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## Supply Chain Contract Evolution

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### Abstract

This paper draws together theories from organisational and neo-institutional literatures to address the evolution of supply chain contracts. Using a longitudinal case study of the Norwegian State Railways, we examine how firms move through the stages in an inter-organisational process of supply chain contract evolution and how they can cooperate to ensure efficiency and equity in their contractual relationship. The findings suggest that inefficient and inequitable initial contracts can occur in part, because of the cognitive shortcomings in human decision-making processes that reveal themselves early in the arrangement before learning and trust building can accumulate. We then reveal how parties can renegotiate towards a more equitable and efficient supply chain contract.

### Keywords

contract design, business process modelling, supply chain management

### Disciplines

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## *Introduction*

As the phenomenon of outsourcing matures firms are increasingly choosing to outsource key components of their value chain. However, deeper and more core outsourcing increases dependence on independent producers in a supply network and opens the firm to a variety of operational and strategic risks (e.g., Barthelemy, 2003; Earl, 1996; Knight and Harland, 2005; Mayer and Argyres, 2004; Verwaal and Hesselmanns, 2004). Mitigating these risks impose governance costs on companies to ensure the strategic and operational alignment of their outsourced activities. Supply chain contracts provide protection by ensuring that promises or obligations to perform particular actions are met (Macneil, 1978).

An extensive literature shows how firms can write an efficient contract to protect themselves from potential risks in outsourcing engagements (Barthelemy and Quelin, 2006; Domberger, 1998; Hart and Moore, 1988; Poppo and Zenger, 2002). However, external and internal circumstances frequently change, relationships evolve and contracts can become outdated as the benefits and cost sharing between parties move out of balance. Studies of how firms proceed from stage-to-stage as contractual relationships evolve dynamically are scarce and represent a gap in the literature. This is true particularly in the case of supply chain contracting, where most studies fail to acknowledge the dynamic nature of supply chain operations and the subsequent need for contracts to evolve over time and as circumstance change. What is needed is additional process-based research that shows how firms can adjust contracts on an ongoing basis; in particular, how firms evolve from less complete to more complete forms of contractual arrangement and from more formal to more informal forms of effective governance.

This study aims to contribute to these issues by examining how firms progress in their contractual relationship towards a more equitable and efficient contract. More specifically, we focus on the supply chain contract as a dynamic process of cooperative inter-organisation relationships. The key questions underlying this study are: (1) How do firms cooperate to ensure that contracts are efficient and equitable? (2) When is cooperation feasible in the contract design process? (3) How do firms renegotiate contracts to mitigate the risks in contract design? We will answer these questions by drawing together theories from evolutionary and neo-institutional economics to describe the evolution of inter-organisational relationships in a case study of the Norwegian State Railway. The focus of the analysis is on how firms can learn to cooperate and ensure that they move to a more efficient and equitable contract. We believe that a rich longitudinal case study can provide insight into the evolution of cooperation in supply chain outsourcing arrangements.

The first section of the paper reviews the literature on supply chain contracts and the potential risks associated with such relationships. From this literature we develop a provisional model based on a sequence of four stages in inter-organisational governance arrangements. The second section discusses our methodology and research design, as well as the specifics of the research setting. The section on findings describes the events that took place over the six-year study, divided into seven discrete events. In the final section, we incorporate the evidence, discuss our interpretation of the events, and offer a more complete model based on business process modelling (BPM) as a technique to drive cooperative behaviour.

### ***Theoretical Background***

Supply chain contracts represent the “rules of engagement” for how partners will share the benefits and the risks from uncertain supply or demand. These rules are imperfect and research has shown that there are many agency problems inhibiting the effectiveness of contract design (Jensen and Meckling, 2001). Such problems arise both because of the nature of contracting and the nature of human behaviour. From a contract perspective these problems surface because of a natural misalignment of interests between the principal (the contracting firm) and agent (the supplier) (Jensen and Meckling, 2001; Ross, 1973), the failure of the contract to incentivise the parties correctly and monitor the relationship effectively, thereby mitigating moral hazard concerns (Holmstrom, 1979) and natural opportunities for opportunism created by bilateral dependent relations (Williamson, 1996). From a human decision making perspective, problems occur because managers are boundedly rational (Simon, 1976) when accounting for the vast array of contingencies that need to be addressed in a contract, and inherently overoptimistic when faced with limited information, leading firms to underestimate risks and overestimate benefits (Lovallo and Kahneman, 2003) in the early stages of contracting.

Scholars recognise that real contracts will be vague, or incomplete, on a number of significant dimensions (Grossman and Hart, 1986). In the case of complex systems such as a supply chain, it is impossible to provide an exhaustive description of the rights and obligations of all contracting parties for every possible contingency. Governing complex transactions requires that the contracting parties use a combination of instruments based on intermediate degrees of contractual completeness to ensure that the parties can adapt to the contingencies that arise in modern business (Williamson, 1985). Research suggests that stochastic demand implies that organisations cannot attain efficient outcomes through formal contracts alone (e.g., Poppo and Zenger, 2002; Woolthuis *et al.*, 2005), making less structured governance instruments necessary if a better level of co-production is to be achieved from the relationship. These less formal instruments include trust (Clark, 1993; Gulati, 1995; Nooteboom *et al.*, 1997), reputation, hostages (Klein, 2000), and the ‘shadow of the future’ (Heide and Miner, 1992). According to this thinking, the business world comprises a network of relationships developed and fostered through strategic collaboration (Bidault and Salgado, 2001; Contractor and Lorange, 1988; Hakansson and Snehota, 1997; Holweg *et al.*, 2005). However, trust and cooperation does not arise easily and requires an unusual mix of propensity, power and persistence among the partners in a relationship (Carson *et al.*, 2003; Johnsen *et al.*, 2008).

