in relationships, business, and network picture. Thus, skilled, knowledgeable, and motivated actors consequently "push" desired network picture while interacting with stakeholders from "outside-in" philosophy. Hence, collaborating and networking across stakeholders proactively "outside-in" the network picture become dynamic and network outcome suggestive.

CONTRIBUTIONS AND LIMITATIONS

IKEA Heindl case suggests the need of Dynamic Network Picture following "outside-in" philosophy and using on-time delivery (OTD) in at least in process industry contexts. This theoretical contribution will be verified in our machinery upgrade OTD case study.

As a limitation to the suggested case study a couple of aspects will not be answered. For instance, how the success in the "outside-in" philosophy based machinery upgrade OTD correlates with a future service business opportunity to the same customer?

CONCLUSIONS

As we saw Heindl and its paper machine manufacturer operated in the philosophy of "inside-out" (production oriented) instead of "outside-in" (market oriented). An "outside-in" philosophy OTD project with continuous interaction, flexibility, trust, innovation, confidentiality, short installation time could have helped Heindl to follow quickly IKEAs procurement request. Thus, it could have been able to keep its customer. Our scenario of the use of OTD by Heindl within the IKEA Heindl case clearly shows the importance of "outside-in" OTD for the process industries.

In the real case the network pictures of IKEA and Heindl were different and also rigid mainly because of the risk of Heindl losing its other customers. In our scenario the network pictures were also different but not as rigid thanks to OTD. Had Heindl and its paper machinery manufacturer followed "outside-in" philosophy instead of their existing "inside-out" philosophy, Heindl's network picture could have been switched in a short period of time close to that of IKEA.

The network picture model of Ford et al. (2002) could emerge somewhat static although the authors propose companies to regularly evaluate and value each relationship from their and counterpart perspectives. However, based on our exercise within IKEA Heindl case it seems that the network picture could be made dynamic in at least process industry contexts by using OTD approach from "outside-in" philosophy. This is our main theoretical contribution.

> *Network outcomes also have an important collective element. This refers to outcomes that are observed by all the participants and that explain to them how the network operates. In other words, these outcomes contribute to "what everyone knows", or the collective understanding of the network participants (Ford et al. 2002).*

To enhance the success of customers Sharma (2006) proposes suppliers constantly monitor their industry as well as the industry of customers. Especially process machinery manufacturers (and even companies in the process industries) have usually worked according to "inside-out" (= production oriented) instead of "outside-in" (=market oriented) philosophy. Thus, the external stakeholder driven "outside-in" of an international machinery upgrade project especially from the on-time delivery (OTD) risk perspective has hardly been studied in any depth.

Managerial implications

The understanding of different network pictures may become crucial if misinterpreted or even unknown by the stakeholders. In IKEA Heindl case the different network pictures caused Heindl lose its customers. Had Heindl with its network operated "outside-in" instead of "inside-out" the necessary modifications could have been anticipated and IKEA could have

been maintained. Ideally, paper producer Heindl would have continuously collaborated with printing houses and their customers like IKEA (among other Heindl's stakeholders) and could have anticipated the changes in paper grade demand. In consequence, Heindl would have prepared in time an OTD project to satisfy printing houses and finally IKEA.

Hence, individual proactive stakeholder collaboration and networking generates "pull" phenomena from the business network for early business opportunity generation. On-time delivery (OTD) project is implemented according to network picture specific project strategy. Thereafter, as in our IKEA Heindl case, the "outside-in" philosophy would have continuously updated Heindl's business strategy and enabled the control its network picture dynamically. Aggregated OTD risk project strategies are suggested to continuously update business strategy particularly in industrial project based firm context. The "outside-in" philosophy may advance "push" actuality in business network and therefore influence network picture dynamically and, in our IKEA Heindl case, favour Heindl's position in its business network.

Further research

The use of the network picture model (Ford et al., 2002) and the IKEA Heindl case brought up both the philosophy of "outside-in" and the risk involved in the change of paper grade in process industries (that is Heindl's fare of loosing other customers while changing paper grade). This made us confident for our further research on "outside-in" philosophy OTDs, machinery suppliers and project business since the pertinent project business literature concentrates predominantly on "inside-out" project based firms or machinery suppliers. Thus, we look the machinery upgrade project particularly from risk perspectives.

In our further research we'll not evaluate company network position or network picture as such. Instead, we study network relationships analysing actor's behaviour in risky OTD project and develop project based firm (PBF) capabilities, organization, and tools proactively from market oriented "outside-in" philosophy.

We'll use a qualitative multiple case study with data from both existing project documentation and personal interviews. The data will be collected from past delivery projects between Finland and Italy during last decade. We expect to propose new managerial views and tools to manage successfully market oriented OTD projects.

