COMMITTED TO SHARE: THE RELATIONSHIP BETWEEN ORGANIZATIONAL COMMITMENT, KNOWLEDGE SHARING AND THE USE OF CMC

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ABSTRACT
Knowledge sharing is an important process in modern organizations, as successful knowledge sharing can result in shared intellectual capital, an increasingly important resource. In this paper, we study the influence of organizational commitment and the use of Computer-Mediated Communication (CMC) on knowledge sharing. In knowledge sharing, an important distinction is made between knowledge donating and knowledge collecting. Based on relevant literature, we hypothesize that commitment and CMC use are both positively related to both knowledge donating and knowledge collecting. We also hypothesize that CMC use positively influences commitment. On the basis of two case studies our conclusion is that CMC use is an antecedent of organizational commitment, and that such commitment, in turn, influences the willingness to both donate and collect knowledge. Further analyses lead to the conclusion that it is important to distinguish different processes of knowledge sharing (donating and collecting), different levels of commitment and knowledge sharing (organizational and departmental), and different modes of CMC use in order to get a full grasp of the relationship between commitment, knowledge sharing and CMC use.

INTRODUCTION

In today's knowledge-intensive economy, an organization's available knowledge is becoming an increasingly important resource. In the 'resource based' view of the firm, knowledge is considered to be the most strategically important resource (e.g. Conner and Prahalad, 1996; Grant, 1996; Nahapiet and Ghoshal, 1998; Pettigrew and Whip, 1993). The effective management of this resource is, consequently, one of the most important challenges facing today's organizations (Davenport & Prusak, 1998; Drucker, 1993; Hansen, Nohria & Tierney, 1999; Weggeman, 2000). The sharing of knowledge between individuals and departments in the organization is considered to be a crucial process here (O'Dell & Grayson, 1998; Osterloh & Frey, 2000). Only when individual and group knowledge are translated to organizational knowledge can the organization start to effectively manage this resource. Therefore, determining which factors promote or impede the sharing of knowledge within groups and organizations constitutes an important area of research. In this paper, we focus on two such influences: affective commitment to the organization and the use of CMC (Computer-Mediated Communication). Our central research question is:

> *What is the relationship between commitment to the organization, the use of Computer-Mediated Communication and knowledge sharing?*

In order to provide an answer to this research question, we divided it into the following sub-questions:

1. *What different knowledge sharing processes can be distinguished?*
2. *What is the relationship between commitment and knowledge sharing?*
3. *What is the relationship between CMC use and knowledge sharing?*
4. *What is the relationship between CMC use and commitment?*

These sub-questions will first be answered on the basis of theory, leading to a number of hypotheses and a theoretical model. These hypotheses (and the model as a whole) were tested in two case studies, which will be described in the third section of this paper. Finally, we will discuss the results these case studies yielded and the conclusions that can be drawn from these results.

THEORY AND HYPOTHESES

Knowledge sharing processes

In discussions on knowledge sharing, an important distinction, which is not often made, is the distinction between two forms of knowledge sharing: *donating* knowledge on the one hand, and *collecting* knowledge on the other. Other researchers have made a distinction between similar processes, but mostly in terms of one active and one more passive process (De Leeuw van Weenen, 2002). Like Van der Rijt (2002), who makes a difference between donating and receiving information. As we see it here, this is just a distinction *in* the process of donating knowledge, with the donator on the one, and the receiver on the other hand.

Weggeman (2002) and Oldenkamp (2001) also make a distinction between different forms of knowledge sharing – more specifically, between different kinds of knowledge *sharers*. Weggeman (2002), for instance, distinguishes the knowledge source and the knowledge receiver – again, a distinction within the proces of knowledge donating, with an active donator and a passive receiver. Oldenkamp (2001), however, distinguishes the person carrrying the knowl-

edge ('knowledge carrier') from the one asking for that knowledge ('knowledge requester'). Integrating Weggeman's and Van der Rijt's perspectives on the one hand, and Oldenkamp's on the other, we answer our first sub-question by labelling the two central processes as follows:

- knowledge *donating*, communicating to others what one's personal intellectual capital is, and
- knowledge *collecting*, consulting colleagues in order to get them to share their intellectual capital.