Contractual arrangements based on intermediate degrees of completeness reflect, at least in part, the push by scholars towards cooperation, trust and routine as substitutes for detailed forms of contractual governance in the supply chain (Johnston *et al.*, 2004). Trust can be an efficient complement and substitute for formal contracts because once firms have invested in a relationship (Poppo and Zenger, 2002; Woolthuis *et al.*, 2005) mutual cooperation becomes a means of reducing costly contract negotiations (Zaheer *et al.*, 1998). Routine can also be used to foster a climate of positive reinforcement, independent of trust,

that can allow firms to avoid detailed monitoring and coordination costs (Zollo *et al.*, 2002). Although cooperation, trust and routine in the supply chain are widely acknowledged as important to governance success, it is not clear how this should occur, particularly when what is “best” for an exchange partner is usually judged according to its own profit expectations.

In summary, the sourcing of supply chain functions remains ideally described as an arrangement of cooperative inter-firm relationships based on mutual commitment and trust between buyers and suppliers (Johnston *et al.*, 2004). In the next section we draw upon the inter-organisational alliance and neo-institutional economics literatures to develop a dynamic, process-based model of contractual change (see Figure 1). The provisional model describes the sequence of stages that captures initial negotiation, ongoing learning processes that inform the need for change and an assessment of when contract redesign is feasible.

*<Insert Figure 1 here>*

## ***A Provisional Model***

### ***Contracts as a sequence of commitment, learning and renegotiation***

Ring and Van de Ven (1994) propose a cooperative inter-organisational process framework that consists of a sequence of negotiation, commitment and execution stages. Each of these stages comprises a number of repeated interactions where the outcome is assessed by management in terms of efficiency and equity. Both efficiency and equity are required conditions for all organisational arrangements (Ouchi, 1980). Efficiency is central to most standard models of economic exchange and is used by transaction cost researchers to define the most, and least, costly governance structure for undertaking a transaction. Equity is defined as “fair dealing” and is considered to be an equally important criterion for assessing initial conditions in organisational arrangements (Arino and de la Torre 1998; Ouchi, 1980).

The particular contractual provisions that are created and put into play hinge upon the efficiency and equity of inter-firm governance (Reuer and Ariño, 2007). However, a reliance on decision makers' expectations in this process can be problematic. In behavioural decision theory, studies have shown that people are over-optimistic about their own relative abilities and futures (Weinstein, 1980). Lovallo and Sibony (2006) argue that managers tend to exaggerate the degree of control they have over events and such over-optimism or over-confidence distorts the environment in which the managers believe they are operating. In the making of strategic contract decisions, over-optimism not only generates unrealistic forecasts of the outcomes but also leads managers to underestimate future risks. When decisions represent unfamiliar territory, such as is frequently the case for supply chain contracts, the risks from over-optimism are even more acute (Powell *et al.*, 2006).

During the execution of a contractual arrangement the parties engage in a dynamic learning process. This stage offers the opportunity for firms in a relationship to learn from each other as well as to influence each other's perceptions about their desirability as a partner. The operational learning that takes place during this period is designed to ensure that all parties become aware of their need to fulfil efficiency and equity conditions (Arino and de la Torre, 1998). This is critical because as Lyles (1988) and Hamel (1991) argue, the initial contracts can focus on the wrong set of issues and learning is required to add skills and knowledge about firms to manage cooperative relationships (Westney, 1988).

The contractual relationship between AT&T and Yahoo serves as an example of learning over the contract period. During the five-year long contract arrangement both parties developed considerable knowledge about their own respective strengths and weaknesses. They also engaged in mutual learning and sharing of information, both in operations and relationship management. This new learning provided the catalyst for a renegotiated

contractual relationship where AT&T sells its broadband DSL service under the joint AT&T Yahoo brand name to maximise joint profit.

As prior contractual commitments are translated into concrete reality, parties may experience inordinate degrees of relational risk and performance risk (Das and Bing-Sheng, 1996), inefficiency and inequity (Ring and Van De Ven, 1994), as well as inter-partner conflicts and incongruence. A primary concern extensively discussed in the contract design literature has been the threat of opportunism, adverse selection and moral hazard (Akerlof, 1970; Crocker and Reynolds, 1993; Holmstrom, 1979); where the divergence of goals among the parties causes a partner firm to attempt to generate high profits at the expense of the other party. To avoid these problems, scholars have suggested that procedures should be developed (Arino and de la Torre, 1998) to monitor the exchange relationship against equity and efficiency criteria (Johnsen *et al.*, 2008; Ouchi and Maguire, 1975; Ring and Van De Ven, 1994). In the next section we describe a suitable criterion for the assessment of equity and efficiency.

### ***An assessment of equity and efficiency criteria***

As a relationship evolves, firms may discover that the initial contract terms do not serve their needs as expected. Unfortunately, parties do not always try to adjust the contract in a mutually agreeable manner. Carson, *et al.* (1999) develop a criterion based on neo-institutional economics that is used to show how inter-organisational cooperation can be achieved between self-interested parties. This school of thought recognises that hypothetically ideal contract types are often fundamentally flawed because incumbent organisations – with existing operations and arrangements – are unable to see a *remedially efficient* alternative that can be described and *implemented* with positive net gain (Williamson, 1999). Hence, existing arrangements matter and at each point in a contract negotiation each of the actual and potential contracting parties must be willing to move to the next stage in this process. As an

operational matter pertaining to the discussion here, this amounts to asking the following three questions about a supply chain contract:

1. *Joint profit requirement*: Do existing contractual arrangements allow for joint profits (with reallocation if needed)?
2. *Reallocation feasibility requirement*: If contract renegotiation is required, is it feasible given the characteristics of the exchange arrangement? Is there support among the contracting parties to move to a new arrangement?
3. *Switchover feasibility requirement*: Is it possible to generate new levels of cooperation and trust between exchange partners and create greater cooperation to mitigate contract opportunism? (Including set-up and take down costs).

Such requirements enable firms to evaluate whether changes or transitions to new contractual arrangements are possible to restore efficiency and equity in an exchange relationship.

