Facilitating Knowledge Sharing:
A Conceptual Framework

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SMG WP 4/2005

October 2005

SMG Working Paper No. 4/2005
September 2005
ISBN: 87-91815-03-7

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JEL codes: L22, L23, M52

Keywords: Knowledge sharing, motivation, organizational settings, situations of exchange.

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Abstract

This paper argues that knowledge sharing can be conceptualized as different situations of exchange in which individuals relate to each other in different ways, involving different rules, norms and traditions of reciprocity regulating the exchange. The main challenge for facilitating knowledge sharing is to ensure that the exchange is seen as equitable for the parties involved, and by viewing the problems of knowledge sharing as motivational problems situated in different organizational settings, the paper explores how knowledge exchange can be conceptualized as going on in four distinct situations of exchange denominated organizational exchange yielding extrinsic rewards, organizational exchange yielding intrinsic rewards, financial exchange, and social exchange. The paper argues that each situation of exchange has distinct assumptions about individual behaviour and the intermediaries regulating the exchange, and facilitating knowledge sharing should therefore be viewed as a continuum of practices under the influence of opportunistic behaviour, obedience or organizational citizenship behaviour.

Keywords

Knowledge sharing, motivation, organizational settings, situations of exchange.

Introduction

A key task for organizations is to mobilize knowledge (Gupta and Govindarajan 2000). Facilitating knowledge sharing can lead to increased innovative performance, and reduce the resources spent on fire fighting (Bohn, 2000). But knowledge sharing does not come easy – individual's willingness to engage in knowledge sharing is a central barrier for sustainable knowledge sharing activities, and in recent years, the number of articles, books and seminars analysing how to overcome these barriers have exploded, yet how to overcome them still remain quite ambiguous.

Knowledge sharing is facilitated by the working of incentives, meaning that extra incentives increase - whilst extra costs reduce - a particular type of knowledge sharing behaviour (Cabrera and Cabrera 2002; Lindenberg, 2001, p. 317). A pivotal part of knowledge sharing research is therefore about identifying what kind of incentives can be applied to increase individual's willingness to share knowledge. Incentives can be both financial and non-financial rewards, but a burgeoning amount of research stresses that non financial rewards are far more important than financial rewards (Osterloh and Frey, 2000, Simon, 1991). Consequently, recent research on knowledge sharing seems to be biased towards the preference of non financial rewards such as pleasure in performing one's job or increased organizational efficacy. Some researchers do, however, emphasize financial rewards as an important means to facilitating knowledge sharing (Foss, 2003; Nickerson and Zenger, 2004), but the dominating logic in the research on knowledge sharing is that even though knowledge might be considered as yielding power, and even though individuals seem to be self-interest seeking, knowledge sharing can definitely be facilitated by non financial rewards.

This apparently self-contradictory logic has resulted in a rather narrow-minded discussion of knowledge sharing: The economy of knowledge sharing is either dominated by a rational cost-benefit analysis based on opportunistic behaviour and is thereby similar to more traditional economies of tangible resources. Or, the economy of knowledge sharing is viewed in a social-exchange perspective assuming altruistic behaviour and thereby distinguishing it from a traditional organization economy perspective. I argue that both perspectives are plausible, but instead of considering them as mutually exclusive I suggest that knowledge sharing should be viewed as a continuum of different models of exchanges each yielding different conditions for facilitating knowledge sharing.

Following Ouchi (1980, p. 130) I argue that knowledge sharing is an interdependent process involving an exchange in which the individual gives something of value and receives something of value. What the individual gives or receives is part of the workings of incentives, but as Fiske (1991) has argued different types of exchanges involve different types of reciprocities.

Consequently, I establish a conceptual framework encompassing four different types of knowledge exchange, and each exchange represents distinct organizational settings facilitating or hindering knowledge sharing. Facilitating knowledge sharing is hence about organizing exchanges through different institutional arrangements (Jones, 1983, p. 455).

The paper begins by examining the field of knowledge sharing and knowledge sharing barriers. This is followed by an analysis of knowledge sharing as being an exchange, where a central challenge is to understand what kind of reciprocities are at stake. Then follows an analysis of how intrinsic and extrinsic rewards facilitate knowledge sharing, and, eventually, it is being analyzed how knowledge sharing can be viewed as comprising different types of organizational settings, and how knowledge sharing therefore is to be facilitated by applying different types of incentives.

The field of knowledge sharing

The concept of knowledge sharing has been buzzing around for quit some time. Rhetorically, the concept has gained an enormous interest, and both academics and practitioners are eager to identify, understand and explore the challenges of facilitating knowledge sharing. As Rigby (2001) and Lucier and Torsilieri (2001), however, has emphasized, it is rather difficult to document any positive results of applying knowledge sharing tools and philosophies.

But the quest for exploring what problems knowledge sharing entails, why problems arise and how to address them continue, because even though we are unable to relate positive organizational performance to knowledge sharing activities, we do believe that knowledge sharing can positively influence organizational performance.

