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Procurement and Governance Management – Development of a Conceptual Procurement Model Based on Different Types of Control**

Due to the importance of external suppliers for most companies, procurement and governance management is of utmost relevance for achieving competitive advantage. Research in the field of industrial buying behaviour (IBB) has largely been influenced by transaction cost economics (TCE). However, some TCE research has been rather simplistic; not distinguishing between governance structures and mechanisms, while research in IBB has a surplus of descriptive empirical studies and a critical shortage of analytical and conceptual constructs. This paper aims to address these shortcomings by integrating IBB and TCE in a conceptual model regarding procurement and governance of transactions. The model regards the analytical choice of a suitable combination of governance mechanisms (price, trust and authority) for different types of transactions. Additionally, a procedure for facilitating the achievement of a suitable mechanism mix is developed. The procedure shows how decisions during the buying process, regarding different types of control, will affect the mechanisms' levels in the transaction relationship. The model together with its procedure can serve as a basis for analysing planned purchases, in order to tailor governance mechanisms to transaction characteristics.

Key words: **Procurement, Governance, Control, Transaction Cost Economics**

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1. Introduction

Due to the importance of external suppliers for most companies, procurement is of utmost relevance for achieving competitive advantage (Noordewier et al. 1990), since it provides opportunities for cost reduction and profit enhancement (Anderson/Katz 1998). In recent years procurement and management of buyer-supplier relationships have received increased interest in research (e.g. Cox 1996; Anderson/Katz 1998; Artz 1999; Wathne/Heide 2004). Transaction costs are argued to be a key determinant of buyer-supplier exchange performance (Artz 1999) and empirical investigations have supported the assumptions and conceptual arguments raised by transaction cost economics (TCE) (Dyer 1996; Artz 1999). Since TCE is a predictive coordination theory, indicating how to organise different transactions (Williamson 1996), it is a suitable complement in literature regarding industrial buying behaviour (IBB) (Cox 1996; Sheth 1996) and a very powerful framework for guiding procurement decisions (Heide/John 1990; Noordewier et al. 1990).

Some research efforts within the TCE field have been rather simplistic, not distinguishing enough between governance structures and governance mechanisms. Hence, it is in need of a more profound analysis of the coordination problem (Pihl 2000). To enhance the understanding of individual firms, Williamson (1998) argues that TCE should move from analysing structures of industries to a more detailed and strategic firm level analysis. Also research in IBB has some weak spots. Sheth (1996) and Cox (1996) argue that it has an abundant surplus of empirical studies with a descriptive approach and a critical shortage of conceptual constructs with an analytical approach. Theoretical clarification is required to enhance the development of practical concepts and techniques, and to assess under which conditions they are 'fit for purpose' (Cox 1996).

This paper aims to address these weak spots suggested by Pihl, by distinguishing between structures and mechanisms, Williamson, by moving to a more strategic level, and Sheth and Cox, by having an analytical/conceptual approach. The purpose of the paper is twofold: first, a conceptual model, based on TCE, regarding the analytical choice of a suitable combination of governance mechanisms for different types of transactions will be developed. Second, a procedure based on IBB will be developed for how to obtain the suitable mechanism mix through proper choices during the buying process, involving different types of control.

2. Review of transaction cost economics

TCE is the interdisciplinary field of law, economics, and organisation, dealing with governance of transactions, based on the assumptions of bounded rationality and opportunism. *Bounded rationality* means that there are limitations in the actors rationalty, due to restrictions in the human ability to process information (Rindfleisch/Heide 1997). *Opportunism* implies that actors are self-interest seeking with guile; they will deviate from the letter and the spirit of an agreement when it suits their purpose (Williamson 1985). However, all actors are not assumed to be opportunistic, but it is difficult to identify opportunistic actors ex ante (Rindfleisch/Heide 1997).

The three principal transaction characteristics of TCE: asset specificity, frequency and uncertainty, explain the reasons for different forms of governance for different

transactions (Williamson 1985). *Asset specificity* is the most important transaction characteristic. It refers to the dependence created through transaction-specific investments and the switching cost incurred by terminating the relationships and choosing another exchange party. Asset specificity mainly depends on the level of complexity, customization, and adaptability of the assets required for the exchange. As the complexity and customization of transactions increase, so do the need for specific assets (Håkansson/Snehota 1995; Dyer 1996). The *frequency*, describing how many times the transaction is repeated, affects the time horizon of the relationship. Since recurring transactions may be governed within long-term relationships an expectation of continuity may arise (Noordewier et al. 1990). Transaction *duration* is also connected to the time dimension, since it regards the measurement of how long each transaction lasts (Macneil 1978). Due to the time dimension, transactions with very long duration can have a recurring character (Williamson 1979). *Uncertainty* may arise due to unanticipated changes in transaction surroundings (Noordewier et al. 1990), leading to adaptation problems (Rindfleisch/Heide 1997). It may also arise when there is a difficulty of accurately measuring ex post the exchange partner's compliance with expected output (Williamson 1985), leading to a performance evaluation problem (Rindfleisch/Heide 1997).