So, both processes we distinguish are active processes – either actively communicating to others what one knows, or actively consulting others in order to learn what they know. Both processes have a different nature, and can be expected to be influenced by different factors. Where donating knowledge constitutes sharing one's intellectual capital with others (which, in economically rational terms, means more costs than benefits), collecting knowledge means enabling oneself to profit from others' intellectual capital (in which situation the benefits are possibly much larger than the costs). So, in our further analysis of the factors affecting knowledge sharing, we will focus on the relationship between such factors on the one hand, and both knowledge donating and collecting on the other.

Commitment and knowledge sharing

Having distinguished knowledge donating and collecting as the substance of knowledge sharing, we now focus on the relationship between organizational commitment and these processes. As pointed out in the previous paragraphs, the motivations and effects related to both knowledge donating and collecting can be expected to be quite different. Quite a number of studies (for instance, Hislop, 2002; Jarvenpaa & Staples 2001; Kelloway & Barling, 2000; Scarbrough, 1999; Smith & McKeen, 2002) point towards commitment to the organization as an important variable in explaining knowledge sharing. Before further exploring this relationship, however, we first have to define what we understand organizational commitment to be.

Mowday, Porter and Steers (1982, 1979; Steers, 1977) have laid the foundations for an extensive body of research into organizational commitment. Mowday et al. define organizational commitment as "the relative strength of an individual's identification with, and involvement in a particular organization" (1979: 226). Studies concerning this subject have identified various dimensions of organizational commitment (Mowday, Porter & Steers, 1982; Reichers, 1985; Salancik, 1977). A useful distinction between different forms of commitment is presented by Meyer and Allen (1997) who distinguish three different kinds of commitment:

- *Affective commitment*, which is related to identification and involvement with the organization, a feeling of emotional attachment to that organization. Affective commitment leads to a feeling of *wanting* to continue employment in the organization.
- *Continuance commitment* is created by high costs associated with leaving the organization ("Profit associated with continued participation and a 'cost' associated with leaving" (Kanter, 1968: 504)), and creates a feeling of *needing* to continue employment.
- *Normative commitment* is related to a feeling of obligation towards the organization, and creates a feeling that one *ought* to continue employment.

As Meyer and Allen (1997) argue that affective commitment is positively related to individuals' willingness to commit extra effort to their work, this is the kind of commitment that can be expected to be related to willingness to donate and receive knowledge. It is known from

past research that the nature and pattern of individual behavior is influenced by the strength of the relationship between individuals as well as the persons' commitment to their immediate organizations (O'Reilly and Chatman, 1986). As Hall (2001) argues, people are more willing to share their knowledge if they are convinced that doing so is useful – if they have the feeling that they share their knowledge in an environment where doing so is appreciated and where their knowledge will actually be used. Hinds and Pfeffer (2003) sum up motivational factors affecting knowledge sharing, one of which is the relationship between the individual and the organization. An individual who is more committed to the organization, and has more trust in both management and coworkers, is more likely to be willing to share their knowledge. This latter conclusion is also drawn by Jarvenpaa & Staples, who state that "greater commitment may engender beliefs that the organization has rights to the information and knowledge one has created or acquired" (2001: 156). Various authors have specifically investigated the relationship between commitment and knowledge sharing (for instance: Hislop, 2002; Kelloway & Barling, 2000; Scarbrough, 1999; Smith & McKeen, 2002). Kelloway and Barling (2000) for instance, report a number of empirical studies that confirm that affective commitment is a predictor of performance, and is based on a reciprocal relationship wherein the individual offers his or her talents to the organization in exchange for the rewards of organizational membership. Based on these studies, they present a model in which affective commitment is positively related to knowledge work. Smith and McKeen (2002) state that commitment to the organization is an important part of a knowledge sharing culture.

All in all, this literature leads us to expect that affective commitment to the organization positively influences the extent to which people share their knowledge. As commitment influences both the willingness to contribute to that organization (i.e., donate knowledge) and the extent to which others' activities are known and perceived to be relevant (i.e. collect knowledge) the first hypothesis (and preliminary answer to the second sub-question) is:

H.1. An organizational member's affective commitment to the organization positively influences the extent to which he or she both (a) donates and (b) collects knowledge.

