

MASTER THESIS

EMPLOYEES' VIEW ON HOW TO INFLUENCE THE OCCURRENCE OF INTER UNIT COMMUNICATION

A study conducted for the University of Twente and Involve, specialists in
internal communication

Conceptual paper for Journal of Knowledge Management

06-06-2014

Author:

L.M. Redeman (s1261924)
Master Communication Studies
University of Twente, the Netherlands
iredeman@gmail.com
06-53823392

Supervisors:

Dr. H.A. van Vuuren
Prof. dr. M.D.T. De Jon

UNIVERSITY OF TWENTE.

VOORWOORD

Na een bachelor Communicatie- en Informatiewetenschappen aan de Rijksuniversiteit Groningen, een master Communication Studies aan de Universiteit Twente en een afstudeerstage van tien maanden bij Involve, ligt hier het eindproduct van alle kennis die ik de afgelopen vijf jaar heb opgedaan. Zonder een aantal mensen had dit eindproduct er echter niet gelegen.

Allereerst wil ik natuurlijk de respondenten van dit onderzoek van harte bedanken. Zonder de tijd en energie die zij in het beantwoorden van mijn vragen hebben gestoken, had dit onderzoek hier nu niet gelegen. Angela, Bas, Beitie, Ineke, Janneke, Jessica, Jolien, Judith, Lizette, Lotje, Michel, Mirjam, Peter, Pieter, Taylan, Teunis, Valérie, Wieger en een aantal andere respondenten die liever niet met naam en toenaam genoemd wilden worden, enorm bedankt voor jullie bijdrage!

Daarnaast wil ik Involve graag bedanken. Nog geen jaar geleden kreeg ik de kans om in samenwerking met Involve afstudeeronderzoek te doen naar een onderwerp wat mij ontzettend boeide. Daarnaast heb ik tien maanden lang als stagiair mee mogen kijken bij en werken aan een interessante variatie aan opdrachten rondom interne communicatie. In korte tijd heb ik veel gedaan en geleerd van alle Involve collega's! In het bijzonder wil ik Eric Smilde bedanken, die mij steeds van feedback heeft voorzien en heeft geholpen om het onderzoek voor de praktijk interessant te houden.

Ook mijn twee begeleiders van de Universiteit Twente wil ik hartelijk bedanken voor hun inzet en de handvatten die zij boden om mijn onderzoek steeds weer een stapje verder te brengen. Mark van Vuuren voor de overlegmomenten die mij steeds weer op nieuwe, betere ideeën brachten om de juiste balans te creëren tussen de wetenschap en praktijk. Deze momenten hebben me gedurende de afgelopen tien maanden vaak flinke stappen verder geholpen. Menno de Jong heeft geholpen met de laatste puntjes op de i; de kritische blik tijdens de laatste maand heb ik erg gewaardeerd.

En verder zijn er dan nog de mensen die me het afgelopen jaar, en/of de jaren daarvoor hebben bijgestaan en gesteund. Allereerst mijn ouders, die me de nodige genen en opvoeding hebben meegegeven om mijn opleiding af te ronden en daarbij ook in vele andere vormen ondersteuning hebben geboden. Mijn broertje, Mark, die met zijn fascinatie voor wiskunde en lange verhalen over hoe je wiskundig kan verklaren waarom zwemmende eendjes een V-vorm achter zich aan kunnen krijgen, toch ook mijn bèta-knobbel in stand probeert te houden en mijn interesse in communicatie tussen verschillende vakgebieden blijft aanwakkeren.

Ook wil ik Natascha, Sara en Suzanne bedanken. Zij hebben de afgelopen vijf jaar al het harde studeren een stuk plezieriger gemaakt en voor de nodige afleiding gezorgd tussen al onze drukke agenda's door. Mijn commissiegenootjes Janneke, Jeroen, Joyce, Koen en Marit, verdienen ook een vermelding in dit dankwoord. Zij zijn op momenten enorm geduldig en begripvol geweest en hebben de afgelopen anderhalf jaar voor een hele plezierige samenwerking gezorgd. Over nog geen maand zal onze samenwerking haar vruchten afwerpen en de door ons georganiseerde studiereis naar Indonesië ongetwijfeld een groot succes worden!