2.1 Governance structures

Transactions can mainly be governed within three different structures: *market*, *hierarchy* and the intermediate *hybrid* structure. Williamson (1985) presents a model (see Figure 1) for the choice of an optimal governance structure for six different types of transactions, depending on asset specificity and frequency.

Figure 1: Model for the choice of governance structure (Williamson 1985)

		Asset specificity		
		Low	Medium	High
Frequency	Occasional	**Market** Purchasing standard equipment	**Trilateral hybrid** Purchasing customised equipment	**Trilateral hybrid or Hierarchy** Constructing a plant
	Recurrent	**Market** Purchasing standard material	**Bilateral hybrid** Purchasing customised material	**Hierarchy** Site-specific transfer of intermediate product

Procurement from an independent supplier in perfect competition with others implies *market* governance, which is most efficient when standardisation and mass-production

make transaction-specific investments redundant (Williamson 1975). For production demanding very high and specialised knowledge that cannot be used for other purposes, potential scale economies through inter-firm trading are diminished (Williamson 1975). Hence, the exchange should be governed internally within the organisation's *hierarchy*, especially when the frequency is high (Williamson 1985). The *hybrid* represents a wide range of cooperative arrangements, such as long-term contracts, networks and alliances (Blois 2002), which may be divided into two main forms: bilateral and trilateral hybrids. Their main difference is that the trilateral hybrid relies on third-party assistance to determine performance and resolve disputes, while the bilateral hybrid is based on private ordering, considering the entire relationship as it has developed through time, rather than any original contract (Macneil 1978; Williamson 1998). The *hybrid* is most efficient for intermediate degrees of asset specificity, requiring rather high and specific knowledge, for which contractual safeguards are demanded (Williamson 1991). Trilateral governance is appropriate for short-term relationships regarding occasional transactions while the bilateral hybrid is favoured for long-term recurrent transaction relationships (Williamson 1985).

2.2 Governance mechanisms

Governance mechanisms refer to basic alternative ways to influence the exchange partner and to establish good order and coordination in a business relationship (Hennart 1993; Pihl 2000). The three governance structures are traditionally associated with three different mechanisms: market with price, hierarchy with authority and hybrids with trust (Bradach/Eccles 1989; Adler 2001). This association is so strong that the two concepts are often treated as one and the same. It is, however, very important to distinguish between them since empirically observed arrangements often rely on a mix of price, authority, and trust (Bradach/Eccles 1989; Hennart 1993; Foss 2002). Accordingly, trust and authority can be utilized to some extent in the governance of a market transaction even if the main mechanism is price. All three mechanisms have both advantages and drawbacks (Adler 2001), and there are supplementary relationships between them (Spekman 1988; Das/Teng 1998). Hence, they should be combined, since the downside of one can be diminished by the presence of the other two.

The p*rice* mechanism can be illustrated by the 'invisible hand', adjusting the transaction in relation to the prices resulting from supply and demand (Larsson 1993). The price mechanism creates incentives and opportunities (Williamson 1985; Adler 2001), but diminishes the possibilities for specifying any special and custom-made features (Håkansson/Snehota 1995).

Authority is illustrated by the 'visible hand', adjusting the transaction by giving authoritative orders to the agents executing them (Larsson 1993). Authority is normally viewed as a process of regulation and monitoring for the achievement of organisational goals. It is a powerful lever for assuring stability and equity (Adler 2001), but it decreases participation and creativity and stifles commitment and motivation (Aulakh et al. 1996; Das/Teng 2001).

Trust can be illustrated by the 'handshake', adjusting the transaction in relation to structural agreements resulting from negotiations between organisations (Larsson 1993). In a transaction governed by trust the exchange partners believe that they,

without the exercise of authority, can get what they want from each other, without fearing opportunism (Håkansson/Snehota 1995). Hence, trust can be defined as positive expectations regarding the other in a risky situation and, therefore, essentially means to take risk and leave oneself vulnerable to the actions of the trusted partner (Das/Teng 1998). Trust can decrease the need for formalization and monitoring, leading to lower transaction costs (Adler 2001) and facilitate incentives (Williamson 1985) and creativity compared to authority (Korczynski 1996). A drawback is that trust is often associated with exclusive reliance on a few relationships (small-number exchange), creating rigidity and risks (Adler 2001).

Various scientific disciplines (e.g., psychology, sociology, TCE and strategic management) have focused their research on trust (Castaldo/Dagnino 2004), resulting in abundant studies suggesting many different types of trust. For the arguments put forward in this paper it is sufficient to distinguish between two types; calculative (economic) trust and social (goodwill) trust. Calculative trust is based on rationality; you can trust another actor as long as it is economically rational for him to cooperate with you. It is affected by issues such as safeguards, incentives (Williamson 1993), pay-offs and the shadow of the future, which is derived from expected long-term reciprocity (Axelrod 1984). This calculativeness is an important part of theory fields such as neoclassical economics, TCE and game theory (Castaldo/Dagnino 2004). Social trust is a non-calculative (Williamson 1993) psychological concept, yet based on social interaction and the social environment where the relationship occurs (Castaldo/Dagnino 2004). Traditionally, social trust has not played a prominent role in TCE research (Ghoshal/Moran 1996; Nooteboom 1996). The arguments made in this paper therefore extend traditional TCE by making explicit consideration of this concept. This because social trust and relationships are important in understanding cooperation and governance of transactions (Nooteboom 1996; Hoetker 2005).