Conversely, a considerable body of research indicates that information and communication are important antecedents of commitment (Foy, 1994; Katz & Kahn, 1972; Meyer & Allen, 1997; Tanis & Postmes, 2001). Theory indicates that the amount of information people receive about their working environment is positively related to their commitment to the organization (Salancik, 1977; O'Reilly & Caldwell, 1979, in Huff, Sproull & Kiesler, 1989). As Eisenberg, Monge and Miller (1983) state:

> *"Information cues about work can influence attitudes by suggesting how a worker should interpret and respond to complex cues, by making features of the environment more or less salient, by aiding in interpretation of needs, and by indicating ways to conform to the work group… The extension of this framework to the area of organizational commitment would suggest that when a worker receives positive cues about the nature of work in the organization, he or she would become more committed to that organization (p.183)."*

Research also indicates that the degree to which members of an organization can actively participate in communication with other members of their organization, is positively related to their commitment to the organization (Kiesler, 1971; Salancik, 1977). Based on this, we also expect:

H.2. The extent to which an organizational member (a) donates knowledge to other members of the organization and (b) collects knowledge about the organization positively influences their affective commitment to this organization.

The use of CMC and knowledge sharing

The next question to be answered concerns the role of Computer-Mediated Communication (CMC) in knowledge sharing. CMC offers unique opportunities to overcome barriers of space and time (Hammer & Mangurian, 1997; Dimmick, Kline & Stafford, 2000): '*…technical characteristics minimize the barriers that time and distance place on communication in an organization*' (Huff, Sproull, & Kiesler, 1989: 1374-1375). Research also indicates that CMC offers only limited opportunities for truly "social" communication rich in social cues (Daft & Lengel, 1984;1986; Kiesler, Siegel & McGuire, 1984). The influence of CMC on knowledge sharing has been the subject of much research, but the general view is that its value for knowledge sharing is limited (Hinds & Pfeffer, 2003; Huysman & De Wit, 2002), although in situations where "common know how" exists it can be most valuable (Brown & Duguid, 2001).

On the other hand, CMC has a number of characteristics, such as anonymity (Postmes, Spears & Lea, 1998), lack of social cues (Kiesler, Siegel & McGuire, 1984) and absence of status differences (Weisband & Schneider, 1995), which have potentially interesting consequences for knowledge sharing. Where the lack of social cues in CMC was traditionally expected to lead to less social communication, to less identification with those with whom communication takes place than in a face-to-face setting, empirical results contradicted this (Walther, 1992; Walther & Burgoon, 1992; Postmes, Spears & Lea, 1998). In a search to explain such results, Walther (1996) argues that computer-mediated communication can lead to *hyperpersonal* interactions – indeed, communication with a richer level of social relationships than found in face to face conditions. His conclusion is that specific characteristics of CMC (such as reduced social cues and asynchronous communication) can even lead to socially 'richer' communication, to stronger identification with the group and to more collective behavior. Knowledge sharing can be conceived as a typical example of collective behavior – all members of the collective need to contribute for a collective good (i.e., shared intellectual capital) to come into existence.

A related perspective is the Social Identification model of Deindividuation Effects, also known as the SIDE model (Reicher, Spears & Postmes, 1995; Spears & Lea, 1994). As Postmes, Spears and Lea (1998) argue, social cues can facilitate the individuation of communication partners – in other words, forming impressions of them as idiosyncratic individuals. In computer-mediated conditions, where social cues are relatively scarce, *group* characteristics are likely to be attributed to individuals – i.e., their *social identity* is likely to become more salient than their individual identity. Thus, provided that the relevant social group and its attributes are known, the lack of social cues in ICT can "accentuate the unity of the group and cause persons to be perceived as group members rather than as idiosyncratic individuals" (Tanis & Postmes, in press: 8). This is in line with Walther's arguments, who also states that this leads to more collective behavior. As knowledge sharing is also collective behavior, in the sense that people who share their knowledge contribute to the collective intellectual capital of a group or an organization, this leads us to the following hypothesis and theoretical answer to the third sub-question:

H.3. The use of CMC has a positive influence on organizational members' willingness to both (a) donate and (b) collect knowledge.