The goal of knowledge sharing can be conceptualized as a continuum ranging from the exploration of new knowledge through renewed combination of existing knowledge (Appleyard 1996, Hargadon 2003, Uzzi and Lancaster 2003) to exploitation of existing knowledge (Grant 1996, Szulanski 1996). In other words, the goal of knowledge sharing can be to either explore new knowledge or exploit existing knowledge, which is a somewhat analytical distinction wherefore practice will often entail part of both processes (March 1991).

The exploration of new knowledge has a more innovative focus than the exploitation of knowledge, and the perspective is grounded and exposed in the literature that has a primary focus on innovation such as Hargadon (2003) and Sutton (2002). On the other hand, the literature on exploitation of knowledge is more concerned with how to mobilize organizational best practices enabling a more efficient application of both individual and organizational knowledge.

Knowledge sharing goes on both in and across organizational boundaries, and involves different organizational settings such as supplier relations (Takeishi, 2002), customer support (Davenport and Klahr, 1998), informal inter-firm relations (Uzzi and Lancaster, 2003), communities of practices (Brown and Duguid, 2001), and product development teams (Hansen, 2002).

In this article, knowledge sharing will, however, be limited to the process of intra-organizational exploration of knowledge, and the process is subsequently defined as being about identifying existing and accessible knowledge, in order to transfer and apply this knowledge to solve specific tasks better, faster and cheaper than they would otherwise have been solved

Knowledge sharing barriers

Some of the barriers for knowledge sharing are believed to be opportunistic behavior (Nicherson and Zenger, 2004), lack of trust between knowledge senders and receivers (Abrahms et al., 2003; Borgatti and Cross, 2003), no knowledge of where knowledge is located (O'Dell and Grayson, 1998) and the epistemologically different faces of tacit and explicit knowledge (Nonaka and Takeuchi, 1995; Szulanski, 2003). Consequently, the enhancers for knowledge sharing are believed to be the creation of a knowledge sharing culture (Davenport, DeLong and Beers, 1999), increased organizational efficacy (Cabrera and Cabrera, 2000) and the introduction of knowledge brokers establishing a link between senders and receivers of knowledge – to mention just a few.

As Pfeffer (1997, p. 25) has emphasized "perhaps the most fundamental question addressed by organization studies is how we are to understand what causes behaviour", and the reason for wanting to understand what causes behaviour is to being able to create and control a causal relation between certain social processes and a desired outcome such as improved knowledge sharing. To become better at facilitating knowledge sharing, we must therefore address the fundamental problems that cause knowledge sharing to fail – these fundamental problems are caused by the combination of not being able or willing to share knowledge, giving rise to three separate – yet interdependent – explanations for the failure of intra-organizational knowledge sharing.

The first focuses on the social structure in which knowledge sharing is embedded. The social structure can be characterized as a principal-agent situation in which the principal and agent might have opposing interests leading to social dilemmas defined as "collective situations in which egoistic incentives yield individually dominating strategies that converge on deficient equilibria – that is, on outcomes that are less preferred by the choosers than are alternative outcomes" (Dawes, 1991, p. 17).

So, social dilemmas exist when individual self-interest leads to inefficient organizational outcomes (Miller, 1992, p. 36), and they encompass "dilemmas of the common good" and "the public good dilemma" (Cabrera and Cabrera, 2002). A prerequisite for social dilemmas is, hence, that individuals tend to prefer egoistic incentives to the common good. In other words, individual's behaviour is often anticipated to be self-interest seeking or opportunistic (Ghoshal and Moran, 1996).

As a growing body of literature, however, has emphasized, individuals are not per se opportunistic – they do also behave as good soldiers (Organ, 1998), or as Doeringer (1991, p. 110) put it in a study of large companies: "The assumption that employees prefer shirking to working seems largely to be discredited in the modern management strategies of large enterprises". Whether social dilemmas arise is then a matter of whether behaviour is dominated by opportunism or benevolence.

The other explanation for knowledge sharing barriers relates to the different faces of knowledge. When it comes to what knowledge is actually being shared, there are endless discussions as to what form knowledge can take, or where knowledge exists – knowledge can be both organizational knowledge, tacit knowledge, explicit knowledge and so on and so forth. Following this, knowledge exists at various places such as in the individual, in organizational routines, written down in formal guidelines, or in one part of the organization – to mention just a few existences of knowledge. Barriers for sharing knowledge can therefore arise from both cognitive dimensions of knowledge and the epistemologically different faces of knowledge (Hinds and Pfeffer, 2003; Nonaka and Takeuchi, 1995).

Finally, the third explanation for knowledge sharing barriers focuses on structural dimensions such as not knowing where knowledge resides or not having the time to share knowledge. The barriers for knowledge sharing are in these instances not caused by ignorance, but rather by not being aware of possible knowledge repositories or not being able to exploit knowledge repositories (Cross and Parker, 2004, p. 36). In other words, these barriers are not caused by opportunistic behaviour, but as a consequence of the organization not paying sufficient attention to how different faces of knowledge are supported by, for instance, open spaces, easily structured databases, and social events fostering a trust-building community.