3. Model development

Williamson's model (Figure 1) prescribes a single governance structure as optimal for a certain transaction. Although this choice is initially important and relevant, it is not detailed enough to guide more specific buying behaviour. To enhance procurement decisions on a lower and more detailed level of analysis it should be useful to focus on the choice of a suitable mix of governance mechanisms to be utilized within the optimal governance structure. In this section a model for the choice of a suitable combination of mechanisms for different types of transactions is developed and presented in Figure 2.

The model prescribes approximate values (low, medium, and high) of the three mechanisms, together adding up to 100% of the coordination, for six different types of transactions, depending on asset specificity and frequency. In Figure 2, both variables (frequency and asset specificity) and the prescribed mechanisms combinations are measured in ordinal scales with only two or three discrete levels. The reason for using such simple and rough scales is to enhance the illustration and understanding of the model. However, to facilitate new and innovative ways of combining the mechanisms they should be combined over a continuum, not in discrete chunks (Grandori 1997; Foss 2002). In reality, therefore, the scales should be viewed as continuous, i.e.

each mechanism level can vary between zero and 100% of the coordination. Accordingly, the levels may not be exactly similar for different transaction types even though the same scale level is prescribed (e.g. the emphasis on price should be somewhat lower in type 2 than in type 1).

Figure 2: Model for the choice of governance mechanisms

		Asset specificity		
		Low	M edium	High
Frequency	Occasional	*Type 1* Emphasis on price: high trust: low authority: low	*Type 3* Emphasis on price: medium trust: medium authority: medium	*Type 5* Emphasis on authority: high/medium trust: medium/high price: low
	Recurrent	*Type 2* Emphasis on price: high trust: medium authority: low	*Type 4* Emphasis on trust: high price: medium authority: low	*Type 6* Hierarchical production

Type 1. Occasional transactions with low asset specificity

An example of this is purchasing standard equipment (Williamson 1985). Price is most efficient for optimising standardised production, i.e. when asset specificity is low and performance is easy to measure (Adler 2001). Authority is not important since standardisation makes supervision unnecessary (Håkansson/Snehota 1995), and trust is not greatly needed because performance is easy to measure. Consequently, high emphasis on price, low trust and low authority should be a suitable combination of mechanisms in these types of transactions.

Type 2. Recurrent transactions with low asset specificity

An example of this is purchasing standard material (Williamson 1985). These transactions should have a similar combination of mechanisms as type 1 due to similar asset specificity, but with somewhat less emphasis on price and more emphasis on trust due to higher frequency. According to Macneil (1978), the need for trust and adaptability is higher in lasting relationships because comprehensive long-term contracts are not realistic, due to bounded rationality and uncertainty of future situations. Furthermore, the emphasis on price often becomes somewhat lower since other product factors, e.g. quality, flexible and timely deliveries, and after sales service, also become important in long-term relationships (Christopher et al. 1991). Consequently, high emphasis on price, medium trust and low authority should be a suitable combination in these types of transactions.

Type 3. Occasional transactions with intermediate asset specificity

An example of this is purchasing customised equipment (Williamson 1985). As asset specificity increases, the efficiency of price as governance mechanism decreases, since performance becomes more difficult to measure (Håkansson/Snehota 1995) and opportunism hazards increase (Williamson 1975). In handling opportunism, trust and authority are more efficient than price (Håkansson/Snehota 1995). Furthermore, in exchanges where transaction-specific investments are required and the quality of products and services are difficult to evaluate, a great deal of trust is needed (Das/Teng 1998; Parkhe 1998a). Consequently, the focus of price should be lower while trust and authority should be higher than in transactions of type 1. Medium emphasis on all three mechanisms should therefore be a suitable combination.

Type 4. Recurrent transactions with intermediate asset specificity

An example of this is purchasing customised material (Williamson 1985). This type should have a similar combination as type 3, due to similar asset specificity, but with somewhat less emphasis on price and authority and more emphasis on trust due to higher frequency. In long-term partnerships trust is more important than authority (Aulakh et al. 1996; Parkhe 1998a), due to increased needs for adaptability (Macneil 1978). Furthermore, the history of successful transactions and the expectancy of continued interactions decrease opportunism and increase trust (Håkansson/Snehota 1995). In long-term partnerships, customers often focus less on price and more on softer parameters related to trust, due to increased switching costs (Christopher et al. 1991). Consequently, the focus of trust should be higher while the focus of price and authority should be lower in this type of transaction than in type 3. Medium emphasis on price, high trust and low authority should therefore be a suitable combination.

Type 5. Occasional transactions with very high asset specificity

In this type of transactions, such as constructing a plant, the hazards of opportunism are very high (Williamson 1985), explaining why high levels of trust or authority are needed. Traditionally, authority is seen as most efficient when asset specificity is very high (Håkansson/Snehota 1995), but trust can often be a suitable substitute (Aulakh et al. 1996). Price is inefficient for optimising production and allocation of knowledge (Adler 2001), that is, in transactions with high asset specificity.