### ***Re-evaluation and recommitment under revised conditions***

The performance of a contractual relationship is determined at the outcome stage, where it can either be stabilised, reformed, enter a state of progressive decline, or eventually be terminated (Das and Teng, 2002). The outcome is likely to be influenced by the mode of interactions that transpired during the execution stage (Das and Kumar, 2007). If parties in the relationship attempt to reform their contractual arrangement to a closer-to-optimal one that yields maximum efficiency and equity to all parties, the relationship progresses to the re-evaluation and recommitment stage where firms take onboard the extent to which it is feasible to change to a new contractual arrangement.

During these stages (i.e., execution and re-evaluation), trust plays a critical role in supporting dynamic learning processes and the remediable efficiency criterion (Carson *et al.*, 2003; Holm *et al.*, 1999; Ring and Van De Ven, 1994; Zaheer and Bell, 2005). Work by social

scientists indicates that trust is an important condition to create an open and constructive atmosphere that enables parties to share more accurate information in a more timely manner and to jointly solve problems as they arise (e.g., Larson, 1992; Ring and Van De Ven, 1994). Mayer and Argyre's (2004) study of learning to contract in the personal computer industry identified a positive relationship between increased trust and joint learning based on the length of the relationship. Woolthuis *et al.* (2005) found that trust can be both a complement and a substitute for contracting.

In a repetitive sequence of commitment, execution, dynamic learning and routine the importance of renegotiation should not be underestimated. Contract renegotiation represents considerably more than a simple repetition of the original contract and industry surveys have consistently recognised the importance of contract renegotiations. For example, in the case of supply chain contracts, the 2004 Supplier Selection and Management Report (SSMR, 2004) reveals that over 55% of firms surveyed indicated that they are presently engaged in renegotiating existing contracts with their suppliers. Effective execution of a new contract requires that sufficient equity and efficiency be in play to ensure that all parties to the new arrangement benefit.

In summary, the provisional model discussed in this section offers a comprehensive framework for understanding the dynamic evolution of contractual and quasi-contractual relationships and how parties in a relationship evolve together from one stage to the next in order to meet their goals. The framework captures the initial expectations that parties have about the gains that influence contracting arrangements. Yet, it is important to note that these initial expectations should be carefully defined as they are likely to be influenced by errors of judgment (Kahneman and Lovallo, 1993). Based on initial expectations, the parties in a contractual arrangement execute their contractual commitments. As commitments are executed, learning takes place to monitor the extent to which value has been created and

distributed among parties. The feasibility of change is then assessed according to remediable efficiency criteria. When change is possible, a new sequence of negotiation and commitment then occurs that leads to revised contracts. This dynamic process brings in a new equilibrium, which in turn, is followed by execution of the new contract.

### ***Method and Research Design***

Scholars have argued the need for qualitative research that allows us to understand the core issues underlying the theory of collaboration. In particular, Smith *et al.*, (1995 p.19) call for “more longitudinal case studies that are capable of capturing the complexities and dynamics of cooperation.” The analysis in this paper attempts to fill this void based on two theoretical considerations: (1) it provides a striking example for illuminating the risk in contract design, and (2) the companies had been in operation for a sufficient period of time, enabling us to track change over time. The theoretical sampling based on this single case is therefore quite straight forward (Eisenhardt and Graebner, 2007a). The case was chosen because it provides an extreme example of a problem in supply chain procurement and provides unusual access to rich longitudinal data.

#### ***Research site: Norwegian State Railways***

The Norwegian State Railways (NSB) is one of Norway’s most important transport companies, with traditions going back to the opening of the first railway in Norway in 1854. NSB is fully owned by the Norwegian state. The main activities of NSB comprise passenger traffic on trains and buses, and rail freight traffic.

Rail Gourmet Togservise Norge AS (RGT) is a joint venture between Rail Gourmet and Umoe catering. The company delivers catering services to NSB’s trains in addition to several bus companies. Their main service offerings comprise logistics and distribution,

product development and marketing. Table 1 illustrates the main activities performed by NSB and RGT.

*<Insert Table 1 here>*

### ***Research setting: Catering service relationship***

NSB has had a catering service onboard their long and medium distance passenger trains since 1918. RGT has provided the onboard catering service for NSB since 1918, forging a lasting relationship between the two companies. In fact, NSB owned RGT for many years, but in 1995 decided to outsource catering services in order to save money and focus on the operation of train traffic.

The logistics of catering onboard long distance trains are complex, largely because the supplier must be at the railway station platform at the exact time the train arrives in order to deliver supplies otherwise, the “customer” – in this case the train – is gone. Another challenge is that trains can be rescheduled to take an alternative route, resulting in variations in passenger numbers and subsequent last minute changes to onboard supplies. Whenever a train is scheduled for a route where it is not back at the base station for several days it will require large stocks of food and beverage.

For medium distance travel, NSB installed vending machines in the trains in the late 1990s to save on labour costs and improve product availability. The vending machines replaced the shopping trolleys that had been used previously. For long distance trains, NSB has always used a café wagon where the customers can buy both hot and cold meals.

### ***Data Collection and Analysis***

The primary source of data collected was based on a co-author’s 2001 – 2007 employment experience. During this time she was exposed to a wide variety of positions within the

company that ensured sufficient knowledge of the main issues described in this paper. The positions within NSB include, but are not limited to work as: a logistics controller and member of the contract process redesign team; procurement advisor and assistant contract manager. During this six year period the co-author participated in all the business process meetings and held discussions with members from both contracting teams. This level of participatory observation ensures that a multidimensional perspective on the contractual design process is described and enhances the validity of the case study (Gibbert et al., 2008). Table 2 lists the 10 managers who were involved in this process indicating their company affiliation and prior years of service.

*<Insert Table 2 here>*

To provide different angles on the same phenomenon and to triangulate the validity of our findings we obtained various archival data (Yin, 2003). The archival data collected covered the entire life of the catering contract from initial development in 1999 to renegotiation in 2004. The main sources were the interim financial reports ([http://www.nsb.no/internet/en/About\\_NSB/index.jhtml?language=en](http://www.nsb.no/internet/en/About_NSB/index.jhtml?language=en)), documents from the meetings held during contract negotiations, and the business process mapping exercise that the two companies carried out cooperatively. Together, these sources constituted about 350 pages of detailed summaries and reports that described the challenges, objectives and outcomes of the contract process. Additional archival data included a large volume of organisational charts, market reports, and internal newsletters etc. Finally, we collected relevant press clippings and releases dealing with the contract and firm operations.