The barriers for knowledge sharing can, hence, be related to dimensions of i) the social structure, ii) the epistemological different faces of knowledge and iii) structural misfit between the willingness and ability to share knowledge. The dominating explanations for why these barriers arise are i) opportunistic and self-interest seeking behaviour, ii) cognitive barriers making it impossible to communicate tacit knowledge and iii) no awareness – as opposed to ignorance – of knowledge, and no opportunities to enact the willingness to share knowledge.

In the remainder I will focus on the barriers caused by social dilemmas, and the purpose is to emphasize that knowledge sharing barriers encompass different dimension of social dilemmas that relate to different assumptions about human behaviour, and that leads to different organizational settings in which knowledge sharing can take place (Wilkins and Ouchi, 1983).

Knowledge sharing as an exchange

Much of contemporary writings on knowledge sharing have mistakenly anticipated knowledge sharing to be a linear process where knowledge flows from a sender to a receiver. The so-called SRMC model – encompassing a sender, receiver, message and context - has to a considerable degree influenced the analysis of barriers and enhancers. The model originates from information theory, which purpose is purely quantitative and more specifically related to identifying "the amount of information associated with, or generated by, the occurrence of an event with the reduction in uncertainty, the elimination of possibilities, represented by that event or state of affairs" (Dretske, 1981, p. 4).

The SRMC model is, hence, a linear model intended to quantify the consequences (i.e., quantify the information needed to reduce uncertainty at the receiver) when information flows from a sender to a receiver. Applying this model to knowledge sharing processes may, therefore, be problematic. First – and foremost – because the model implies a flow perspective assuming knowledge, more or less troublesome, moves from a sender to a receiver. Apparently, the flow does not entail a flow the other way around – or, in other words, the flow comes without obligations. The SRMC model focuses the discussions of knowledge sharing processes to problems related to either giving away knowledge, or receiving knowledge. This is, however, only part of the story. Knowledge sharing is at one and the same time about giving and receiving. Therefore rather than viewing knowledge sharing as a flow, the process must be viewed as an exchange balancing the giving and receiving.

Following the arguments of sociologist Georg Simmel every interaction between human beings can be seen as an exchange. A challenge in viewing human interaction as situations of exchange is to identify what is being exchanged, and how the exchanges are created, evolved and sustained. In other words, there are several dimensions of an exchange leading to different models of exchange, as was also emphasized by Simmel:

> All contacts among men rest on the schema of giving and returning the equivalence. The equivalence of innumerable gifts and performances can be enforced. In all economic exchanges in legal form, in all fixed agreements concerning a given service, in all obligations of legalized relations, the legal constitution enforces and guarantees the reciprocity of service and return service-social equilibrium and cohesion do not exist without it. But there are also innumerable other relations to which the legal form does not apply, and in which the enforcement of the equivalence is out of the question. Here gratitude appears as a supplement. It establishes the bond of interaction, of the reciprocity of service and return service, even when they are not guaranteed by external coercion (Simmel quoted in Blau, 1964, p. 1).

As argued by Boer, van Baalen and Kumar (2004), Ferrary (2003), Fiske (1991), Ouchi (1980) and Wilkins and Ouchi (1983) different models of exchange exist characterizing different processes by which conformity to knowledge sharing is achieved (Homans, 1951, p. 281).

Since individuals relate to each other in different ways, different norms of reciprocity will be at stake in different types of exchange (Fiske, 1991; Ouchi, 1980). The motivation for transferring knowledge is in other words the expectation to receive something in return, and what is being received in return – and when and how it is being returned – depends on the model of exchange. Knowledge sharing is, hence, the process of exchanging knowledge for an obligation to reciprocate something such as knowledge, monetary rewards or gratitude.

I distinguish between three models of exchange comprising different kinds of return. Following the analysis of Ouchi (1980) I distinguish between three different models of exchange denominated financial exchange, organizational exchange and social exchange. The models represent the organizational setting, social understanding or culture (Wilkins and Ouchi, 1983) encompassing the norms, traditions and rules governing the exchange so that it is being "seen as equitable by the parties involved" (Wilkins and Ouchi, 1983, p. 470).

In financial exchanges the sender of knowledge is being compensated by monetary rewards. These kinds of exchanges are quite similar to transactions on the free market – a lot of contracting is necessary to avoid opportunism and self-seeking behaviour. As a consequence a lot of monitoring takes place – it is necessary to monitor whether knowledge is actually being shared, and – hence – whether the terms of the contract are fulfilled, so that the sender of knowledge can be rewarded accordingly. Governing financial exchanges can therefore, as argued by Nickerson and Zenger (2004, p. 624), be rather cumbersome and costly. A similar point is emphasized by Ouchi (1979) who has stressed, that the risk of the market is that the costs of contracting and monitoring eventually cause the market to fail, or in the words of Ouchi (1979, p. 838):

> In a market mechanism, the costs of carrying out transactions between parties have mostly to do with assuring one-self that the other party is dealing honestly, since all information relevant for the substance of the decision is contained in prices and is therefore not problematic. If honesty cannot be taken for granted, however, then each party must take on the cripplingly high costs of surveillance, complete contracting, and enforcement in order not to be cheated.