Since transactions are socially embedded in relationships between actors (Granovetter 1985), the levels of trust and authority should depend on the potential for trust building and the purchaser's knowledge about the transformation process. According to Collin (1993b) and Das/Teng (2001), a necessary condition for high authority is that the monitoring party has a satisfactory understanding of the transformation process and hence knows exactly what kind of behaviour is suitable. Due to the low frequency this may not be the case. Then a somewhat lower level of authority and a higher level of trust are more suitable (Collin 1993b; Pihl 2000). However, high emphasis on trust may not be obtained very easily either, since it may take a long time to establish. Through careful partner selection and reputation effects significant levels of trust may nevertheless be established also in a shorter period of time (Parkhe 1998b). Consequently, low emphasis on price, medium or high trust and high or medium au-

thority should be a suitable combination. Whether the level of trust or authority should be high depends on the possibilities to exercise authority and build trust in the transaction relationship.

Type 6. Recurrent transactions with very high asset specificity

These transactions are the only ones for which hierarchical production is most efficient (Williamson 1985). Since this does not entail a procurement situation it falls outside the scope of the model.

4. Achievement of the mechanisms levels

For the developed model to be of practical use it is not sufficient to know only *which* mechanisms mix is optimal for the transaction at hand; the purchaser must also know *how* to obtain it. The procedure developed in this section illustrates how buying behaviour facilitates the establishment of governance mechanisms through different types of control. Thereby it utilizes principal-agent theory to integrate TCE and IBB.

4.1 Control types

According to principal-agent theory (e.g. Ouchi, 1979; Eisenhardt, 1985; Aulakh and Gencturk, 2000) there are three main types of control: output, process and social control, with which the principal (e.g. a buyer) can influence the agent (e.g. a supplier) in delegation situations. These three types of control are strongly related to the three governance mechanisms (Pihl 2000). The buyer can therefore facilitate the establishment of different governance mechanisms in a transaction relationship through the exercise of different types of control.

The three types of control are suitable in different situations, mainly depending on the variables output measurability and knowledge of the transformation process (Das/Teng 2001), see Figure 3. Output measurability is inversely related to asset specificity. Increased complexity leads to performance ambiguity since outputs are difficult to measure (Dyer 1996; Houston/Johnson 2000). An example of this is the construction of a plant, which requires highly specific assets (see Figure 1). Output control is not suitable for such a transaction since construction work is often hidden and very difficult to inspect after the completion of the building (Kadefors 2004). Ghoshal and Moran (1996) therefore argue that output control is most suitable for standardized products and processes, whereas complexity and dynamism render process control more suitable. Additionally, mutual transaction specific investments creates interdependencies between exchange parties (Nooteboom 1993; Collin 1993a), which increase the need for coordination of activities, complicating the control task. Also unilateral specific investments often lead to interdependence since they take time to develop and both parties have to cooperate to design and utilize the idiosyncratic resources (Vandegrift 1998; Buvik/Reve 2001). Increased interdependencies make it harder to separate the respective parties' contributions, thereby decreasing the measurability of the output. In such situations process control is more suitable than output control (Collin 1993b; Gencturk/Aulakh 1995). This is in line with the argument presented in Figure 3, that process control is more efficient than output control for transactions with low output measurability. The other variable in Figure 3; knowledge of the transformation process, is not directly related to the TCE variables in the pro-

curement model. Although low frequency may decrease the chance for high knowledge of the transformation process in some cases, as discussed in section 3, this variable is mainly dependent on other factors that are outside the scope of this paper.

Figure 3: Control types and their suitability. Developed from Das and Teng (2001)

Output measurability (asset specificity)	Knowledge of the transformation process: high	Knowledge of the transformation process: low
high (low)	Process control and Output control	Output control
low (high)	Process control	Social control

Output control is defined as the degree to which the focal firm monitors the results or outcomes produced by the partner (Aulakh et al. 1996). It is efficient when it is possible to measure goal attainment, which mostly occurs when asset specificity is low, and the monitoring party has low knowledge about the transformation process (Collin 1993b; Das/Teng 2001). Output control is closely related to the price mechanism (Hennart 1993; Pihl 2000) through the invisible hand of the market (Gencturk/Aulakh 1995). Hence, through the use of output control the buyer can facilitate a focus on price in the transaction relationship.

Process control refers to the extent to which the focal firm monitors the partner's behaviour or the means used to achieve the desired ends (Aulakh et al. 1996). Increased interdependencies, caused by transaction specific investments, make output control less efficient and process control more suitable (Gencturk/Aulakh 1995). This since outputs may be hard to measure, due to bounded rationality and asset specificity (Williamson 1996; Das/Teng 2001). Process control is then feasible if the monitoring party knows the appropriate action to achieve the goal (Collin 1993b; Das/Teng 2001). Process control is related to authority (Hennart 1993; Pihl 2000), through the visible hand of management (Gencturk/Aulakh 1995). Hence, through the use of process control the buyer can facilitate a focus on authority in the transaction relationship.