### ***Findings: Events and issues in contract development***

The narrative below describes seven major events that transpired over the six years of observation. The approach is similar to the critical incident technique that provides a set of procedures for systematically identifying the behaviours that contribute to success and failure

in organisations by isolating each incident to investigate its effects and outcomes (Wikipedia, 2008).<sup>1</sup> Table 3 provides a summary of the seven events and the information source(s) used to investigate the effects and outcomes of each event. Although NSB committed to two catering contracts over the course of this study – one for the vending machines on the trains travelling medium distances, and one for serving food and beverage in the café wagons on long distance trains – we have chosen to concentrate on the long distance travel contract only. The reason for this is that long distance travel provides a more extreme example of problems in supply chain procurement.

*<Insert Table 3 here>*

### **Event 1: New catering contract for high speed trains**

In 1999, NSB invested heavily in new high speed trains for long distance routes. The intent was to use faster trains that were capable of going at much higher speeds to enter a new market by competing with airline companies for business customers travelling between the major cities of Norway. Every effort was made to ensure that business customers on a NSB train would experience a similar level of service to that of an airline; on each trip they would be served a three-course meal, tea and coffee and offered free newspapers. Expected revenues from this new business segment were high and a new catering contract with a suitable supplier was required to provide a new upgraded menu that was considered necessary for business class travel.

Management at NSB expected strong revenue growth from this new market and a generous five-year (1999–2004) cost plus contract was developed with this belief in mind. RGT received a fixed margin for all product delivered to the trains. All product expenses were

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<sup>1</sup> We thank the anonymous reviewer for bring this to our attention.

paid by NSB with penalties included in the contract to ensure that sufficient product was always available.

### **Event 2: Execution and commitment through incentives and penalties**

Contract penalties for supply shortages created strong motivation for RGT employees to deliver as much product as possible. This situation encouraged the oversupply of stock by RGT as NSB carried all the risk for product sales and shrinkage. The RGT employees manning the café wagons on each train were responsible for ordering deliveries before they went off duty and exercised their own judgement regarding required amounts of stock. This subjective approach to ordering resulted in large fluctuations in the quantity of food and beverage ordered on each train. Large variations in the type of stock ordered were also noticeable, although this was partly explained by differences in demand for particular products between the different routes. For example, products consumed on one route, e.g. Trondheim–Oslo, would vary for a train scheduled to go Oslo–Stavanger on the next day. The reliance on orders made by staff on previous journeys created considerable frustration for RGT staff that led to conflict between staff on different routes.

Other problems inherent in the catering process include: the difficulty of predicting ticket sales and therefore the amount of stock needed – particularly in light of the fact that many passengers would not make return journeys the same day; and the limited storage facilities for keeping food fresh on the trains. The result was a high level of shrinkage on some trips and a shortage of food trays on others.

### **Event 3: Disappointment and frustration with contract imbalance**

Old track infrastructure meant that the new trains were not capable of going as fast as predicted and the business customers did not choose train travel over plane travel as expected. Consequently, the expected growth in revenue did not materialise and the catering contract

began to cause problems immediately. For example, in 2001 NSB suffered a loss of between US\$8 – 12 million that was directly attributable to the onboard catering service. In contrast, the cost plus contract ensured that RGT earned healthy profits. This created deep resentment within NSB as the company felt that the supplier was earning money at their expense.

#### **Event 4: Commitment to a roll-on-roll-off concept**

In 2002, new management at RGT provided an opportunity for improved cooperation. NSB decided to change the catering service offer to the business traveller and stop serving the three dishes of food and instead provide passengers with free newspapers and tea and coffee. This change was made in an effort to reduce the number of employees needed on each trip, and also to reduce the logistic costs required to service the trains. A decision was also made to implement a roll-on-roll-off concept where the goods were put on the trains in Oslo and the unsold goods were taken off on the return to Oslo. This reduced shrinkage levels and made the provision of food and beverage more accurate.

The new concept was more expensive in terms of the logistical costs paid to RGT, but it drastically reduced shrinkage and secured more accurate stock provisions. Signs of improved levels of cooperation and communication between the partners began to appear. Regular meetings between the companies were subsequently scheduled to identify areas of activity where costs incurred by NSB might be reduced. One of the main initiatives to come out of these meetings was the decision to close down the warehouses in the cities of Kristiansand and Bergen. This enabled most trains to be serviced from Oslo creating an environment that further reduced the costs for NSB.

#### **Event 5: Competitive bidding process initiated**

Although the restructuring of train catering had led to improvements in financial performance for NSB, by 2003 the situation had become untenable. The company continued to incur large losses in catering and management began to look forward to 2004 when the original contract

was scheduled to expire. In preparation for a new round of contract negotiations, NSB ran a BPM exercise to provide management with a visual aid for picturing work processes based on inputs, outputs and linked tasks. Business process modelling (or mapping) is a general methodology that supports improved design, management and improvement of business processes in order to raise the productivity of a company (Smith and Fingar, 2003). The BPM activity was designed to provide management with a better understanding of process workflow before changes and improvements to the new contract were made.

The process of mapping train catering was a time consuming activity. The first step was to create an “as-is” analysis of all aspects of train catering. This included, but was not limited to, the onboard sales forecasts and planned deliveries, logistics and all the aspects of physical deliveries to the trains and sale promotion activities. The BPM provided both companies with greater awareness of process complexity and more respect for the challenges faced by each other (see Figure 2 for a graphical overview).

*<Insert Figure 2 here>*

After the “as-is” BPM analysis was completed, the process of making a “should be” analysis was started. The aim here was to identify the activities that could be performed in a better manner. One of the unexpected benefits from the BPM exercise was that it acted as a catalyst to develop a healthy relationship between the two companies. The team that worked together to map the business processes included people from every department involved with catering – both from NSB and RGT – resulting in the building of stronger relationships and understanding. Not only did the shared activity ensure to some degree that NSB and RGT did not make a process map that was too narrow, but the newly forged relationships based on cooperation and trust would later form the cornerstone for successful contract renegotiation.