CMC and commitment

Building on the concepts and relationships presented in the previous section, we also answer the fourth sub-question, regarding the relation between the use of CMC and commitment to the organization. As was discussed before, CMC can lead to a stronger group orientation and more collective behavior – and thus, to a stronger commitment to that group. Research also indicates that CMC can be expected to lower barriers in communication (Dimmick, Kline & Stafford, 2000; Sproull & Kiesler, 1991), which makes the members of an group feel less "apart" from each other and thus creates more cohesion in the group. We also propose that such lower barriers lead to more communication in organizations, and thus lead to greater affective commitment to that organization. Our last hypothesis therefore is:

H.4. The use of CMC has a positive influence on organizational members' affective commitment to the organization.

All in all, our theoretical framework leads to the following model:

INSERT FIGURE 1 ABOUT HERE

STUDY SITES AND METHODS

Our hypotheses were tested in two case studies, one in a specialty staffing agency and the other in a consultancy firm. The first organization is a labor market intermediary, aimed at providing client organizations with highly educated experts in specific areas of the employment market. The organization's primary task is finding specialists to fulfill the staffing needs of client organizations on the one hand, and finding specialist jobs for their client candidates on the other. As the organization itself puts it: "matching the staffing needs of our customers with the challenges sought by our candidates". The organization has five different business units, each with their own focal area: Engineering, IT, Social Security, Education and Staff Professionals. The organization employs about 100 people internally, and about 1,000 experts who are placed in client organizations.

The second organization is a consultancy firm in the area of organizational information and communication. Its primary focal areas are process management, knowledge management and change management. This organization is relatively small (about 40 employees) and has a very flat structure: there are five partners, four staff members, and the rest of the employees are consultants. There are no formal departments or business units in this organization, but a number of expertise areas or knowledge domains are identified around which consultants are (temporarily) clustered.

In both organizations, a 'knowledge management scan' was conducted (Van den Hooff, Vijvers & De Ridder, 2003), consisting of a number of interviews and a questionnaire. In the analyses discussed here, the data from the questionnaire are used. Within the questionnaire, the different relevant variables in the theoretical model in figure 1 were operationalized. The scale for knowledge donating and the scale for knowledge collecting are both homogeneous ($a = .83$ and $a = .90$ respectively). The items used are presented in table 1.

INSERT TABLE 1 ABOUT HERE

The logic behind these scales is that as soon as a person "asks" for knowledge, he or she is collecting – if knowledge is shared without being asked, knowledge donating is taking place.

Commitment was measured with 5 (translated) items of the OCQ scale (Porter et al, 1974; Mowday, Steers & Porter, 1979), which are useful in measuring *affective commitment*. This set of items has already proved its worth in producing a reliable scale in a number of research projects to date. The scale is also homogeneous in this case (a = 0.79). The items in this scale are presented in table 2. Finally, the measurement for CMC use consisted of two items – respondents were asked to indicate on a 5-point scale the extent to which they used e-mail and intranet. This scale was just homogeneous: a = 0.60.

INSERT TABLE 2 ABOUT HERE

RESULTS

In order to test the hypothetical model in figure 1, a Structural Equation Model was constructed using AMOS (Arbuckle & Wothke, 1999). AMOS is a software package which supports data analysis techniques known as structural modeling, analysis of covariance structures, or causal modeling. Structural equation modeling basically enables the testing of a set of regression equations simultaneously, providing both parameter statistics for each equation and indices which indicate the "fit" of the model to the original data. Based on the data discussed in the previous sections, the structural equation model which optimally fits these data and has the strongest explanatory power is the one presented in figure 2.