LITERATURE

Aalto, E. (2011). New paper machine investments are diminished in developed countries. Discussion in Metso Paper of the upgrade OTD research between Halinoja and Aalto 21.11.2011.

Artto, K. A. (2001) Management of project-oriented organization – conceptual analysis. In: Artto, K. A., Martinsuo, M. & Aalto, T. (Eds.) Project portfolio management: strategic management through projects, pp. 5-22. Project Management Association Finland, Helsinki.

Artto, K.A. and Wikström, K. (2005). What is project business? International Journal of Project Management 23, pp. 343-353

Alsakini, W. Wikström, K. and Kiiras, J. (2004). Proactive schedule management of industrial turnkey projects in developing countries. International Journal of Project Management 22. pp. 75-85

Barney, J.B. (1995). Looking inside for competitive advantage. The Academy of Management executive, Vol 9, Issue 4, pp. 49-61

Brodbeck, F. C. and 44 other writers, (2000). Cultural variation of leadership prototypes across 22 European countries. Journal of Occupational and Organizational Psychology, 73, pp. 1-29

Dille, T. and Söderlund, J. (2011). Managing inter-institutional projects: The significance of isochronism, timing norms and temporal misfits. International Journal of Project Management 29, pp. 480-490

Dubois, A and Gadde, L-E. (2000). Supply strategy and network effects – purchasing behaviour in the construction industry. European Journal of Purchasing & Supply Management. 6, pp. 207-215

Ford, D., Gadde, L-E., Hakansson, H.H, and Snehota, I. (2002). Managing networks. 18th IMP conference.

Ford, D., and Redwood, M. (2005). Making sense of network dynamics through network pictures: A longitudinal case study. Industrial Marketing Management 34. pp. 648-657

Floricel, S. and Miller, R. (2001). Strategizing for anticipated risks and turbulence in large-scale engineering projects. International Journal of project management 19: pp. 445-455.

Frank, M. (2006). Knowledge, abilities, cognitive characteristics and behavioural competences of engineers with high capacity for engineering systems thinking (CEST). Systems Engineering, Vol 9, No 2, pp. 91-103

Gadde, L-E. and Snehota, I. (2000). Making the most of supplier relationships. Industrial Marketing Management 29, pp.205-316

Gadde, L-E. and Jellbo, O. (2002). System sourcing - opportunities and problems. European Journal of Purchasing and Supply Management 8, pp. 43-51

Gardiner, P.D. and Stewart, K. (2000). Revisiting the golden triangle of cost, time and quality: the role of NPV in project control, success and failure. International Journal of Project Management 18. pp. 251-256

Gudykunst, W.B., Matsumoto, Y., Ting-Toomey, S., Nishida, T., Kim, K., and Heyman, S. (2006). The influence of cultural individualism-collectivism, self construals, and individual values on communication styles across cultures. Human communication research Vol 22, Issue 4, pp. 510-543.

Hald, K.S. Cordón, C. and Vollmann, T.E. (2008). Towards an understanding of attraction in buyer-supplier relationships. Industrial Marketing Management 38, pp. 960-970

Hameri, A-P. and Heikkilä, J. (2002). Improving efficiency: time-critical interfacing of project tasks. International Journal of Project Management 20. pp. 143-153

Henneberg, S.C., Mouzas, S. and Naude, P. (2006). Network pictures – Concepts and representations. European Journal of Marketing Vol 40. No ¾. pp. 408-429

Hofstede, G., Hofstede, G.J. and Minkov, M. (2010). Cultures and organizations; Intercultural cooperation and its importance for survival. Mc Graw Hill, Third edition

Håkansson, H.H. and Ford, D. (2002). How should companies interact in business networks? Journal of Business research 55. pp. 133-139

Håkansson H.H. and Waluszewski (2002) in Ford, D., Gadde, L-E., Hakansson, H.H, and Snehota, I. (2002). Managing networks. 18th IMP conference.

Hällgren, M. and Maaninen-Olsson, E. (2005). Deviations, ambiguity and uncertainty in a project-intensive organization. Project Management Institute Vol. 36. pp. 17-26.

Jensen, C. Johansson, S. and Löfström, M. (2006). Project relationships – A model for analyzing interactional uncertainty. International Journal of Project Management 24. pp. 4-12.