#### **Event 6: New tender process**

In parallel to the mapping process, NSB worked on preparing for the next catering tender round. At the time, RGT was the only vendor capable of delivering train catering and NSB spent a lot of time and effort trying to make the deal interesting to other companies. Through many meetings with companies, NSB tried to create interest with alternative suppliers to participate in the tender process. Cafes, restaurants, kiosks and other potential companies attended the meetings, and some showed interest in the contract. NSB issued the request for tender in late 2003 to all companies that had shown interest, including RGT. By the closing date, NSB had only received one confirmation of intent to tender, from RGT.

NSB was left with two alternatives: (1) wait until the deadline of the tender and negotiate with RGT as if others were bidding for work; or (2) approach RGT in an open and honest manner and request that they enter into direct negotiation immediately. Waiting until the deadline was risky because it was likely that RGT would discover that they were the only supplier. It was anticipated that such a situation might invite ill will between the parties and ruin the possibility of an equally profitable contract. NSB decided on the “open and honest” option and invited RGT into direct negotiations making it clear that the goal was a long term mutually beneficial contract. This approach was later shown to be efficacious as the negotiations were characterised by openness and willingness to find the most optimal solution for both parties.

#### **Event 7: The new contract between NSB and RGT**

The negotiation process began with a new “should be” BPM to which RGT proactively contributed to this process with several suggestions for improvement. It was clear that both parties had realised that mutual dependencies existed; RGT was the only supplier for NSB and NSB was by far the largest customer for RGT. The partners made a preliminary agreement stating in their objectives that they would share the “total pie” more efficiently and equitably.

The new contract was based on a revenue sharing model. This required both parties to share equally the burden of future over capacity. NSB paid a fixed amount for logistics and administration that was based on RGT's real costs at the time the contract was signed. It was agreed that investments would be kept separate from fixed costs to ensure transparency over depreciation periods. If major investments were necessary, RGT and NSB would discuss these and decide upon new depreciation time periods.

All products sold onboard would accrue revenues to both NSB and RGT as both companies have a net profit sharing arrangement for those products. The net profit is calculated as the sales price minus the product price that RGT pays their suppliers and the net profit percentage allocated to each company varies according to the amount of product sold. The starting point was based on a net profit distribution that was shared 75:25 between NSB and RGT. As sales increase, the percentage awarded to NSB increases. A supplier arrangement also ensures that the fixed costs will decrease if the revenue exceeds certain predefined levels.

These factors provided the incentive to push sales to far greater levels. When the revenue was approaching the level where the fixed costs decrease, NSB had an incentive to increase sales. Once that level was achieved, RGT had an incentive to increase sales to regain the amount of fixed costs that had been reduced. These features of the contract provide strong motivation for both parties and the results of the new contract have been very promising.

The new contract was signed in January 2004 and went into full effect from first of July 2004. Following the changes in concepts and processes made since 2002 and implementation of the new contract catering, profit onboard has improved by more than 40% since 2002. This improvement can be attributed to the benefits of BPM in supporting contract renegotiations. It is interesting to note that NSB is now one of the few train operators in Europe that has been able to make a profit from onboard sales.

## *Interpretation of the Evidence from the Case*

Let us now turn to the data and examine it from a revised model perspective (see Figure 3), which begins with the original contract and the associated learning. The first issue is the impact of over-optimism. Although one can find cases where over-optimism has positive motivational value, it did not prove to be so in this situation (path “A”). In hindsight, one could raise many questions regarding the quality of NSB’s decision making in an uncertain environment. Even if the new market for high-speed train travel did meet expectations it is not clear that the contract would have been distributively fair in terms of equity. As a senior NSB manager noted: “evaluating train catering in Norway is difficult, the only operator with any experience in the field is NSB and the only supplier with any experience is RGT. A lot of guesswork goes on because there is insufficient experience to base our decisions on. In hindsight, the uncertainties about demand should have been tackled in a better manner.”

Returning to our revised model, it is clear that the execution and learning identified an imbalance as NSB incurred large losses ( $\pi < 0$ ) while RGT achieved healthy profit ( $\pi > 0$ ). This situation created a need for a re-evaluation against remedial efficiency criterion (path “B”).

*<Insert Figure 3 here>*

An assessment of the feasibility of this change indicated two problems. First, there was no opportunity for joint profit. Second, since RGT earned healthy profit their motivation for large changes in the contract was small. The switching costs involved in moving to an alternative contract arrangement – one that RGT anticipated would be less profitable – implied that such a change was undesirable for RGT. The most likely reason for this was a combination of short sightedness on behalf of RGT and the belief that NSB was locked in because alternative suppliers with the necessary skills were not available. At least

theoretically, NSB could have created an alternative by establishing their own in-house catering service, or signalling their willingness to do so. After all, they had handled train catering in the past. However, NSB never made such a move, probably because it realized that since it would hardly make sense from a business perspective, signalling their intention to revert to in-house services would not be credible. In other words, NSB had no leverage and could do little with respect to the activities on the train that would materially hurt RGT more than it hurt NSB. Left with no alternative, NSB started to prepare for the contract termination date and a new round of contract negotiations with alternative suppliers.

In the beginning the BPM project was based on a very traditional approach. That is, the aim was simply to define the transactional activity (Soliman, 1998) so that a “data road map” for future contract discussions could be created (path “C”). As the firms entered into the BPM activities, learning took place and relationship-specific knowledge began to develop ( $RQ > 0$ ) from frequent and intense partner interactions, creating a better understanding of each other’s procedures, management systems and cultures. The mutual understanding created during this time was used to mitigate *ex post* coordination, conflict resolution, or information-gathering problems in more formal contractual arrangements (path “D”).