Tot slot verdient mijn vriend Mark nog een eigen alinea. Hij is misschien wel het meest geduldig en begripvol geweest van iedereen, als ik weer eens een nachtje door ging werken om een studie- of stageopdracht tot in de puntjes te perfectioneren. Ook is hij een waardevolle sparringpartner geweest die me op momenten uit mijn tunnelvisie heeft geholpen, altijd kritisch mee heeft gedacht en even kritisch mee heeft gelezen.

Lisanne Redeman
Amersfoort, 6 juni 2014

Samenvatting

Doel: Het doel van dit onderzoek is het identificeren van factoren waarvan werknemers denken dat ze het plaatsvinden van Inter Unit Communicatie beïnvloeden, om uitgebreide en diepgaande informatie te verschaffen over hoe deze factoren in de praktijk voorkomen en hoe deze factoren kunnen worden beïnvloed.

Methodologie: De onderzoeksdoelen zijn behaald door twee onderzoeken uit te voeren: eerst is een Delphi studie uitgevoerd. Resultaten van dit onderzoek zijn aangevuld met een tweede onderzoek die bestond uit kwalitatieve semigestructureerde diepte-interviews.

Resultaten: Negen factoren zijn geïdentificeerd als factoren die volgens medewerkers het plaatsvinden van IUC beïnvloeden: 'duidelijkheid van verantwoordelijkheden en werkzaamheden', 'medewerker', 'leidinggevende', 'gezamenlijk voordeel voor IUC', 'organisatiesfeer', 'organisatiestructuur', 'fysieke omgeving', 'ondersteuning' en 'tijd'. Naast een directe invloed op het plaatsvinden van IUC, hebben deze factoren ook invloed op elkaar, en kunnen ze dus ook indirect invloed hebben op het plaatsvinden van IUC.

Praktische implicaties: Organisaties kunnen de resultaten gebruiken om beter te begrijpen waarom IUC wel of niet plaatsvindt in organisaties, en hoe dit veranderd kan worden als dat nodig is. Dit zal uiteindelijk leiden tot meer succesvolle organisaties.

Originaliteit: Omdat data verzameld is vanuit tien verschillende organisaties, vermindert dit de interfererende invloed van verschillende organisatiekenmerken op het identificeren van de factoren. Daarnaast zijn de resultaten niet gebaseerd op secundaire observaties van managers, maar komen deze direct van de primaire bron die de IUC zelf uitvoert.

Abstract

Purpose: The purpose of this research paper is identifying which factors employees thought to be of influence on the occurrence of Inter Unit Communication, to give extensive in depth information about how these factors emerged in practice and how these factors could be influenced.

Methodology: The research goals were achieved by conducting two studies: first, a Delphi study was conducted. Results from this study were complemented with a second study which consisted of qualitative semi-structured in depth interviews.

Findings: Nine factors were identified of which employees thought they influenced the occurrence of IUC: 'clarity of responsibilities and work activities', 'employee', 'manager', 'mutual benefit for IUC', 'organizational ambiance', 'organizational structure', 'physical environment', 'support', and 'time'. Next to a direct influence on the occurrence of IUC, these factors also influence each other, and could thus also indirectly influence the occurrence of IUC.

Practical implications: Organizations can use these findings to better understand why IUC does or does not occur in organizations, and how this could be changed if necessary. This will ultimately lead to more successful organizations.

Originality: Because data was collected from ten different organizations, this diminished the interfering influence of various organizational characteristics on identifying the factors. Furthermore, due to the self-reporting view of the employee, the findings were not based on second handed observations of managers, but they came straight from the primary actors in IUC.

Keywords: inter unit communication, interdepartmental, knowledge sharing, knowledge transfer, knowledge management, horizontal communication

Article Classification: Research paper

Introduction

In the rapidly changing environment of today, the sharing of knowledge between organizational units becomes more and more important. The rise of the internet and Social Networking Sites have drastically changed the scope, boundaries and dynamics of social interactions. They provide a platform to support individual communication which is unrestricted to the constraints of time and space. This has led to a new communications environment. An environment in which mass self-communication is becoming more prominent (Castells, 2013; Chang & Chuang, 2011). Employees in an organization used to receive one-directional and top-down mass communication. Nowadays, they are able to decide for themselves what information they want to receive at what moment and they are able to immediately share their opinions on the received information.