Social control is achieved by minimizing the divergence of preferences among the parties (Eisenhardt 1985) by building a common organizational culture that encourages self-control (Aulakh et al. 1996). When neither output nor process control are appropriate, i.e. when it is not possible to measure goal attainment, caused by high asset specificity, and the monitoring party does not know the appropriate action to achieve the goal, social control is most efficient (Collin 1993b; Das/Teng 2001). In such cases the problem is to design a relational contract that allows and motivates the supplier to use his superior knowledge efficiently, as in a partnership (Foss 2002). Joint goal setting, participatory decision making and teambuilding activities are impor-

tant examples of social control (Das/Teng 2001) which can work as substitutes to more formal safeguards (Rokkan et al. 2003). Through such activities the parties utilize shared norms and values to develop solidarity and a mutual understanding encouraging desirable behaviour, leading to a higher level of behavioural predictability (Das/Teng 1998; Rokkan et al. 2003). Important relational norms involves collaboration, continuity expectations and communication (Artz/Brush 2000). The predictability of positive behaviour trough a common ideology facilitates trust (Collin 1993b). Social control is therefore the most proper form of control in trust-based network relationships (Das/Teng 2001). Hence, through the use of social control the buyer can facilitate a focus on trust in the transaction relationship.

4.2 Buying process

In this section, a buying process based on a model created by Johnston and Bonoma (1981) is used to illustrate how different decisions and causes of actions during the stages of the buying process will involve different types of control, thereby affecting the levels of price, trust and authority.

1. Problem recognition and transaction type identification

Stage one involves the recognition of a problem and the awareness that the needs may be satisfied through a purchase (Robinson et al. 1967), resulting in a make or buy decision. To use the procurement model, presented in Figure 2, the purchaser first has to decide which transaction type (1-6) best fits the transaction at hand, depending on the two variables of frequency and asset specificity. The frequency is not very hard to estimate. Does the client procure similar kinds of products on a regular basis or not? Asset specificity is somewhat harder, requiring an estimation of the levels of complexity and customisation of the product. To guide this decision, one should consider the descriptions and examples of each transaction type in section 3, i.e. which typical products that represent the three different sets of asset specificity. When the transaction type has been identified, the buyer receives a mechanism combination prescribed by the model. Then the buyer may continue to the next stage in the process, if the product is to be bought from an external supplier (transaction type 1-5).

2. Specification

This stage entails a translation of the need into a particular solution that can be readily communicated to others (Robinson et al. 1967), i.e. the specification of the product (Johnston/Bonoma 1981). Generally, a specification can be made by the supplier, by the buyer or by both parties in joint specification. These three types of specification are congruent with the three control types: output (supplier), process (buyer) and social control (both) (Collin 1993b). *Output control* is obtained when the buyer only specifies the performance of the output and not the work process to achieve the goal (Collin 1993b). The detailed specification is then left to the supplier. *Process control* can be achieved if the buyer uses a fixed design (comprehensive specification) and monitors the behaviour of the supplier (Korczynski 1996). *Social control* can be achieved by joint specification (Collin 1993b), which is a key aspect of relational contracting (Grandori 1997). Spekman (1988) argues that buyers should seek supplier input early in the specification stage of collaborative relationships, since a dialog concerning

components, materials and technology in joint specification and problem solving increases trust and commitment (Spekman 1988).

Consequently, how the specification is executed will affect the levels of price, authority and trust in the transaction. Output control, by specifying performance rather than technology, facilitates high emphasis on price while process control through detailed specification facilitates high emphasis on authority. Lower level of authority is facilitated when technical specification and characteristics of the product are developed by both buyer and supplier in collaboration. This mostly entails social control but also process control (if the buyer has the formal responsibility of the specification) or output control (if the supplier has the formal responsibility) to some extent. Hence, joint specification facilitates high emphasis on trust, medium (or low) emphasis on authority and low (or medium) emphasis on price.

3. Supplier search

This stage involves the search for alternative sources of supply, resulting in qualification of suppliers, i.e. a conclusion of which suppliers will be considered as potential vendors (Robinson et al. 1967). If the number of vendors is very low, negotiation rather than bidding takes place (Johnston/Bonoma 1981). When a product is purchased in a market with many competing suppliers, the main mechanism is *price* (Spekman 1988; Adler 2001). Trust is obstructed when a large number of suppliers compete mainly on price and are played off against each other (Spekman 1988). Such procedures facilitate a focus on short-term benefits, which according to Anderson and Oliver (1987) is related to output control. Social control involves investments in the socialization of the partner, which are enhanced by long-term relationships and expectations of continuance (Aulakh/Gencturk 2000). Also process control is related to a long-term perspective, since it removes incentives to sacrifice long-term for immediate pay-offs (Anderson/Oliver 1987). Negotiations with only one or very few suppliers, facilitating lasting relationships, therefore indicate social and/or process control. Such procedures, related to the preferred supplier approach, are often based on *trust* related issues, such as past experience, reputation, reliability and shared values (Spekman 1988; Parkhe 1998b). The issue of supplier search later in this study was discussed during a two-hour group interview with four professional construction clients in order to gain improved insights. The respondents argued that clients sometimes invite several bidders from their pool of suppliers just to 'keep suppliers warm'. This indicates a need to control the pool of suppliers, keeping them alert and up to date, facilitating some extent of authority.