Important key success factors in the contract renegotiation were: (1) openness and trust between the partners; (2) mutual dependency between the partners; (3) a true desire by all members of the team to make improvements and find areas of potential savings; and (4) the creation of a common goal between the partners; and (5) development of a thorough understanding of all the little parts of the process that can be problematic. The application of BPM made transparent the switching costs to all partners that provided the catalyst for a new level of understanding that ultimately led to new and successful contract renegotiation (path “E”).

Taken together our case findings are in agreement with previous studies showing that trust between parties is vital in order to achieve mutually beneficial solutions (Carson *et al.*, 2003; Holm *et al.*, 1999; Ring and Van De Ven, 1994; Zaheer and Bell, 2005). Nevertheless, the NSB-RGT case also shows that trust is no panacea: RGT, the supplier, did not readily offer to forego the profits it was earning early on. The case findings also demonstrate the importance of individuals in developing trust; the change of RGT management was seemingly crucial for subsequent developments in the relationship between NSB and RGT. Relationships are not static; the case of NSB and RGT provides a good illustration of how they change over time, both in terms of content and performance. As pointed out by Lunnan and Haugland (2008) it is the partners' abilities to manage the evolution process that matter most in achieving long-term benefits.

### ***Concluding Discussion***

The case of NSB and RGT illustrates that contracting incurs both *ex ante* and *ex post* costs (Williamson, 1985). *Ex ante* costs include those of formalizing the contract – reaching agreement on rights and responsibilities; meeting legal requirements; gathering information and crafting optimal responses to a potentially large set of contingencies – and are costs that arise out of parties attempts at dealing with uncertainty. Nevertheless, availability bias based on the difficulty in imagining the plethora of ways that events can unfold (Russo and Schoemaker, 1992) is a key concern that can lead to over-optimistic assumptions that ultimately increase *ex post* costs. *Ex post* costs are associated with contract renegotiation (Ring, 2002); reorganisation expenses and opportunity costs associated with management time (Reuer and Arino, 2002). This includes the costs associated with BPM activities.

### ***Theoretical implications***

As we have illustrated in this paper managers make *ex ante* mistakes that subsequently requires parties to engage in economically costly efforts to redistribute profits as new contingencies arise. Hence, *ex ante* and *ex post* contracting costs are interdependent and must be considered interactively according to an upper bound or “fully efficient” state (Ring, 2002; Williamson, 1985). The degree of satisfaction with an existing contracting arrangement hinges on the extent to which it is perceived to be efficient and equitable. Most of the theoretical arguments on the advantages of inter-organisational supply chain relationships implicitly assume that parties can agree on the mutual benefits that are central to supply chain management (Chen and Paulraj, 2004; Holweg *et al.*, 2005). Yet, little research has been undertaken to show how collaboration is achieved in a supply chain setting and gaps exist in the literature on outsourcing in the supply chain.

As mentioned earlier, trust is often seen as a key issue in much of the inter-firm relationship literature and our case study adds analytical generalisability to the evidence about its benefits. By analytical generalisability we mean the way empirical observations generalise to theory, rather than the population as is typical of statistical generalisability (e.g., Yin 1994; Gibbert *et al.* 2008). However, trust based mechanisms alone do not always ensure trouble-free future cooperation in supply chain relationships. The notion of trust-based relations, while appealing in its positive vision of inter-firm relationships, can be one-sided and overly optimistic. Studies of inter-firm relationships (see, e.g., Jap and Anderson, 2003; Petersen *et al.*, 2006) point out that the parties involved also should be aware of “residual” opportunism on both sides of the contractual relationship. For example, although some suppliers may deliberately underperform, service buyers at times terminate contracts in untimely ways; promises and good intentions alone are not always enough. Safeguarding suppliers against termination should of course lead to smoother, longer-term and more reciprocal relationships, but will not eliminate the possibility that some suppliers also pursue their own, more self-

interested, agendas. Monitoring and other kinds of anti-shirking measures – as well as the development of trust and goal congruence between parties – may help building sustainable relationships (Jap and Anderson, 2003).

### *Practical implications*

The study provides important insights for practitioners who are contemplating, or who have responsibility for, outsourcing procurement and other supply chain activities. Supporting human collaboration is challenging partly because of variability in how people work and think and we re-emphasise that cognitive shortcomings are unlikely to disappear and to some extent are unavoidable. Hence, contract managers should take certain precautions to minimise the risk. We suggest two distinct approaches that can help companies mitigate the risks in the supply chain contract design context. First, we provide a remedial framework to counter biases and guide decision making. Second, we show that companies can create the trust and cooperation required to support contract renegotiation by embedding BPM into the contract development process.

Another important contribution this paper makes to managerial practice is demonstrating how BPM can force inter- and intra-organisational teams to think through the entire value chain. Unfortunately, most of the research conducted in BPM has been focussed on software management or efforts to define double work and non-value-adding activities (Soliman, 1998). This is a shame as BPM offers much more and is essentially a new way of managing the firm that is based on a more holistic approach. Business process modelling can be used to capture complementary benefits such as resources, managerial motivations, social exchanges and various inter- and intra-organisational dependencies. Through our longitudinal case study, we confirm the enterprise level value of BPM as an important enabler of trust, collaboration and routine. The use of BPM acts as a safeguard for the firm and its suppliers to

ensure existing processes are well understood and also serve as a baseline for future decision making.

### ***Limitations and future research opportunities***

This longitudinal research has two limitations. First, the study is limited to two organisations within the transportation sector. Therefore, attempts to extend the conclusions regarding the value of BPM to other research contexts may not necessarily hold. Nevertheless, industrial sectors with comparable structural characteristics and environmental circumstances may draw inferences from this work. Second, the findings in this paper are at best exploratory. This does not reduce the legitimacy or value of the research design in contributing to this research. The longitudinal research design provides in-depth insight into a significant “real-world” problem from which there is little academic theory. Furthermore, the longitudinal data collection approach enables us to mitigate retrospective sense-making and impression management (Eisenhardt and Graebner, 2007b).