INSERT FIGURE 2 ABOUT HERE

For the model as a whole, three statistics are found to be relevant (Arbuckle & Wothke, 1999; University of Texas, HTML document). Although AMOS produces a very large number of different statistics, the University of Texas (HTML document) mentions that these three statistics are the commonly reported fit statistics:

1. *The chi square value.* This value indicates the *absolute fit* of the model to the data, and is the result of the testing of the null hypothesis that the model does indeed fit the data. So, a first indication of the 'goodness of fit' of the whole model can be obtained by comparing the reported Chi Square value with the critical value (in a Chi Square table). AMOS not only reports this value, but also the degrees of freedom, and the level of significance of this value. For the model in figure 2, the chi-square test of overall model fit returns a value of .426 with 2 degrees of freedom, returning a probability value of .51 that a chi-square value this large would be obtained by chance if the null hypothesis that the model fits the data is true. So, the null hypothesis is supported and we can conclude that the model fits the data.
2. *Tucker-Lewis Index (TLI)*: Because the chi-square test of absolute model fit is sensitive to sample size and non-normality in the underlying distribution of the input variables, a number of descriptive fit statistics are available as well, in order to assess the *relative* fit of a model to the data. The Tucker-Lewis Index (TLI) is an example of such a statistic,

and compares the absolute fit of the specified model to the absolute fit of the *independence model* – i.e., the most restrictive model possible, containing estimates of the variances of the observed variables only, in which all relationships between the observed variables are assumed to be zero. The greater the discrepancy between the overall fit of the two models, the larger the values of these descriptive statistics. TLI values close to 1 indicate a very good fit (Arbuckle & Wothke, 1999: 409), and for the model in figure 2, this value is 1.007. So, this is further evidence for a good fit of this model to the data.

3. *RMSEA*: the Root Mean Square Error of Approximation, a complicated statistic which primarily differs from TLI in the sense that it is based on a comparison of the values in the specified model to population means and covariance structures instead of to the independence model. There are several rules of thumb concerning this statistic, but in general, the closer the RMSEA value is to 0, the better the fit. Since the model in figure 4 has an RMSEA of .000, this statistic indicates a very good fit of the model.

Not only does the model fit the data, it also explains a satisfactory proportion of the variance in knowledge collecting (R^2 = .31) and knowledge donating (R^2 = .32) So what we can conclude on the basis of these analyses is that commitment is indeed an important influence on knowledge sharing – this variable positively influences the extent to which people both donate and collect knowledge in relation to their coworkers, providing support for hypotheses **1a** and **1b**. This relationship is, however, not recursive - contrary to what was expected in hypotheses 2a and 2b.

CMC use, this model confirms, is also a relevant influence on knowledge sharing. The model provides support for hypothesis **3b**, showing that CMC use positively influences the extent to which people collect knowledge. CMC use is, however, not related to donating knowledge, contrary to hypothesis 3a. Not only does CMC use affect knowledge sharing directly, it also does so through its influence on commitment: CMC use positively influences affective commitment to the organization, supporting hypothesis **4**. So in general, we can conclude that CMC use is an antecedent of organizational commitment, and that such organizational commitment is, in turn, an antecedent for knowledge sharing.

Finally, a relationship was found which was not hypothesized: the extent to which people collect knowledge from others positively influences the extent to which they also donate knowledge to others. Successful knowledge collecting, it would seem, is a condition for the willingness to donate one's own knowledge.

The way each of these variables was measured allows for a more detailed analysis of these relationships, since we can distinguish specific kinds of CMC use (i.e., e-mail and intranet use), and can specify both commitment and knowledge sharing for different levels of analysis. Separate scales could be constructed for commitment to a person's department and to the organization as a whole, as well as for knowledge collecting within and outside of the department, and knowledge donating within and outside of the department, respectively. Table 3 lists the results of the factor analyses for the knowledge donating and collecting scales. Table 4 presents the descriptives and items for the scale measuring commitment to the department.

INSERT TABLES 3 AND 4 ABOUT HERE

With this more detailed perspective, the model presented in figure 3 could be constructed.

INSERT FIGURE 3 ABOUT HERE

Although this model's fit to the data is less compared to the model in figure 2 (although both Chi square and Tucker-Lewis Index are satisfactory, the RMSEA statistic is only barely so), this fit is still sufficient. This model also has a stronger explanatory power compared to the model in figure 2 when we consider the knowledge sharing processes: R^2 = .48 for knowledge collecting within the department, R^2 = .38 for knowledge donating within the department, R^2 = .21 for knowledge collecting outside the department and R^2 = .38 for knowledge donating outside the department. Moreover, the model has a number of interesting implications.