Rahman (2011) argued that these changes are transforming the way organizations behave and react. Nooshinfard and Nemati-Anaraki (2014) explained that due to these changes, organizational success is going to be based upon how organizations acquire, use and share knowledge effectively. According to Castells (2013), this evolution causes a shift in organizations from communicating vertically to communicating horizontally or diagonally. Due to this cultural change and the development of modern technologies, employees are able to share the information they possess with a wider audience more rapidly. Twenty years ago, knowledge sharing with employees in other geographical locations took a lot of time and effort, but today we are able to simply start a video-conference call via Skype, share our documents via Dropbox or simultaneously edit our documents via SharePoint. Thus, the opportunities for horizontal or diagonal communication between different units are much improved, which can make employees' execution of daily tasks a lot easier.

Besides easing employees' execution of daily tasks, communicating with other units and sharing knowledge with each other also offers various advantages for the organization. Amayah (2013) stated that it significantly impacts the performance of both public and private sector organizations. It results in a higher productivity, lower production costs, better team performance, a higher chance of organizational survival, higher levels of innovativeness and offers a fundamental for competitive advantage (Burgess, 2005; Lovelace et al., 2001; Makela et al., 2007; Rahman, 2011; Wang & Noe, 2010). Nooshinfard and Nemati-Anaraki (2014) even argued that in today's highly competitive environment, effective knowledge sharing will be vital for organizational success. Bringing together persons with differing expertise, allows them to absorb information and facilitates creativity and a better product transfer to the market. Such teams tend to innovate and create organizational success more efficiently, i.e. within a budget and time frame (Lovelace et al., 2001).

O'Dell and Grayson (1999) mentioned two examples of knowledge sharing which resulted in enormous money savings: thanks to sharing best practices, the firm Chevron was able to reduce its operating cost structures by more than \$2 billion in the last seven years. Another example is Texas Instruments. By comparing and transferring best practices among its thirteen fabrication plants, Texas Instruments was able to increase its annual fabrication capacity by \$1.5 billion (p.11).

In order to achieve the beneficial organizational goals through knowledge sharing with other units, employees need to go beyond their prescribed role requirements. They have to perform other activities that are also essential but discretionary and not usually prescribed. Motowidlo and Van Scotter (1994) described this as 'contextual performance'. Contextual activities include

voluntarily carrying out activities that are not formally part of the job, but involve cooperation and helping others in the organization to get tasks accomplished (Borman & Motowidlo, 1997; Motowidlo & Van Scotter, 1994). Amayah (2013) and Chang and Huang (2011) agreed that sharing knowledge with other units is often voluntary and will only happen out of the employee's good will. Especially when it does not offer something in return for the employee. Motowidlo and Van Scotter (1994) believed that variables such as job satisfaction, mood, and stress, could have important causal effects on employees' contextual performance. Thus, just because the technology aiding knowledge sharing between units has improved, it does not necessarily mean that employees will automatically start sharing knowledge with other units to benefit the organization. In a recent study, Wang and Noe (2010) confirmed that many organizational units still fail to share their knowledge effectively. According to them, billions of dollars are lost as a result of these failures. They argue that an important reason for these failures, is that organizations do not know how the sharing of knowledge is influenced by the organizational and interpersonal context, as well as individual characteristics. Amayah (2013) agreed: she argued that it is essential for organizations to understand the factors influencing employees' willingness to share knowledge.

Inter Unit Communication

As was determined, in the changing communication environment it is beneficial for organizations that employees share their knowledge. Because not all organizations already succeed in facilitating this, information about why employees will, or will not communicate with other units to achieve these specific organizational benefits, would be valuable. The combination of horizontal and diagonal communication between various organizational units, focused on achieving (specific) organizational objectives, is in this paper called 'Inter Unit Communication' (or: IUC).

A 'Unit' can have varying manifestations. Organizations are often divided in units based on products, markets, geographical areas or a combination of these factors (Allen, 1979; Mintzberg, 1980). These units can have different cognitions, goals, values and priorities, which can make communication between them difficult (O'Neil et al., 2001). IUC can exist between all these different units: it can exist between large business units, but also between organizational departments or between teams within a department.

It was established that Inter Unit Communication can have important benefits for organizations. In order to realize those benefits, IUC should occur first. In this research, it is examined why IUC does or does not occur. This creates a better understanding of 1) why enablers and barriers influence the occurrence of IUC, 2) how these enablers and barriers influence the occurrence of IUC, and 3) how the enablers and barriers can be influenced in order to improve the occurrence of IUC in other situations.