In financial exchanges the price of knowledge is transparent, and the parties involved in the exchange are free to accept or reject the terms of the contract. Financial exchanges are similar to the market mode of control in Ouchi's (1980) framework, where the intermediary in the exchange is the price of knowledge.

Organizational exchanges take place within organizational boundaries, and senders of knowledge are compensated either formally or informally. Formal compensation is quite similar to financial exchanges – except that they are embedded within organizations. Formal compensations often take the form of promotions or bonuses (Foss and Mahnke, 2003, p. 89), or just simply that individuals keep their job – and hence their salary. In other words, formal compensations are based on formal requirements to individual's organisational behaviour, and if individuals do not comply with these requirements they will – eventually – be excluded from the organization. Organizational exchanges do also focus on more informal compensations such as being nominated as "employee of the month" or otherwise become known as an extraordinary contributor to organizational performance. Organizational exchanges are similar to Ouchi's (1980) bureaucracy mode of control, where rules are the central intermediary between the sender and receiver of knowledge.

Social exchanges are characterized by being more informal exchanges based on personal commitment and relations. An important difference between social exchanges and financial exchanges (and the same difference can be observed between formal and informal compensations in organizational exchanges) is that social exchanges come with unspecified obligations (Blau, 1964, p. 93). This means that prior to the exchange no resources are spent on contracting such as stipulating what knowledge is to be shared when, and how this is going to be rewarded. Social exchanges are regulated through traditions established in social relations such as clans and communities (Brown and Duguid, 2001; Ouchi, 1980).

Each of the exchanges touches upon different assumptions as to why individuals share knowledge ranging from opportunistic behaviour and obedience to sheer organizational citizenship behaviour or altruism. Financial and organizational exchanges are dominated by economic man logic assuming that opportunism and self-interest seeking behaviour are dominant barriers for collaboration. Social exchanges – on the other hand – focus on generosity, trust and some degree of organizational citizenship behaviour as pivotal for how, and why, individuals interact.

How to balance the giving and receiving depends on whether knowledge sharing is conceptualized as a financial, organizational or social exchange, because in each of the three models of exchange different intermediaries and behavioural assumptions are at stake. Table I lists the central characteristic of the three models of exchange.

INSERT TABLE I ABOUT HERE

Conceptualizing knowledge sharing in relation to different organizational settings, intermediaries and behavioural assumptions allows for different incentives to facilitate knowledge sharing. The clan control – as emphasized by Ouchi (1980) - as an important governance mechanism in social exchanges consists of different incentives compared to governance mechanisms such as conformity to organizational rules or the price in financial exchange. Likewise, the incentives at work in different models of knowledge exchange, tell something about how to facilitate knowledge sharing, and before discussing how different organizational settings apply different types of incentives, the next section focuses on how different types of incentives relate to knowledge sharing.

Facilitating knowledge sharing

Focusing on elements in the social structure of organizations as the main cause for knowledge sharing barriers – and, hence, leaving aside the epistemological different faces of knowledge and structural dimensions of not being able to share knowledge – is off course somewhat simplistic. In the following I will, however, for the sake of the argument and subsequent analysis, view the process of facilitating knowledge sharing as a motivational problem, where the challenge is to identify what motivational patterns can be used to facilitate knowledge sharing (Katz, 1964).

Organizations are social structures comprising different institutional arrangements developed to regulate exchanges (Jones, 1983, p. 455). When individuals enter these social structures social dilemmas caused by for instance opportunistic behaviour may arise, and to minimize the social dilemmas and adjust individual's behaviour to organizational behaviour, incentives are applied.

Incentives are instrumental in that they motivate individuals to engage in certain organizational work that they would otherwise not have engaged in. In other words, people will be motivated to engage in knowledge sharing if they receive something in return for the knowledge they share. What they expect to receive in return does, however, depend on by which model of exchange the receiving and returning is regulated.

Overcoming social dilemmas stemming from opportunistic or self-interest seeking behaviour is the most often discussed challenge of facilitating knowledge sharing (Cabrera and Cabrera, 2002). Opportunism is believed to be a basic premise for individual behaviour leading to knowledge hoarding, or in the words of Nickerson and Zenger (2004, p. 622):

> Opportunism in knowledge exchange discourages actors from sharing knowledge, and knowledge is therefore not placed in the hands of those who will find it of most value. Instead, self-interest encourages actors to hoard knowledge and embed it into saleable products.