First of all, the distinction between different modes of CMC use is clearly relevant. Where e-mail positively influences commitment to one's department, intranet use is primarily related to commitment to the organization as a whole. This can be explained from the different nature of both applications. E-mail, being an interactive medium, is appropriate for more intensive exchanges with a smaller group, whereas intranet is primarily appropriate for keeping up to date with what's going on in the organization as a whole.

Secondly, different levels of commitment have different influences on knowledge sharing. Logically, commitment to one's department positively influences both knowledge donating and knowledge collecting within that department, whereas commitment to the organization as a whole is positively related to knowledge collecting outside of the department. Also, we see that the extent to which a person feels committed to his or her department is a significant influence on his or her commitment to the organization as a whole.

Finally, this model gives a more detailed view of the relationships between knowledge collecting and knowledge donating. Both within and outside of the department, knowledge collecting positively influences knowledge donating – the more knowledge a person collects about the department or the organization, respectively, the more he or she is willing to donate knowledge to this environment as well. The relationship between the different levels is complicated: whereas knowledge donating within the department influences knowledge donating outside of the department, this is the other way around for knowledge collecting: there, collecting knowledge from outside of the department influences the extent to which one collects knowledge within one's own department.

CONCLUSION AND DISCUSSION

All in all, the answer to our research question is that CMC use is an antecedent of organizational commitment, and that such commitment, in turn, influences the willingness to both donate and collect knowledge. The conclusion we can draw from these results is that it is important to distinguish different processes of knowledge sharing (donating and collecting), different levels of commitment and knowledge sharing (organizational and departmental), and different modes of CMC use in order to get a full grasp of the relationship between commitment, knowledge sharing and CMC use.

Theoretical implications

The implications for theory are, first of all, that affective commitment is indeed an important determinant of knowledge sharing, specifically of knowledge donating. CMC use was also found to be a positive influence on commitment, lending support to theories which explain how the lack of social cues in CMC can create positive conditions for affective commitment. It is important, however, to realize that these relationships may become somewhat more complicated as successful CMC tools may replace the use of richer media such as face-to-face – which, despite the fact that a lack of social cues can work positively on these variables, may result in a less rich social climate in the organization, and through that, in less affective commitment.

The distinction between knowledge donating and knowledge collecting is an important distinction, which should receive more attention in theories about knowledge sharing. Furthermore, the distinction between the departmental and organizational level is also important in thinking about knowledge sharing in organizations – as practices are primarily shared at group or departmental level, commitment towards the department can be expected to be of a different nature than commitment to the organization.

Commitment to one's department means that a person is committed to a relatively small group, with which one shares practices. It would seem that this constitutes an active form of commitment, which leads to a desire to participate in creating the group's shared intellectual capital. Hence, the use of e-mail (being an interactive, *communications*-oriented medium) is related to this form of commitment as well as the willingness to both actively donate (contribute one's own intellectual capital) and collect (consult others' intellectual capital) knowledge.

Commitment to the organization as a whole might be a less active form of commitment. This form of commitment means one is interested in the organization's results, its image and such – it is a form of commitment to a context in which one likes to work, but not one that a person feels called upon to actively help create. People who are primarily committed to the organization as a whole like to keep themselves informed about that organization, but not so much to actively participate in the creation of its intellectual capital. Hence, the use of an intranet (being primarily a consultation medium) is related to this form of commitment, as well as the willingness to collect knowledge outside of one's department – but not the willingness to donate one's knowledge. The relationships in figure 3 seem to indicate that wanting to keep informed starts at the organizational level, while wanting to participate starts at the departmental level. This certainly warrants some further research in which these distinctions should be further explored.

Further research

A number of questions have been left unanswered by our analyses. First of all, commitment is a rather 'general' variable on the organizational level. A question that warrants further study is whether variables which are more directly related to the knowledge process itself influence knowledge donating and collecting. It can be expected, for instance, that an individual's awareness of knowledge needs within the organization (a variable also measured in our knowledge management scan) influences the extent to which he or she is willing to donate and receive knowledge. Knowing what others need to know, for instance, can be expected to positively influence willingness to donate knowledge. Having a good picture of one's own information needs, on the other hand, can positively influence collecting knowledge. So, fu-

ture research should focus on this variable of awareness of knowledge needs, and other variables which are more directly related to the knowledge process. Such awareness could also be expected to be related to commitment, so it could well be that this is an important mediating variable in these relationships.