Consequently, the way the client deals with the qualification of potential suppliers will affect the levels of price, trust and authority in the transaction. A large number of bidders is related to output control, facilitating an emphasis on price, while few bidders are related to social and process control, enhancing trust and authority.

4. Bid evaluation

In this stage, the various offers from potential vendors are weighed and analysed, resulting in the approval of one or more suppliers' offers and rejection of others' (Robinson et al. 1967). Price is often the most important parameter when buying

standardised products. When focusing only on price the client does not take the opportunity to influence the characteristics of the supplier, since these are considered unimportant in pure market relationships (Heide/John 1990). This indicates a *laissez-faire* approach which according to Anderson and Oliver (1987) is related to output control. In process control, however, the client assumes risk to gain control (Aulakh/Gencturk 2000), for which reason the consideration of soft parameters involving the characteristics of the supplier becomes important. Through the account for organisation, financial stability, resources and competencies, the client can control (ex ante) the supplier in delivering what is promised. Such control of supplier inputs are closely related to process control (Anderson/Oliver 1987). Partner selection considerations regarding the collaboration and nurturing of the relationship indicate social control (Ouchi 1979; Aulakh/Gencturk 2000). This can be exemplified by soft parameters such as collaborative ability, reputation, earlier experience of the supplier and shared values, which are enhancing trust (Korczynski 1996; Nooteboom et al. 1997). Earlier experience of the supplier have been shown to be very important when complexity is coupled with high uncertainty (Hoetker 2005). In fact, soft parameters are often more important than price when buying complex and specialised products, such as capital equipment (transaction type 3 or 4) (Baptista/Forsberg 1997).

Consequently, the weight the client gives to hard and soft parameters in the bid evaluation will affect the levels of price, trust and authority in the transaction. The more weight on price (related to output control) and less weight on soft parameters (related to social and/or process control), the higher the emphasis on price and the lower the emphasis on trust and authority, and vice versa.

5. Selection of sub-suppliers

The selection of sub-suppliers can be made by the supplier (domestic contract), by the client (nominated contract) or by both parties in collaboration. In market relationships, suppliers have total freedom to select their sub-suppliers, rendering the client with no control over who carries out specialist work (Shoesmith 1996). A departure from market governance is manifested when the buyer attempts to control the supplier's decision making in areas such as selection of sub-suppliers (Heide/John 1992). Domestic contracts therefore indicate a *laissez-faire* approach, enhancing a focus on price through output control, while nominated contracts entail process control of inputs, increasing the level of authority. According to Wathne and Heide, downstream buyer-supplier relationships are to a large extent affected by upstream relationships with sub-suppliers. To increase the ability to adapt to uncertainty in relational governance, the selection of sub-suppliers is therefore crucial (Wathne/Heide 2004). To enhance customer satisfaction careful sub-supplier selection by both buyer and supplier in collaboration should be suitable. Such joint selection indicates a concern for both parties' interests, facilitating an emphasis on trust through social control.

Consequently, the selection of sub-suppliers will affect the levels of price, trust and authority in the transaction. Sub-supplier selection by the supplier facilitates an emphasis on price, through output control, while selection managed by the client facilitates an emphasis on authority, through process control. When both parties collaborate in doing the selection, an emphasis on trust is facilitated, through social con-

trol. In a collaborative selection some emphasis authority or price can also be facilitated if the client or the supplier, respectively, has the formal responsibility.

6. Formalization and product exchange

This stage mostly deals with contract design, entailing many different decisions such as terms of payment and warranty details, which must be agreed upon before the exchange takes place (Johnston/Bonoma 1981). This stage is divided into three substages: contract formalization, type of compensation, and usage of collaborative tools.

Contract formalization

Price-based market governance emphasises the importance of legal rules and formal documents (Blois 2002), since complete contracts are more legally binding in court ordering (Macneil 1978; Woolthuis et al. 2005). Contract formalization is therefore an important part of output control. Even more so, process control results in formalized and bureaucratic relationships (Aulakh/Gencturk 2000). Thus, formal contracts are closely related to the establishment of authority (Grandori 1997), through process control (Das/Teng 2001). However, formalization may decrease trust and increase opportunism, for which reason relational norms should be used as safeguards instead (Heide/John 1992). Through social control the parties establish an implicit sense of what is acceptable and what is deviant behaviour (Aulakh/Gencturk 2000), making formalization unnecessary. Increased trust therefore makes it possible to decrease formalization and lower transaction costs (Das/Teng 1998; Parkhe 1998b). However, the relationships between formalization, authority and trust are not straightforward. Authority through high formalization can in some cases enhance trust and low formalization does not necessarily lead directly to high trust (Woolthuis et al. 2005). Hence, it is important to couple incomplete relational contracts with social control in order to establish relational norms that can serve as safeguards (Artz/Brush 2000).