A recent body of literature has, however, focused more on the assumption that opportunistic behaviour in knowledge sharing activities only exists to a minor degree, and that individuals are far more willing to share knowledge than often anticipated (Adler, 2001; Boer, van Baalen and Kumar, 2004, Cross and Parker, 2004, Ferrary, 2003) Their behaviour is apparently more altruistic than opportunistic.

In knowledge sharing dominated by altruism one would expect less knowledge shirking and more knowledge sharing compared to situations of exchange dominated by opportunism, which may lead to the wrong conclusion that facilitating knowledge sharing becomes easier. Facilitating knowledge sharing does not become easier, but how to facilitate the process changes because the incentives at work are different in situations of exchange dominated either by opportunism compared to altruism.

The term altruism may, however, be misleading since it often evokes an image of the good soldier being willing to cooperate or sharing knowledge without any obligations (cf. Podsakoff et al., 2000). But as emphasized by Mauss (1954) gift-exchanges involve counter-gifts, and it may therefore be argued that within social exchange theory pure altruism does not exist. Social exchange theorists including Mauss (1954), Homans (1961), Blau (1964) and Ekeh (1974) have for years discussed whether pure altruism at all exists. Blau (1964) talks about what he denominates "an apparent altruism" emphasizing an escape from self-interest seeking behaviour, but still with a strong emphasis on reciprocation, or as Blau (1964, p. 17) puts it:

> An apparent "altruism" pervades social life; people are anxious to benefit one another and to reciprocate for the benefits they receive. But beneath this seemingly selflessness an underlying "egoism" can be discovered; the tendency to help others is frequently motivated by the expectation that

> doing so will bring social rewards. Beyond this self-interested concern with profiting from social associations, however, there is again an "altruistic" element or, at least, one that removes social transactions from simple egoism or psychological hedonism. A basic reward people seek in their associations is social approval, and selfish disregard for others makes it impossible to obtain this important reward.

Apparently, then, the willingness to engage in knowledge sharing is a continuum ranging from "apparent altruism" regulated through social control to "egoism" or opportunistic behaviour regulated by management authority.

Knowledge sharing barriers can then be overcome by focusing on incentives encompassing elements of social control or management authority. This is partly reflected in the literature on knowledge sharing, but the tendency has been to focus on *either* social control mechanisms *or* management authority.

Incentives facilitating knowledge sharing has, however, to encompass the continuum ranging from apparent altruism to opportunistic behaviour, since the continuum represents different situations of exchange alluding to different types of incentives at work, and all are present in different settings of organizational work.

Since knowledge sharing represents different models of exchange, the sharing of knowledge involves giving away knowledge and receiving something in return. The balance is delicate because knowledge is simply not giving away for free or for that matter for knowledge – the sharing of knowledge is to be balanced by returning some type of reward such as money, bonus, organizational efficacy, promotion, social acceptance, and informal acknowledgments – or, in the words of Ouchi (1980, p. 138) "a norm of reciprocity underlies all exchange mechanisms", meaning that the sustainable sharing of knowledge can be explained as the fulfilled expectations of receiving some incentives in return.

Conceptually, incentives take on two forms – intrinsic or extrinsic, and being intrinsic motivated is believed to be more ideal than being extrinsic motivated (Osterloh and Frey, 2000). One of the most important differences between intrinsic and extrinsic rewards is that in performing certain organizational activities one will often perceive them as yielding intrinsic rewards when they are not just instrumental, but also pleasurable in their own right (Ciulla, 2000, p. 17). The reason for this is that intrinsic motivation does not involve any actions forced by command (Lindenberg, 2001, p. 319) – and intrinsic rewarding activities can therefore be seen as situations in which the gap between individual behaviour and organizational expectations to individual behaviour has been reduced.

But intrinsic rewards are not solely enjoyable and stimulating, they also encompass social acceptance and status, or as Lindenberg (2001, p. 332) puts it:

> Activities are performed the longer without any tangible reward the more they are enjoyable, that is the more they are simultaneously (i) stimulating, (ii) providing comfort (absence of pressure from others), (iii) providing behavioural confirmation by self, (iv) providing behavioural confirmation by others, (v) providing status, (vi) allowing improvement of non-tangible resources (such as skills and competencies) without reduction in any of the other functions.

That means that being intrinsically rewarded can be both about formal acknowledgment providing for instance status and increasing efficacy (Cabreara and Cabrera, 2002, p. 698), and more informal acknowledgement such as increased social status due to the willingness to help colleagues solve their work. In other words, sometimes individuals will find it rewarding in itself to help others. In the words of American sociologist, Peter M. Blau, we are competent helpers that find it enjoyable to help:

> Favours make us grateful, and our expressions of gratitude are social rewards that tend to make doing favours enjoyable, particularly if we express our appreciation and indebtedness publicly and thereby help establish a person's reputation as a generous and competent helper (Blau, 1964, p. 16)

These social rewards are exactly the kind of powerful motivation that Simon (1991) stressed as the far more important kind of rewards compared to extrinsic rewards governed through control and authority:

> Although economic rewards play an important part in securing adherence to organizational goals and management authority, they are limited in their effectiveness. Organizations would be far less effective systems than they actually are if such rewards were the only means, or even the principal means, of motivation available. In fact, observation of behaviour in organizations reveals other powerful motivations that induce employees to accept organizational goals and authority as bases for their actions (Simon, 1991, p. 34).