Enablers and barriers found in previous literature

Identification with the unit or organization

Various researchers have found barriers that could hinder the occurrence of IUC. For starters, it was found that the more an employee identifies with the organization, the greater the likelihood that the employee will behave in ways that benefit the firm (Burgess, 2005; Dutton et al., 1995). Unfortunately, Reade (2001) found that employees generally tend to identify more strongly with their own unit, than with the organization as a whole. This could be a problem when the expected result of IUC will not benefit the employee's unit, or when the benefit of the result is not clear. Fisher et al. (1997) found similar results: employees in their study identified more with their

subunit than with the organization as a whole. Therefore, they were less likely to share information outside their subunits. Over the course of twenty years, not much seems to have changed. In a more recent study, Lomi et al. (2014) also found that organizational members who identified more with their subunits, were more likely to seek advice within their subunit, instead of outside of it. When the organizational members identified more strongly with the organization as a whole, they tended to consult sources outside of their units more. Lomi et al. (2014) found that this applied to both employees and managers.

Ambiance & relationships

The ambiance in the organization and the relationship between various units are also of influence on the occurrence of IUC. According to Tjosvold (1988), and more recently Tsai (2002), a high competition between units has a negative effect on IUC. When different units pursue the same goals, instead of pursuing competing or independent goals, they share more knowledge and ideas, they perform their tasks in a better way, they develop positive feelings and they become more confident (Tjosvold, 1988). Corresponding with these findings, Evans (2013) argued that a shared vision is one of the most important factors to influence employees' willingness to share knowledge.

Relationships also influence the occurrence of IUC. Goh (2002) stated that if the relationship is distant or the communication is difficult, IUC will occur less likely. Makela et al. (2007) even argued that interpersonal similarity is one of the key drivers behind knowledge sharing. Auh and Menguc (2013) agreed: they studied salespeople and found that when their relationships with coworkers outside the sales unit were of a higher quality, they engage in IUC more often. Their willingness to voluntarily share their knowledge with the other units increased. When these relationships were nonexistent, or of bad quality, they needed to be motivated extrinsically by economic rewards, for example, in order to engage in IUC. Therefore organizations should pay attention to relationships between its employees and need to invest time and resources in training to ensure that employees with the same skills and knowledge capacities can build a close relationship (Goh, 2002).

Leadership

While good relationships improve the occurrence of IUC, Marschan et al. (1996) also argued that the nature of both personal networks and informal communication makes control difficult for the organization's management. This may be the cause why management is not always requiring or fostering horizontal communication across units. This is unfortunate, since Han and Anantatmula (2007) found that leadership support influences IUC. Wang and Noe (2010) agreed: they argued that leadership support is critical for the success of knowledge sharing initiatives. When managers do not support IUC, this has a negative influence on the occurrence of IUC. Therefore, Wang and Noe (2010) reasoned that organizations should require and reward managers for providing the necessary support for encouraging IUC among employees. Marschan and Charles (2002) observed that in many firms it is encouraged, though.

Organizational structure and technological support

Related to organizational leadership, the structure of the organization also influences IUC. Marschan et al. (1996) found that a higher degree of decentralization accompanied by a reduction in hierarchical levels, leads to intensified and effective horizontal communication across units. Tsai (2002) and Goh (2002) agreed. Tsai (2002) found that a formal, hierarchical structure with a high degree of centralization, has a significant negative effect on knowledge sharing between units. Goh (2002) added that organizations that maintain hierarchical levels and silos will not encourage IUC. Willem and Buelens (2009) also found the organization's structure and formality to be of influence on the amount of IUC. They added that the relationship between

structure and knowledge sharing is more nuanced and complex than previously thought, though. They supposed that there are more factors at play, such as the environment, the type of knowledge shared, the needs there are for knowledge sharing and various psychosocial factors. Han and Anantatmula (2007) mention that the factor ‘technology’ also influences IUC. The availability and usability of the right information systems, infrastructures and info structures that support and facilitate IUC, has a positive influence on the occurrence of IUC (Han & Anantatmula, 2007; Rahman, 2011). Goh (2002) even mentioned that this is necessary when the organization is widely dispersed.

Motivation of the individual employee to engage in IUC

The motivation of the individual employee is also found to be of significant importance for the occurrence of IUC. Rahman (2011) explained by arguing that employees need to be convinced about the benefits that IUC would bring to the organization. When they do not understand these benefits, this will result in hesitance to engage in any further IUC practices. Burgess (2005) even went to say that the individual employee motivation is the most important factor that determines whether IUC will happen or not. Caligiuri (2014) confirms the importance of employees’ motivation. Based on Mindbaeva et al.’s (2003) article, she argues that human resource management practices are important in enhancing motivations.