Consequently, the scope of the contracts between the parties will affect the levels of price, trust and authority in the transaction. Formal and comprehensive contracts facilitate a high emphasis on price and authority, through output and process control, while low formalization coupled with social control facilitate trust.

Type of compensation

According to Gencturk and Aulakh (1995), the type of compensation is closely related to the type of control. A compensation system rewarding the supplier for his output (e.g. piecework or commission schemes) entails output control. Compensation for the costs of the supplier based on the time worked (e.g. salaried agents) and costs of input material entail process control (Gencturk/Aulakh 1995). Such compensation also achieves contract flexibility and is suitable for transactions in which change is anticipated (Macneil 1978). Profit sharing together with joint objectives indicates social control (Das/Teng 1998).

Consequently, the type of compensation used will affect the levels of price, trust and authority in the transaction. A fixed price for a product delivered (piecework) facilitates a high emphasis on price, through output control, while reimbursement compensation for the time put into the work facilitates a high emphasis on authority, through process control. When reimbursement compensation is coupled with incen-

tives schemes and profit sharing it also facilitates social and output control, which increase the levels of trust and price while authority decreases, resulting in medium emphasis on all three mechanisms. The "exact" levels of the mechanisms depend on the design of the incentive scheme.

Usage of collaborative tools and techniques

In some transactions the actual production takes place within the buying process, resulting in very long duration. Since the buyer and the supplier then have to interact to create the product, use of collaborative tools may be suitable. These tools are closely related to what Heide and John (1990) refer to as joint action, indicating close cooperative relationships.

- Social control may be performed through *joint goal setting*, where participatory decision-making makes the partners interact and gain a better understanding of each other (Das/Teng 1998). This results in collective norms and mutual interests, enhancing trust in cooperative relationships (Das/Teng 2001). However, if goals are aggressive and measurable, they will also increase competition through output control (Das/Teng 1998). Joint goal setting is therefore a mix of social and (participatory) output control.
- Communication and information exchange is an important element of relational contracting (Noordewier et al. 1990) since it enhances relationship trust (Aulakh et al. 1996; Das/Teng 1998). It is important to allow key people in each organisation to speak directly with each other, which is facilitated by the members *sharing the same office building* or workspace (Barlow 2000).
- Social control through *teambuilding activities* is efficient in creating understanding and shared values among the parties (Das/Teng 1998).
- Private ordering is a vital part of relational contracting (Macneil 1978; Williamson 1998). Through *joint dispute resolution* or an arena for relationship discussions, firms can increase communication and mutual understanding, enhancing trust-building (Parkhe 1998b; Das/Teng 2001).

The usage of collaborative tools will directly facilitate trust building, through social control (Das/Teng 1998). Indirectly, it will also facilitate lower emphasis on authority through less need for process control and lower emphasis on price since these tools and techniques create human asset specificity, leading to switching costs. Consequently, the extent of use of collaborative tools will affect the levels of price, trust and authority in the transaction. No or low usage of collaborative tools facilitates emphasis on price and authority, while high usage facilitates high emphasis on trust, through social control.

7. Performance feedback and evaluation

In this last stage the fundamental evaluation of the supplier's performance takes place, dealing with how well the purchased product solved the problem (Robinson et al. 1967). According to Korczynski (1996) and Pihl (2000), performance monitoring by the purchaser (process control) facilitates high focus on authority and low trust, while social control through shared values and self-control, on the contrary, facilitates trust

(Das/Teng 2001). Output control through monitoring of the finished product facilitates an emphasis on price (Hennart 1993; Pihl 2000).

Consequently, the way the performance feedback and evaluation is carried out will affect the levels of price, trust and authority in the transaction. Monitoring of the ongoing performance facilitates high emphasis on authority, through process control, while monitoring of the performance outcome facilitates high emphasis on price, through output control. The more the supplier is allowed to monitor performance and the result, the higher the emphasis on trust, through social control.

5. Combination calculation and analysis

In each stage, all three mechanisms should be given a value that illustrates its part of the coordination in that stage. For example: in the specification stage, price may be set to 70%, authority to 0% and trust to 30% (summing up to 100% of the coordination) if the supplier is responsible for the specification (output control) but collaborates with the client in joint specification (social control) in some aspects of the specification work. When the different levels of the mechanisms are set in each of the buying process stages (2-7), the mean values for each mechanism can be calculated, by adding the values of each stage and dividing it by eight (the amount of stages and sub-stages). The received combination should then be compared to the one prescribed by the model (see Figure 2), in order to see if the courses of action taken/planned by the buyer are suitable for the transaction in question. However, just as the prescribed model combination is based on a somewhat approximate evaluation, so is the "calculated" combination. Hence, due to human bounded rationality, the model and its procedure should be viewed as a valuable framework in guiding procurement decisions rather than an exact technical instrument.