So there is reason to believe that intrinsic rewards actually exist, and the challenge for fostering and improving knowledge sharing is to become better at supporting situations yielding intrinsic rewards such as the social rewards emphasized by Blau (1964).

Being a competent helper – or for that matter assuming organizational citizenship behaviour – is clearly distinct from assumptions embedded in economic man logic, where individuals are assumed to be self-interest seeking and opportunistic causing social dilemmas and organizational problems such as shirking. Problems caused by economic man logic can only be solved by either offering an increased reward, or demanding a lower individual effort. Monetary rewards such as increased salary and bonus are extrinsic incentives compensating the sender of knowledge, and hence balancing the exchange of giving and receiving.

The main differences between intrinsic and extrinsic rewards are related to transparency, the cost of contracting and control, and unspecified obligations. Extrinsic rewards are far more transparent than intrinsic rewards in as such that they are more tangible, and therefore manageable. The transparency does, however, assume a great deal of contracting and control, to make sure that the incentives actually produce the behaviour agreed upon. Situations yielding intrinsic rewards are less transparent since intrinsic incentives by nature are non-tangible, and balancing the giving away knowledge and receiving intrinsic rewards, are based on unspecified obligations. Trust replaces the cost of contracting, but trust does not come easy – organizations do also incur costs in building up trust-based relations (Wilkins and Ouchi, 1983, p. 478), but the cost is less controllable and predictable compared to situations based on extrinsic rewards.

The norm of reciprocity underlying the process of knowledge sharing is, hence, a question of giving something in return for the knowledge being shared. What is being giving in return can take the form of either extrinsic or intrinsic rewards, or a combination of extrinsic and intrinsic rewards.

How knowledge sharing is being rewarded depend on what has been termed the culture, organizational setting or social understanding (Alvesson, 2004; Jones, 1983; Malone, 2004, Robertson and Swan, 2003) in which knowledge sharing takes place, and as argued by Blau and Scott (1962) organizations consist of many different – formal and informal – structures with distinct ways of balancing the giving and receiving. How to best facilitate knowledge sharing is therefore dependent on in which model of exchange knowledge sharing goes on, and in the next section I argue that knowledge sharing can be viewed as a process going on in at least four different organizational settings.

Organizational structures facilitating knowledge sharing

Organizations comprise different types of structures such as formal departments, project teams, communities of practices and informal networks. Each structure has its own characteristics relating to what is the purpose of the structure, who belongs to the structure and what holds the structure together (Wenger, McDermott and Snyder, 2002, p. 42)?

In the same manner, knowledge sharing can be conceptualized as different situations of exchange facilitated through different types of organizational structures. In the following I explore four types of organizational structures characterized by yielding extrinsic or intrinsic rewards and whether the rewards are what Katz (1964) denominates system or individual rewards.

System rewards are incentives potentially available for all organizational member and they are intended at maintaining an acceptable level of knowledge sharing activities (Katz, 1964, p. 138). System rewards can be extrinsic such as salary, promotion or bonus payment, or intrinsic such as increased efficacy or challenging and varied work. System rewards can also be characterized as generic rewards in the sense that they are potentially available for all organizational members contributing positively to knowledge sharing.

Individual rewards are limited to members of formal or informal organizational sub-units such as communities of practices, functional teams or formal departments. Individual rewards can be extrinsic such as monetary rewards, and intrinsic such as trusting social relations to colleagues. Individual rewards can also be denominated as restricted rewards, since they not only depend on how well employees contribute to knowledge sharing, but also on membership of particular organizational sub-units.

How, then, do organizational structures yield intrinsic and extrinsic rewards and subsequently facilitate knowledge? Knowledge sharing behaviour yielding extrinsic rewards is forced by some kind of authority (Lindenberg, 2001), whereas intrinsic rewards result from situations not forced by command but rather governed by social control mechanisms such as compliance with norms and traditions (Homans, 1951; Ouchi, 1980). Extrinsic rewards are therefore more likely to be paid in organizational structures assimilating hierarchies, whilst intrinsic rewards are yielded in more informal structures such as social networks, clans and communities of practices (Adler, 2001; Duguid and Brown, 2001; Ouchi, 1980). As Blau and Scott (1962, p. 6), however, has emphasized, in every formal organization there are also informal organizations, meaning that intrinsic rewards do play a part in the workings of incentives in organizational structures such as hierarchies. Conceptualizing how the incentives are at work in knowledge sharing, must therefore include dimensions of both extrinsic and intrinsic rewards, and formal and informal organizational structures.

But the types of organizational structure facilitating knowledge sharing must not solely represent combinations of extrinsic and intrinsic rewards, and generic and restricted rewards. They must also encompass the three different situations of exchange discussed earlier.