When the individual fears that IUC may have negative individual consequences, employees are less likely to engage in IUC. This may be the case when employees fear punishment or criticism because they could not achieve the organizational goals on their own, when they fear that the shared information could be used against them, or when they are not sure that their contributions are important, completely accurate or relevant to the specific situation (Ardichvili et al., 2003; Burgess, 2005, Gagné & Deci, 2005). Ardichvili et al. (2003) found that to remove such barriers, various types of trust should be developed. Han and Anantatmula (2007) argued that motivating structures would help. Burgess (2005) said the same thing and argued that companies that were successful in transferring knowledge across work units, were companies that had been able to motivate its members to contribute their knowledge to the collective good.

Researchers disagree on how employees should be motivated to engage in IUC, though. For example, Cruz et al. (2009) found that intrinsic motivation was more important than extrinsic motivation. They argued that most individuals desire more from their jobs than simple extrinsic compensation and that intrinsic motivation implies employees’ commitment to the organization. However, other researchers found that when employees receives extrinsic rewards (for example: economic rewards, reputation feedback, and reciprocity) for engaging in IUC, they tend to engage in IUC more (Burgess, 2005; Hung et al., 2011). And while Hung et al. (2011) found that reputation feedback is crucial for successful knowledge sharing, Chang and Chuang (2011) found that it did not have a positive effect on the quantity of knowledge sharing. These differences might be explained by the selected research sample. Since both Burgess’ (2005) and Cruz et al.’s (2009) studies were conducted in one organization; and whereas Burgess (2005) study was conducted in a profit organization, Cruz et al.’s (2009) study was conducted in a non-profit organization. Differences in their results could be attributed to a difference in organizational characteristics.

Contribution to current research

It was notable that a lot of research on Inter Unit Communication or knowledge sharing between units, had been conducted in only one organization (Amayah, 2013; Ardichvili et al., 2003; Burgess, 2005; Cruz et al., 2009; Tsai, 2002). This way, differences caused by various organizational characteristics of these specific organizations, might have gone unnoticed. Han

and Anantatmula (2007) and Willem and Buelens (2009) both conducted research in two organizations. But, although they were able to compare results from organizations with different characteristics, they did not provide some in depth information about the factors influencing IUC. Makela et al. (2007) conducted in depth case studies in three organizations. However, they only focused on the factor ‘interpersonal similarity’. Duan et al. (2010) did collect data from various organizations and on various factors influencing IUC, but they were too succinctly in presenting their finding and they specifically focused on knowledge sharing between units that were located in different locations. Thus, in their research, they found barriers based on differences in language, culture, and politics. Because these differences do not exist with IUC ‘in general’, their results are not applicable for all IUC situations.

What was still missing was a research that tries to give in depth information about multiple factors influencing IUC, based on data collected from multiple organizations. This research contributes to the existing knowledge about IUC by collecting data from multiple organizations and providing in depth information about the influencing factors. It used a similar method as Duan et al. (2010) used. Only where they presented their respondents with a fixed list of factors to choose the most important ones from, this research encouraged the respondents to determine themselves which factors they thought influence the occurrence of IUC.

What has also not yet been fully explored and understood, are factors influencing IUC on a micro-level. According to Foss et al. (2010), often factors influencing knowledge sharing were examined which were macro-level factors, thus on an organizational level. They argued that understanding how the factors work on the organizational level, can only be achieved by understanding the factors on the individual level (i.e. the employees) though. Since ultimately the individuals are the ones that engage in IUC or not. Wang and Noe (2010) and Rahman (2011) shared the opinion of Foss et al. (2010). They also thought that the experiences and opinions of employees themselves are important sources of knowledge to create a better understanding of the occurrence of IUC. The researchers believed the perceptions and beliefs of employees were vital for this. However, out of the 100 studies Foss et al. (2010) reviewed, 81 of them were concerned with organizational level factors, very few paid attention to the micro-foundations of these factors. Therefore, they called for future multi-level research which would collect data at different levels of analysis.

In addition, Foss et al. (2010) argued that current studies on knowledge sharing, often do not make explicit what the results mean in managerial terms. They say most research does not give answers to how management can establish and nurture a culture or climate that fosters IUC. Foss et al. (2010) thought that research focused on a micro-level could provide results that are also meaningful for managers.