Opportunities exist for future research to further investigate the role that BPM plays in supporting collaboration, trust and routine. The existing research is largely based on a coarse or global approach to contractual arrangements that could mask some of the more complex effects in a contractual arrangement (Reuer and Ariño, 2007). Further research based on how firms move from one contractual arrangement to another could prove helpful in better understanding the heterogeneity that exists within and across discrete governance structures in the supply chain.

## *References*

- Akerlof, George A., 1970. The market for "Lemons": Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, 84(3), 488-500.
- Arino, Africa and de la Torre, Jose, 1998. Learning from failure: Towards an evolutionary model of collaborative ventures. *Organization Science*, 9(3), 306-325.
- Barthelemy, Jerome, 2003. The seven deadly sins of outsourcing. *The Academy of Management Executive*, 17(2), 87-98.
- Barthelemy, Jerome and Quelin, Bertrand V., 2006. Complexity of outsourcing contracts and ex post transaction costs: An empirical investigation. *Journal of Management Studies*, 43(8), 1775-1797.
- Bidault, Francis and Salgado, Melchior, 2001. Stability and complexity of inter-firm co-operation: The case of multi-point alliances. *European Management Journal*, 19(6), 619-628.
- Carson, Stephen J., Devinney, Timothy M., Dowling, Grahame R. and John, George, 1999. Understanding institutional designs within marketing value systems. *Journal of Marketing*, 63(4), 115-130.
- Carson, Stephen J., Madhok, Anoop, Varman, Rohit and John, George, 2003. Information processing moderators of the effectiveness of trust-based governance in interfirm R&D collaboration. *Organization Science*, 14(1), 45-56.
- Chen, Injazz J. and Paulraj, Anthony, 2004. Understanding supply chain management: Critical research and a theoretical framework. *International Journal of Production Research*, 42(1), 131-163.
- Clark, Timothy, 1993. The market provision of management services, information asymmetries and service quality - some market solutions: An empirical example. *British Journal of Management*, 4(4), 235-250.
- Contractor, Farok J. and Lorange, Peter, 1988. Competition vs. Cooperation: A benefit/cost framework for choosing between fully-owned investments and cooperative relationships. *Management International Review (MIR)*, 28(4), 5-18.
- Crocker, K.J. and Reynolds, K., 1993. The efficiency of incomplete contracts: An empirical analysis of air force engine procurement. *RAND Journal of Economics*, 24(1), 126-146.
- Das, T. K. and Bing-Sheng, Teng, 1996. Risk types and the inter-firm alliance structures. *Journal of Management Studies*, 33(6), 827-843.
- Das, T. K. and Kumar, Rajesh, 2007. Learning dynamics in the alliance development process. *Management Decision*, 45(4), 684-707.
- Das, T. K. and Teng, Bing-Sheng, 2002. The dynamics of alliance conditions in the alliance development process. *Journal of Management Studies*, 39(5), 725-746.
- Domberger, Simon, 1998, *The contracting organization: A strategic guide to outsourcing*. Oxford University Press, New York.
- Earl, Michael J., 1996. The risks of outsourcing IT. *Sloan Management Review*, 37(3), 26-32.
- Eisenhardt, Kathleen M. and Graebner, Melissa E., 2007. Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25.
- Gibbert, Michael, Ruigrok, Winfried and Wicki, Barbara, 2008. What passes as a rigorous case study? *Strategic Management Journal*, 29(13), 1465-1474.
- Grossman, Sanford J. and Hart, Oliver D., 1986. The costs and benefits of ownership: A theory of vertical and lateral integration. *Journal of Political Economy*, 94(4), 691-719.

- Gulati, Ranjay, 1995. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1), 85-112.
- Hakansson, Hakan and Snehota, Ivan, 1997. *Developing relationships in business networks*. International Thomson Business, London.
- Hamel, Gary, 1991. Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal*, 12(4), 83-103.
- Hart, Oliver D. and Moore, John, 1988. Incomplete contracts and renegotiation. *Econometrica*, 56(4), 755-785.
- Heide, Jan B. and Miner, Anne S., 1992. The shadow of the future: Effects of anticipated interaction and frequency of contact on buy-seller cooperation. *Academy of Management Journal*, 35(2), 265-291.
- Holm, Desiree Blankenburg, Eriksson, Kent and Johanson, Jan, 1999. Creating value through mutual commitment to business network relationships. *Strategic Management Journal*, 20(5), 467-486.
- Holmstrom, Bengt, 1979. Moral hazard and observability, *Bell Journal of Economics*, 10(1), 74-91.
- Holweg, Matthias, Disney, Stephen, Holmstrom, Jan and Smaros, Johanna, 2005. Supply chain collaboration: Making sense of the strategy continuum. *European Management Journal*, 23(2), 170-181.
- Jap, Sandy D. and Anderson, Erin, 2003. Safeguarding interorganizational performance and continuity under ex post opportunism. *Management Science*, 49(12), 1684-1701.
- Jensen, Michael C. and Meckling, William H., 2001. Theory of the firm: Managerial behavior, agency costs and ownership structures. In: Michael C. Jensen (Ed.), *A theory of the firm: Governance, residual claims and organization forms*. Harvard University Press, Cambridge, MA.
- Johnsen, Thomas E., Johnsen, Rhona E. and Lamming, Richard C., 2008. Supply relationship evaluation: The relationship assessment process (rap) and beyond. *European Management Journal*, 26(4), 274-287.
- Johnston, David A., McCutcheon, David M., Stuart, Ian F. and Kerwood, Hazel, 2004. Effects of supplier trust on performance of cooperative supplier relationships. *Journal of Operations Management*, 22(1), 23-38.
- Kahneman, Daniel and Lovallo, Dan, 1993. Timid choices and bold forecasts: A cognitive perspective on risk taking. *Management Science*, 39(1), 17-31.
- Klein, Benjamin, 2000. Fisher-General Motors and the nature of the firm. *Journal of Law & Economics*, 43(1), 105-141.
- Knight, Louise and Harland, Christine, 2005. Managing supply network: Organizational roles in network management. *European Management Journal*, 23(3), 281-292.
- Larson, Andrea, 1992. Network dyads in entrepreneurial settings: A study of the governance of exchange relationships. *Administrative Science Quarterly*, 37(1), 76-104.
- Lovallo, Dan and Kahneman, Daniel, 2003. Delusions of success: How optimism undermines executives' decisions. *Harvard Business Review*, 81(7), 56-63.
- Lovallo, Dan P. and Sibony, Olivier, 2006. Distortions and deceptions in strategic decisions. *McKinsey Quarterly*, 1, 18-29.
- Lunnan, Randi and Haugland, Sven A., 2008. Predicting and measuring alliance performance: A multidimensional analysis. *Strategic Management Journal*, 29(5), 545-556.
- Lyles, Marjorie A., 1988. Learning among joint venture sophisticated firms. *Management International Review*, 28(4), 85-98.
- Macneil, Ian R., 1978. Contracts: Adjustments of long-term economic relations under classical neoclassical and relational contract law. *Northwestern University Law Review*, 72, 854-902.