Organizational membership yielding either extrinsic or intrinsic rewards, can be conceptualized as an organizational exchange where contributing to knowledge sharing is governed by either authority mechanisms such as rules and salary, or more intrinsic rewards such as formal acknowledgement and increased efficacy.

Knowledge sharing based on restricted extrinsic rewards assimilates financial exchanges while situations governed by restricted intrinsic rewards are more similar to social exchanges. In the table below the four structures encompassing the process of knowledge sharing is illustrated, and in the following each of the structures will be discussed more thoroughly.

INSERT TABLE II ABOUT HERE

A. Knowledge sharing as an organizational exchange yielding extrinsic rewards

In organizational exchanges yielding extrinsic rewards, there is often a risk of social dilemmas since agents through self-interest seeking behaviour or opportunism seek to maximize their outcome of – or minimize their effort put into - the exchange (Cabrera and Cabrera, 2000; Nickerson and Zenger, 2004). Close monitoring is therefore a central part of organizational exchanges enabling either the punishment or rewarding of knowledge sharing behaviour.

The main goal of knowledge sharing in organisational exchanges is to bridge organizational interdependencies and coordination mechanisms such as rules, planning and job descriptions are therefore central elements of knowledge sharing (Thompson, 1967). In the words of Ouchi (1980) the intermediary between individual and organizational behaviour is rules enforced by authority. Situations of knowledge sharing, hence, assimilates the structure of bureaucracies, where the costs of contracting and monitoring are at risk outweighing the positive consequences of knowledge sharing.

Nevertheless, knowledge sharing conceptualized as organizational exchanges emphasizes what has often been neglected in the literature on knowledge sharing – that is, knowledge sharing is not solely about establishing all new social relations that can lead to even more knowledge being shared. Knowledge sharing is also about bridging organizational interdependencies thereby becoming even more efficient at coordinating and exploiting what is often believed to be specialist's mutual ignorance (Postrel, 2002, p. 305).

What is being received in return for knowledge, and when it is being received, is stipulated by contracts. When entering the organization, individuals will have to change their behaviour – they will have to behave in ways that would probably not be observed outside the organization (Katz and Kahn, 1966, p. 296). There may be organizational rules forcing employees to document their knowledge or to train new employees – in other words, what is being exchanged is knowledge in return for salary.

B. Knowledge sharing as an organizational exchange yielding intrinsic rewards

In organizational exchanges yielding intrinsic incentives resources are not used to ex-ante settle what is being exchanged. Compared to exchanges yielding extrinsic rewards, organizational exchanges yielding intrinsic incentives entail unspecified obligations (Blau, 1964, p. 93). This actually frees a lot of resources – resources that should otherwise be spent on contracting. On the other hand, unspecified obligations must be facilitated by trust between the agents involved in the exchange. Trust, hence, substitutes the monitoring and management present in the organizational exchange yielding extrinsic rewards and in the financial exchange, or – in the words of Adler (2001, p. 219):

> Compared to pure authority and price, trust makes possible an enlarged scope of knowledge generation and sharing. Trust can dramatically reduce both transaction costs – replacing contracts with handshakes – and agency risks – replacing the fear of shirking and misrepresentation with mutual confidence.

Apparently then, the focus for practices supporting knowledge sharing must therefore be re-directed from easy-to-monitor approaches to trust-building initiatives (Abrams et al., 2003). But building trust does not come easy, and whether trust-builders eventually succeed in fostering and improving knowledge sharing is basically impossible to measure or otherwise assure. Therefore, focusing on trust-building as an enhancing device for knowledge sharing requires trusting relations between the ones implementing the practices, and the ones being subject to the practices.

C. Knowledge sharing as a financial exchange

A focal point of interest in organizational structures is how easy – or difficult – it is to tie individual performance to organizational performance (Katz, 1964; Foss, 2003, p. 335). If the transparency between individual effort and system performance is low, one would expect the motivation for engaging in certain activities to decrease, whilst increased transparency on the other hand will increase motivation. This reasoning does, however, only relate to what Katz (1964, p. 134) refers to as instrumental rewards assuming differential performance. If it is not possible to identify individual's differential performance and reward them accordingly, then individual's contribution to knowledge sharing will eventually stop. On the other hand, if it is possible to tie individual performance to system performance, then knowledge sharing can be facilitated by introducing an organizational structure that assimilates a financial exchange.

One could argue that organizations are dominated by low-powered incentives because it is difficult to directly observe and experience a tie knit between efforts and rewards. Organization economists have therefore suggested the internal hybrid as a way of introducing market like incentives to the hierarchy. The internal hybrid offers a more direct link between effort and reward, and is therefore believed to be superior to hierarchies in offering rewards. The internal hybrid introduces a market to the formal organization, where knowledge is being shared (or allocated) by means of pricing. Organizational subunits – or even employees – can put a price on the knowledge they want to share, and the one's who share the most – or the most valuable knowledge – is the one who receive the highest extrinsic rewards. Introducing market like incentives to the organization allows for increased transparency between individual supply of knowledge, and organizational demand for knowledge governed by the pricing of knowledge. Organization economist have also termed this kind of structure a high-powered organizational structure emphasizing that the sender of knowledge has the freedom to share the knowledge for the highest available price.