Kadefors, A. (2004). Trust in project relationships – inside the black box. International Journal of Project Management. pp. 175-182

Kedia, B.L. and Bhagat, R.S. (1988). Cultural constraints on transfer of technology across nations: Implications for research in international and comparative management. Academy of Management Review, Vol 13. pp. 559-571

Korac-Kakabadse, N., Kouzmin, A., Korac-Kakabadse, A., and Savery, L. (2001). Low- and high-context communication patterns: Towards mapping cross-cultural encounters. Cross Cultural Management Vol 8, No 2, pp.3-24

Leek, S. and Mason, K. (2009). Network pictures: Building a holistic representation of a dyadic business-to-business relationship. Industrial Marketing Management 38. pp. 599-607

Lindgren, M. and Packendorff, J. (2006). Projects and prisons. In: D. Hodgson and S. Cicmil (Eds.) Making projects critical, pp. 111-131. Palgrave & MacMillan.

Manrai, L.A, and Manrai, A.K. (1995). Effects of cultural-context, gender, and acculturation on perceptions of work versus social /leisure time usage. Journal of Business Research 32, pp. 115-128

Mintu-Wimsatt, A. and Gassenheimer, J.B. (2000). The moderating effects of cultural context in buyer-seller negotiation. The Journal of Personal Selling and Sales Management, Vol 20. pp. 1-9

Möller, K.E.K. and Törrönen, P. (2003). Business suppliers' value creation potential A capability-based analysis. Industrial Marketing Management 32. pp. 109-118

Nguyen, D.Q. (1998). The essential skills and attributes of an engineer: a comparative study of academics, industry personnel and engineering students. Global Journal of Engineering Education, Vol 2, No 1, pp. 65-76

Olander, S. and Landin, A. (2005) Evaluation of stakeholder influence in the implementation of construction projects. International Journal of Project Management 23: pp. 321-328.

Orr, J. (2005). Unforeseen conditions and costs on global projects: learning to cope with unfamiliar institutions, embeddedness and emerging uncertainty. Dissertation of Stanford University.

Orr, J. and Scott, W.R. (2008) Institutional exceptions on global projects: a process model. Journal of International Business Studies 39 (4). pp. 562-588.

Perminova, O. Gustafsson, M. and Wikström, K. (2008). Defining uncertainty in projects – a new perspective. International Journal of Project Management 26. pp. 73-79.

Pillai, K.G Sharma, A. (2003). Mature relationships: Why does relational orientation turn into transaction orientation? Industrial Marketing Management 32. pp. 643-651

Pinto, J.K. and Mantel, S.J. (1990). The causes of project failure. Transactions on Engineering Management, Vol 37, No. 4, pp. 269-276

Ramos, C. and Ford, I.D. (2011). Network pictures as a research device: Developing a tool to capture actors' perceptions in organizational networks. Industrial Marketing Management 40. pp. 447-464

Ronen, R. and Shenkar, O. (1985). Clustering countries on attitudinal dimensions: review and synthesis, Academy of Management Review, 10, pp. 435-454

Ruuska, I., Ahola, T., Artto, K., Locatelli, G. and Mancini, M. (2010) A new governance approach for multi-firm projects: Lessons from Olkiluoto 3 and Flamanville 3 nuclear power plant projects. Paper accepted for publication in International Journal of Project Management.

Ryals, L.J. and Rogers, B. (2006). Holding up the mirror: The impact of strategic procurement practices on account management. Business Horizons 49. pp. 41-50

Sharma, A. (2006). Success factors in key accounts. Journal of Business & Industrial Marketing 21/3. pp. 141-150

Teece, D.J., Pisano, G. and Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, Vol. 18:7. pp. 509-533.

Ulaga, W. and Eggert, A. (2006). Value-Based Differentiation in Business Relationships: Gaining and Sustaining Key Supplier Status. Journal of Marketing Vol. 70. pp. 119-136

Uusitalo, O. (1995), A Revolutionary Dominant Design - The Float Glass Innovation in the Flat Glass Industry, dissertation A-108, Helsinki School of Economics, Helsinki.

van Marrewijk, A., Clegg, S.R., Pitsis, T.S. and Veenswijk, M. (2008) Managing public–private megaprojects: Paradoxes, complexity, and project design. International Journal of Project Management 26 (6) pp. 591-600.

Very, P., Lubatkin, M., Calori, R. and Veiga, J. (1997). Relative standing and the performance of recently acquired European firms. Strategic Management Journal, Vol. 18 No. 8, pp. 593-614.

Ward, S. and Chapman, C. (2004) Making risk management more effective. In: Morris, P.W.G. & Pinto, J.K. (Eds.) The Wiley Guide to Managing Projects, pp. 852-875. John Wiley & Sons, USA

Wright, J.N. (1997). Time and budget: the twin imperatives of a project sponsor. International Journal of project management Vol 15, No. 3. pp. 181-186.

Würtz, E. (2005). A cross-cultural analysis of websites from high-context cultures and low-context cultures. Journal of Computer-Mediated Communication, 11(1), article 13. http://jcmc.indiana.edu/vol11/issue1/wuertz.html