Based on these advices or shortages of other researchers, this research focused on the employees’ view on the occurrence of IUC. It focused on what employees perceive as factors influencing IUC and how they think these factors may be influenced in order to enhance the occurrence of IUC. This provided insights on both a micro-level and a macro-level and therefore created a better understanding of how these factors occur in practice. This provided useful managerial insights as well. This was realized by finding an answer to the following research question:

How do employees think the occurrence of IUC can be influenced?

This question was answered with the aid of two studies. The first one was a Delphi study. This study aimed to develop a list of factors that influence the occurrence of IUC, according to

employees of different organizations. This study also provided some background information about these factors. With qualitative in depth interviews with employees of two different organizations, more information was collected on the identified factors in the first study. This second study resulted in extensive background information on how the factors occur into practice and how they could be influenced. The results of both studies combined lead to relevant insights into employees' view on how the occurrence of IUC can be (positively or negatively) influenced. Finally, this lead to information for organizations on what they can do to encourage their employees to engage in Inter Unit Communication, in order to increase the organizational success.

Study 1

The main goal of the first study was generating a list of the most influential factors that influence the occurrence of IUC. Next to that, in this part, some additional information was gathered about in what kind of situations IUC occurs, in what way the factors influence the occurrence of IUC and how these factors could be influenced. Results from the first study provided input for the second study.

Procedure

The goals of the first study have been achieved by executing a Delphi study (Linstone & Turoff, 1975; Okoli & Pawlowski, 2004). The Delphi study consisted of four digital questionnaires which were sent to the participants consequentially over the period of three weeks; the answers to each questionnaire provided input for the next questionnaire.

1. With the first questionnaire, it was aimed to collect a broad scope of factors that could possibly influence the occurrence of IUC. This was achieved by asking the participants which factors they thought could have a positive or negative influence on the occurrence of IUC. They were also asked to describe a situation in which IUC occurred, in order to check whether they were really thinking of the IUC as was meant in this research.
2. With the second questionnaire, it was aimed to reduce the number of factors by selecting the factors that the participants rated most important. In order to achieve this, all named factors of the first question round, were fed back to the participants, after which they were asked to grade every positive (enabling) and negative (hindering) factor on the extent to which they thought it influenced the occurrence of IUC. The grade '1' could be given when they thought the factor did not influence the occurrence of IUC at all; the grade '10' could be given when they thought the factor influenced the occurrence of IUC a lot. The highest scoring factors were meant to be selected.
Because all factors were given a relatively high score, reducing the number of factors by selecting them on their grades appeared to be no proper solution. Therefore, the researcher categorized the factors into 10 hindering factors and 11 enabling factors.
3. With the third questionnaire, it was aimed to gain more background information about the factors and it was attempted again to reduce the number of factors by selecting the most influential factors. This was achieved by asking the participants to give their opinion on the categorized factors, to rank the categories from 'most influential' to 'least influential', and to give each categorized factor a definition.
The ranking in the third question round also did not provide significant scores to reduce the number of factors. Therefore, it was decided that each of the factors were too important and the number of factors would not be tried to reduce any further. However, the ranking scores were still used to determine the six most negative factors for which the participants had to give a possible solution in question round four.
4. With the fourth questionnaire, it was aimed to finalize the definitions of the factors, and to gain some information on how to influence the six most negative factors. This was achieved by showing the participants a definition for each factor, based on the definitions provided by the respondents in the third question round. The participants were asked to evaluate that definition. In addition, they were presented with the six most negative factors and were asked to give their opinion on how to stimulate these factors.

One of the most important conditions of a Delphi study is that the participants remain anonymous. Therefore, in each of the questionnaires, it remained unknown for the participants which answers were provided by which participant. This has the advantage that participants could give their opinions more freely and that they would not have to feel obstructed by matters such as group pressure, conforming to the opinion of the researcher, or conforming to other participants with a more dominant personality or a higher authority than other participants.

Participants

Participants were selected who clearly understood the concept of IUC, who often came across situations in which IUC occurred, or should occur, and they should be able to reflect upon the research subject. This resulted in a sample of fourteen professionals who worked in ten different organizations. The organizations were all very different. The sample included participants who worked in commercial organizations, but also participants who worked governmental institutions. The size of the organizations varied between 145 and 28.000 employees. Among the organizations belonged a bank, two large governmental organizations, a publishing company, a university, a housing corporation, a dairy producer, two hospitals and a foundation for primary education. Due to the difference in organizations, different organizational characteristics could be taken into account, which made the research more generalizable. The first, second and fourth question rounds had response rates of 100%. The third question round had a response rate of 93%, since one of the participants was not able to participate in this round.