Secondly, we focused exclusively on the role CMC plays in knowledge sharing. CMC, however, constitutes only one kind of instrument used for knowledge processes, next to face-to-face communication, information systems, libraries, HRM instruments et cetera. In order to justly determine the relative importance of CMC in explaining knowledge sharing, these other instruments should be included in the analysis as well. So, future research should measure a broad range of knowledge management instruments. Based on such measurements, it should also be possible to determine to what degree CMC comes to replace 'richer' instruments – and to determine what the influence of such replacement could be on commitment, communication climate and knowledge sharing.

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FIGURE 1
Hypothetical Model

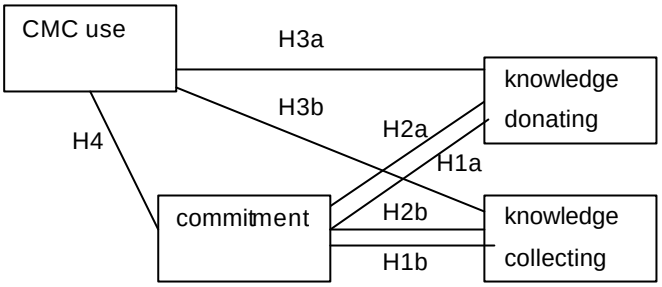
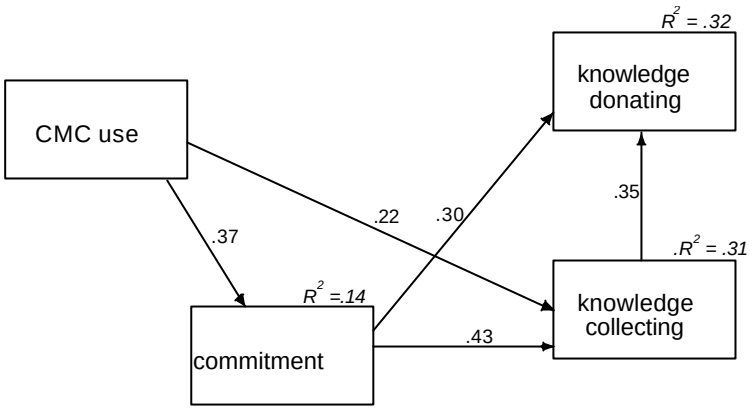
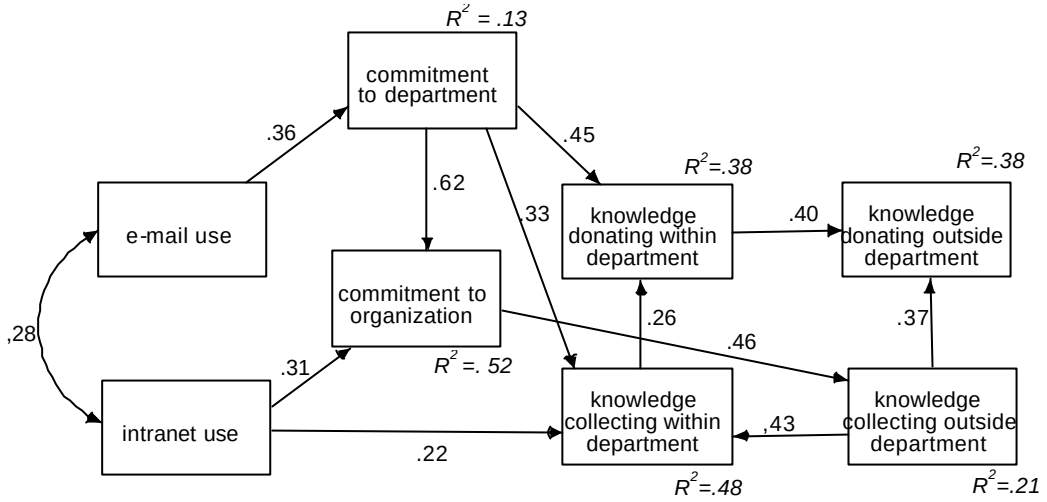