- Mayer, Kyle J. and Argyres, Nicholas S., 2004. Learning to contract: Evidence from the personal computer industry. *Organization Science*, 15(4), 394-410.
- Nooteboom, Bart, Berger, Hans and Noorderhaven, Niels G., 1997. Effects of trust and governance on relational risk. *Academy of Management Journal*, 40(2), 308-338.
- Ouchi, William G., 1980. Markets, bureaucracies, and clans. *Administrative Science Quarterly*, 25(1), 129-141.
- Ouchi, William G. and Maguire, Mary Ann, 1975. Organizational control: Two functions. *Administrative Science Quarterly*, 20(4), 559-569.
- Petersen, Bent, Pedersen, Torben and Benito, Gabriel R. G., 2006. The termination dilemma of foreign intermediaries: Performance, anti-shirking measures and hold-up safeguards. *Advances in International Marketing*, (16), 317-339.
- Poppo, Laura and Zenger, Todd, 2002. Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal*, 23(8), 707-725.
- Powell, Thomas C., Lovallo, Dan and Caringal, Carmina, 2006. Causal ambiguity, management perception and firm performance. *Academy of Management Review*, 31(1), 175-196.
- Reuer, Jeffrey J. and Arino, Africa, 2002. Contractual renegotiations in strategic alliances. *Journal of Management*, 28(1), 47-68.
- Reuer, Jeffrey J. and Arino, Africa, 2007. Strategic alliance contracts: Dimensions and determinants of contractual complexity. *Strategic Management Journal*, 28(3), 313-330.
- Ring, Peter Smith, 2002. The role of contracts in strategic alliances. In: Farok J. Contractor and Peter Lorange (Eds.), *Cooperative strategies and strategic alliances*. Elsevier Science Ltd, London, UK, pp. 145-162.
- Ring, Peter Smith and Van De Ven, Andrew H., 1994. Developmental processes of cooperative interorganizational relationships. *Academy of Management Review*, 19(1), 90-118.
- Ross, Stephen A., 1973. The economic theory of agency: The principal's problem. *American Economic Review*, 63(2), 134-139.
- Russo, Edward J. and Schoemaker, Paul J. H., 1992. Managing overconfidence. *Sloan Management Review*, 33(2), 7-17.
- Simon, Herbert A., 1976. *Administrative behavior*. Free Press, New York.
- Smith, Howard and Fingar, Peter, 2003. *Business process management: The third wave*. Meghan-Kiffer, Tampa, Fla.
- Smith, Ken G., Carroll, Stephen J. and Ashford, Susan J., 1995. Intra- and interorganizational cooperation: Toward a research agenda. *Academy of Management Journal*, 38(1), 7-23.
- Soliman, Fawzy, 1998. Optimum level of process mapping and least cost business process re-engineering. *International Journal of Operations & Production Management*, 18(9/10), 810-816.
- SSMR, 2004. *Supplier selection and management report*, B2B Media Group.
- Verwaal, Ernst and Hesselmanns, Maurice, 2004. Drivers of supply network governance: An explorative study of the Dutch chemical industry. *European Management Journal*, 22(4), 442-451.
- Weinstein, Neil D., 1980. Unrealistic optimism about future life events. *Journal of Personality & Social Psychology*, 39(5), 806-820.
- Westney, Eleanor D., 1988. Domestic and foreign learning curves in managing international co-operative strategies. In: Farok J. Contractor and Peter Lorange (Eds.), *Cooperative strategies in international business*. Lexington Books, Lexington, MA, pp. 339 - 346.

- Wikipedia, 2008. The critical incident technique. Accessed on 25 November 2008, Available from [http://en.wikipedia.org/wiki/Critical\\_Incident\\_Technique](http://en.wikipedia.org/wiki/Critical_Incident_Technique).
- Williamson, Oliver E., 1999. Strategy research: Governance and competence perspectives. *Strategic Management Journal*, 20(12), 1087-1108.
- Williamson, Oliver E., 1985. *The economic institutions of capitalism: Firms, markets, relational contracting*. Free Press: New York.
- Williamson, Oliver E., 1996. *The mechanisms of governance*. Oxford University Press, New York.
- Woolthuis, Rosalinde Klein, Hillebrand, Bas and Nooteboom, Bart, 2005. Trust, contract and relationship development. *Organization Studies* (01708406), 26(6), 813-840.
- Yin, Robert K., 2003. *Case study research: Design and methods*. Sage Publications, Thousand Oaks, Calif.
- Zaheer, Akbar, McEvily, Bill and Perrone, Vincenzo, 1998. Does trust matter? Exploring the effects of interorganizational and interpersonal trust and performance. *Organization Science*, 9(2), 141-160.
- Zaheer, Akbar and Bell, Geoffrey, G., 2005. Benefiting from network position: Firm capabilities, structural holes, and performance. *Strategic Management Journal*, 26(9), 809-825.
- Zollo, Maurizio, Reuer, Jeffrey J. and Singh, Harbir, 2002. Interorganizational routines and performance in strategic alliances. *Organization Science*, 13, 701-713.