Nevertheless, if the buyer uses the model for ex ante analysis of an upcoming purchase, any significant discrepancies between the calculated combination and the one prescribed by the model should cause the buyer to reconsider the planned procurement decisions. Modified decisions in some stages may be enough to achieve a more suitable mechanism combination if the discrepancies are not too big. If the discrepancies are very large, however, the buyer may have to reconsider the whole procurement strategy and the entire buying process. In such cases the model can serve as an alert, showing that there is a theoretical implication that the traditional procurement strategy is not appropriate.

To implement and achieve change, a system perspective must be adopted (Senge 1990). Hence, it is important to recognize that the decisions during the buying process stages are not totally isolated and independent of each other. In terms of the supplier search stage, small-numbers exchange is vulnerable to the possibility of opportunism (Collin 1993b). Traditional TCE displays a bias towards ascribing opportunistic rather than cooperative behaviour to actors, thereby assuming suppliers to squeeze above-market rents or shirk in small-numbers bargaining situations, irrespective of the social relationship between the parties (Ghoshal/Moran 1996). In reality, trust and mutual dependency can mitigate opportunism in small-numbers bargaining situations because the firms trust that pay-offs will be divided equitably, even when comparable market transactions do not exist (Uzzi 1997). When a long-term perspective is adopted, op-

portunism does not pay even in cases characterized by small numbers and high switching costs (Hill 1990). Accordingly, if only calculative trust exists, small-numbers bargaining situations should be avoided, since opportunistic behaviour may be calculated as more profitable than cooperative behaviour. In relationships where social trust is apparent, however, a small number of suppliers should lead to closer cooperation. It is therefore important to couple direct negotiation in the supplier search stage with decisions facilitating trust through social control in other stages.

One must also recognize that the use of collaborative tools is not sufficient to create a trust-based relationship. Recent trends in many industries towards increased cooperation have given fuel to the development of concepts, such as supply chain management, partnering and relational contracting, emphasising the importance of teambuilding activities (Das/Teng 1998), joint objectives (Das/Teng 2001), an arena for relationship discussions (Parkhe 1998b) etc. The implementation of such cooperative concepts, however, requires re-engineering of all elements of the contractual relationship. Incentives alone or performance of workshops and other teambuilding activities are not sufficient (Cox/Thompson 1997). Hence, the buyer has to consider all stages and make cooperative choices involving social control in several stages to facilitate trust-building.

6. Conclusions

In this paper, a conceptual procurement model has been theoretically deduced from TCE literature. Much research has shown that TCE can serve as an important determinant for companies' make or buy decisions (Artz 1999), dealing with the choice of an optimal governance structure (market, hybrid, or hierarchy) for different types of transactions. Although this choice is initially important, it is too basic to provide a profound and detailed analysis of transaction governance and procurement. To give the buyer more information and guidance about how to procure and govern transactions an additional choice regarding the mix of governance mechanisms should be made. The model developed in this paper concerns the analytical choice of a combination of governance mechanisms, prescribing different levels of price, trust and authority for different types of transactions. Since the three mechanisms can be combined in a variety of ways, this choice is more detailed and manifold than the choice of a discrete structure, thereby providing the buyer with more sophisticated guidance about how to govern the transaction. In this way the model works on a lower and more detailed level of analysis, thereby serving as a valuable complement to the traditional frameworks regarding make or buy decisions. To increase the practical use of the model, a procedure for *how* to obtain these mechanisms combinations has been developed. It has been shown how decisions made and actions taken by the purchaser during the stages of the buying process affect the levels of the governance mechanisms through the use of output, process and social control.

Traditionally, purchasers have mostly focused on the price mechanism in their market relationships. During the past two decades, concepts such as supply chain management, just-in-time delivery, relationship marketing, and strategic sourcing have shifted the focus from price alone to also include softer parameters related to the trust mechanism and the hybrid structure of TCE. The developed model and its procedure

show how trust and social control, considered crucial issues in these empirically observed arrangements, can be integrated in a TCE model. According to the model, pure price based market relationships and authority-based hierarchical production are suitable in only two of the six transaction types. In the remaining four types trust plays an important role that is not to be ignored. Still, it is important not to over-emphasise it either. Much research has been carried out, demonstrating the importance of trust in inter-organisational relationships. However, Wicks et al. (1999) call for a neutral attitude towards this concept; one should discuss optimal trust rather than high trust. Since it is not free of charge, over-investment in trust may be as inappropriate as under-investment (Wicks et al. 1999). The model developed in this paper is based on such a perspective, prescribing optimal levels of price, trust and authority, rather than prescribing high levels of trust in all transactions. Hence, the model and the procedure can serve as a basis for analysing planned purchases in order to tailor governance mechanisms to transaction characteristics, i.e. fit for purpose procurement and governance management.

It is important to point out that the calculated mechanisms levels are *facilitated* by the procurement decisions. The levels actually obtained in practice depend also on other factors, such as the actors' propensity to trust and act opportunistically and their previous experience of each other, which is related to social embeddedness (Granovetter 1985). In this paper all choices during all stages and sub-stages are assumed to be equally important. In practice this may not be the case. Some choices may be more important than others, for which reason they should be given a higher weight in the calculation of mean values for the mechanisms. This relative importance of different stages should be empirically investigated in future research.

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