FIGURE 2
Empirical Model (total)



Model for the relationship between cmc use, commitment and knowledge sharing
Chi sq = ,426 (p=,514), Tucker-Lewis Index = 1,007, RMSEA = ,000

FIGURE 3
Empirical model specified for CMC use and for departmental and organizational level



Model for the relationship between commitment, cmc use and knowledge sharing - specified for department / organization level
chi square = 22,991 (p= ,114), TLI = ,990, RMSEA =,081

TABLE 1
Knowledge donating and knowledge collecting: scales and items

Scale	items	Mean	SD	Cronbach's alpha
knowledge donating		17.7	4.9	0.83
	When I've learned something new, I tell my colleagues in my department about it			
	When they've learned something new, colleagues within my department tell me about it			
	Knowledge sharing with my colleagues within my department is considered a normal thing			
	When I've learned something new, I tell my colleagues outside of my department about it			
	When they've learned something new, colleagues outside of my department tell me about it			
	Knowledge sharing with my colleagues outside of my department is considered a normal thing			
knowledge collecting		31.8	6.4	0.90
	I share the information I have with colleagues within my department, when they ask me to			
	I share my skills with colleagues within my department, when they ask me to			
	Colleagues within my department tell me what they know, when I ask them about it.			
	Colleagues within my department tell me what their skills are, when I ask them about it			
	I share the information I have with colleagues outside of my department, when they ask me to			
	I share my skills with colleagues outside of my department, when they ask me to			
	Colleagues outside of my department tell me what they know, when I ask them about it.			
	Colleagues outiside of my department tell me what their skills are, when I ask them about it			

TABLE 2
Commitment: scale and items

Scale	items	Mean	SD	Cronbach's alpha
Commitment		18.4	4.5	0.79
	This organization is a good organization for me to work for			
	I'm really concerned about how this organization is doing			
	I put in extra effort in order to make this organization succeed			
	I talk to my friends and acquaintances about this organization as a nice organization to work for			
	I take pride in telling others that I work for this organization			
	Most of the time, I can agree with the general course of this organization's management			

TABLE 3
Knowledge donating and knowledge collecting on different levels: scales and items

				Factor loadings	
Scale	**Mean**	**SD**	**Cronbach's alpha**	**within dep.**	**outside dep.**
Knowledge donating within department	10.0	3.0	0.85		
When I've learned something new, I tell my colleagues in my department about it				**.837**	.165
When they've learned something new, colleagues within my department tell me about it				**.885**	.221
Knowledge sharing with my colleagues within my department is considered a normal thing				**.836**	.218
Knowledge donating outside of department	7.7	2.8	0.81		
When I've learned something new, I tell my colleagues outside of my department about it				.322	**.804**
When they've learned something new, colleagues outside of my department tell me about it				.188	**.867**
Knowledge sharing with my colleagues outside of my department is considered a normal thing				.123	**.834**
Knowledge collecting within department	16.2	3.3	0.86		
I share the information I have with colleagues within my department, when they ask me to				.404	**.641**
I share my skills with colleagues within my department, when they ask me to				.467	**.602**
Colleagues within my department tell me what they know, when I ask them about it.				.146	**.918**
Colleagues within my department tell me what their skills are, when I ask them about it				.174	**.922**
Knowledge collecting outside of department	15.5	4.0	0.92		
I share the information I have with colleagues outside of my department, when they ask me to				**.905**	.178
I share my skills with colleagues outside of my department, when they ask me to				**.880**	.282
Colleagues outside of my department tell me what they know, when I ask them about it.				**.817**	.258
Colleagues outiside of my department tell me what their skills are, when I ask them about it				**.854**	.252

TABLE 4
Commitment to department: scale and items

Scale	items	Mean	SD	Cronbach's alpha
Commitment to the department		22.0	5.0	0.88
	This department is a good organization for me to work for			
	I'm really concerned about how this department is doing			
	I put in extra effort in order to make this department succeed			
	I talk to my friends and acquaintances aboutthis department as a nice organization to work for			
	I take pride in telling others that I work for this department			
	Most of the time, I can agree with the general course of this department''s management			