D. Knowledge sharing as s social exchange

A similar logic for the transparency between individual and organizational performance is found in more informal systems such as communities of practice. The governing mechanism is, however, not the price of knowledge, but the informal acknowledgement for sharing knowledge. Traditionally, knowledge sharing has been discussed as the process going on in or between hierarchies. But, as Miller (1992, p. 19) has emphasized, hierarchies do no always have a positive effect on individual autonomy and liberty, and therefore one may expect that in hierarchies one runs the risk of crowding out intrinsic motivation. Recently, the discussion of knowledge sharing has therefore started to focus on what Miles et al. (1997) denominate more cellular organizational forms. These organizational forms are more trust-based than authority-based, and are believed to more efficiently support knowledge work (Adler 2001).

When focusing on the social exchange model of knowledge sharing, the span of knowledge sharing is reduced to a community – or rather a unit smaller than the organization – which allows for an increased transparency as to whom is worth trusting. The subunit evolves into a socially regulated entity, which on the one hand benefits the trust building process. On the other hand, however, the subunit can experience problems in relating to other subunits, and one could argue that what happens in the social exchange model of knowledge sharing is, that the level of where the problems are – or rather, where there is no willingness to share knowledge – shifts from the individual to the group-based level. How to avoid this kind of in-growing social relations therefore, also become an important part of the practices fostering, supporting and improving knowledge sharing.

Conclusion – facilitating knowledge sharing

When viewing how to overcome knowledge sharing barriers as a motivational problem, it is important to understand what drives motivation. Motivation differs depending on the culture, organizational setting or social understanding that embrace knowledge sharing.

Conceptualizing knowledge sharing as four different models of exchange emphasize that different assumptions and incentives as to why knowledge is being shared are at stake. In other words, the culture of willingness to share knowledge ranges from willingness enforced by authority mechanisms such as rules and rewarded by salary, to social control mechanisms such as reciprocity rewarded with trust.

As has been emphasized by Alvesson (2004, p. 128) a common belief is that knowledge work is best facilitated in organic and informal settings such as, for instance, communities of practices assimilating social exchanges. Likewise a burgeoning amount of literature has recently emphasized non-hierarchical organizational structures as superior settings for knowledge creation and sharing. Adler (2001, p. 224), for instance, argue that:

> A burgeoning body of research shows that when firms need innovation and knowledge inputs from suppliers rather than just standardized commodities, no combination of strong hierarchical control and market discipline can assure as high a level of performance as trust-based community.

And Jones, Hesterly and Borgatti (1997, p. 916) have commented in a similar vein that:

> To enhance cooperation on shared tasks, the network form of governance relies more heavily on social coordination and control, such as occupational socialization, collective sanctions, and reputations, than on authority or legal resource.

This may lead to the conclusion that social exchanges of knowledge sharing are far more important than other model of knowledge exchange. At least, this could be argued based on the increasing amount of literature focusing on intrinsic rewards based on trust, organizational citizenship behaviour and gift-exchange.

The purpose of this article is, however, to emphasize that knowledge sharing comprises different models of exchange, characterized by different types of reciprocity. Whether one model of exchange is superior to the others, has not been part of the discussion. But acknowledging knowledge sharing as different models of exchange will enable the assessment of the costs of facilitating knowledge sharing.

In recent years knowledge sharing has been romanticized in the sense that there has only been focus on the benefits of facilitating knowledge sharing. What has been ignored is the cost of facilitating knowledge sharing, and when recent trends in how to facilitate knowledge sharing emphasized trust, trust-building, norms and traditions as pivotal, they ignore the potentially significant costs of maintaining a knowledge-sharing culture (Wilkins and Ouchi, 1983, p. 478).

I do not argue, that organizational or financial exchanges are superior at facilitating knowledge – I simply emphasize that in order to become better at understanding why and how to improve knowledge sharing, future research must address knowledge sharing as embracing different organizational settings yielding benefits but also involving costs.

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Model of exchange	Organizational setting	Intermediary	Behavioural assumptions
Financial exchange	Contract, market	Price	Opportunism and self-interest seeking
Organizational exchange	Bureaucracy	Rules	Obedience
Social exchange	Clan, community	Trust (unspecified obligations)	Organizational citizenship behaviour

Table I: Three models of exchange (Inspired by Ouchi, 1980, p. 137).

Restricted scope of rewarding	**C. Financial exchange**	**D. Social exchange**
Generic scope of rewarding	**A. Organizational exchange yielding extrinsic rewards**	**B. Organizational exchange yielding intrinsic rewards**
	Extrinsic rewards	Intrinsic rewards

Table II: Four models of knowledge exchange.

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