Analysis and results

Question round 1

Participants all described examples of situations in which IUC (should have) occurred, which proved that they understood the research subject. Most examples of such situations were about the development or implementation of new products or organizational policies. One of the situations is illustrated below:

“In my organization, managers need to cut some money again. Each manager could get started individually, but he or she could also bring the employees from different departments together. In order to work together to think about what would be the best money saving choices. When you are working lower in the hierarchy, you can often see much faster what other departments are not doing as efficiently as possible, and what things could improve.”

All participants together named 69 enabling factors and 60 hindering factors. Many of the factors mentioned by the individual participants, showed similarities with factors mentioned by other participants. Factors which were very similar, were merged. For example, “all being on the same page”, “interests” and “mutual interests” were merged into the enabling factor “mutual interests” and “not knowing who to approach” and “uncertainty about contact person” were merged into the hindering factor “contact person is unknown or unclear”. This resulted in 35 enabling factors and 36 hindering factors.

Because some participants also mentioned that the opposite of an enabling factor would be a hindering factor, or vice versa, one enabling factor (“own behavior and image”) and three hindering factors (“receiving little appreciation of manager”, “little understanding of each other’s work activities”, and “absence of clear contact information of employees”) were added. This resulted in a list of 36 enabling factors and 39 hindering factors with descriptions based on those of the participants.

Question round 2

As can be seen in figure 1, all factors were scored pretty high by the participants. A lot of high grades were given. The average score of all the answers was 7,5 for the enabling factors and 7,3 for the hindering factors. For individual enabling factors, the lowest average score was 6,4 (“small organization”) and the highest score was 8,6 (“presence of clear contact information of employees”); for individual hindering factors, the lowest average score was 5,6 (“not knowing each other”) and the highest score was 8,4 (“not fulfilling agreements”). This caused it to be difficult to reduce the number of factors solely based on the average scores per factor.

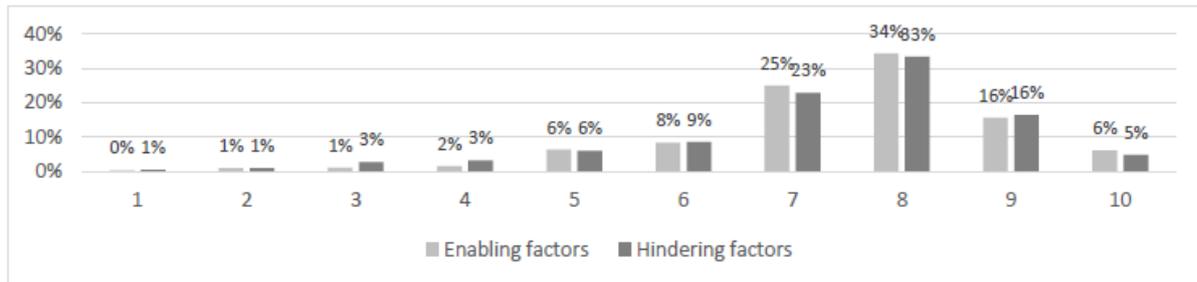


Figure 1: Percentage of grades given to individual factors in QR2.

In order to still be able to reduce the number of factors, the researcher categorized the factors into a smaller number of factors based on the descriptions from the first question round. Factors which were put in the same category, were similar to each other. Because all factors were scored on approximately the same level of importance, it was possible to make this choice. Because when one factor would have been valued as ‘not important’ and another as ‘very important’, this meant they had a very different influence on the occurrence of IUC and would thus be too different from each other. From the results of question round 2, it appeared that this was not the case. The categorizing eventually lead to 11 enabling factors and 10 hindering factors. This includes a ‘residual category’ named “other organizational characteristics”, since the participants had mentioned some factors that could not be categorized in any of the other categories. Each of the factors was given a name by the researcher based on the original factors that belong to the category. A list of the categorized factors and examples of original factors belonging to the category, can be found in table 1 and 2:

Enabling factors	Example of an original factor
Added value of IUC	“Seeing the added value of IUC”
Behavior of employee	“The helpfulness or collegiality of the employee”
Characteristics of employee	“Assertiveness of the employee”
Clear responsibilities and work activities	“Responsibilities, work processes and guidelines are clear and known in the organization”
Good ambiance	“Knowing each other”
Good supporting equipment	“The presence of good means of communication and internal systems that help IUC”
Informal organization	“Responsibilities are delegated by the manager”
Leadership style	“Trust of the manager”
Organizational structure	“Organizational structure is suitable for IUC”
Other organizational characteristics	“Physical proximity”
Time	“Having time”

Table 1: Categorized enabling factors

Hindering factors	Example of an original factor
Leadership style	<i>"Leadership style is aimed at controlling and judging"</i>
Bad ambiance	<i>"Distrust within the unit"</i>
Behavior of employee	<i>"The employee is putting his/her own needs first"</i>
Unclear responsibilities and work activities	<i>"Little to no communication about one's work and occupations"</i>
Formal organization	<i>"Too many management layers in the organization"</i>
Bad supporting equipment	<i>"Bad or outdated means of communication"</i>
Characteristics of employee	<i>"A dependent employee"</i>
No added value of IUC	<i>"Conflict of interests"</i>
Time	<i>"A high workload"</i>
Other organizational characteristics	<i>"Many part-timers"</i>

Table 2: Categorized hindering factors

Question round 3

Participants did not give any criticism in response to the categorizing; they agreed with it. After they provided definitions for each categorized factor, the definitions were merged into one definition per categorized factor. It was tried to include as many elements of all the definitions as possible. Most definitions already showed much similarity, but some participants offered some interesting nuances which were also included in the definition. Based on the responses, ranking orders were tried to be composed, but again, there were no large differences between the ranking scores. Therefore, it was decided that each of the factors were found to be too important and that the number of factors would not be tried to reduce any further.

Question round 4

In question round four, participants evaluated the definitions for each factor. From these evaluations, two things stood out:

- Many participants felt that the difference between ‘behavior or employee’ and ‘characteristics of employee’ was not clear and that there was much similarity between these two factors. Therefore, these factors were combined into the factor ‘employee’.
- The definitions for the enabling factors and the hindering factors, were very similar. For example, the definition for the enabling factor ‘clear responsibilities and work activities’ was: “The various processes and roles and the associated responsibilities and tasks are clear and visible throughout the whole organization. This causes everyone to know who possesses which knowledge and who is the right contact person. There is also agreement on this: both parties have the same expectations and show understanding for each other’s work.” While the definition for the hindering factor ‘unclear responsibilities and work activities’ was: “The various processes and roles and the associated responsibilities and tasks are unclear or invisible throughout the whole organization. This causes not everyone to know who possesses which knowledge and who is the right contact person. When this is the case, employees informally approach colleagues they know.” Therefore, it was decided to combine the enabling and hindering definitions into one, neutral definition for each factor and to see every factor as a bipolar factor: it can emerge in both a positive, and a negative way. Originally, there was no hindering factor for ‘organizational structure’. The definition for ‘organizational structure’ was also

neutralized, though. In the next study, it was checked whether this factor could also have a negative influence on the occurrence of IUC

Furthermore, the definitions were slightly altered, based on the participants' remarks. The definitive definitions for the factors in alphabetical order can be found in table 3. Since the in depth interviews provided more insight into the factors, these definitions were later complemented based on the results of study two.

Factor	Definition
Added value of IUC	The extent to which IUC offers an added value, and the extent to which this is clear and recognized.
Clarity of responsibilities and work activities	The extent to which the various organizational processes, roles and the associated responsibilities and tasks are clear and visible throughout the whole organization.
Employee	The employee's personality and abilities which lead to how the employee acts towards IUC. For one part, this is something naturally, for the other part, this can be taught and managed.
Formality of the organization	How formal and hierarchical the organizational culture is, how many layers of management the organization has and the amount of responsibility that is delegated to the employees.
Leadership style	The extent to which the leadership style stimulates or hinders IUC.
Organizational ambiance	The ambiance in the organization as a result of various internal and external events.
Organizational structure	The structure of the organization and the current formal collaborations.
Other organizational characteristics	Other organizational characteristics which influence IUC, such as the size of the organization or the physical proximity of employees.
Support	The extent to which IUC is supported by internal (communication) systems, contact information and the extent to which these are right and clear.
Time	The amount of time employees (think they) have or get to engage in IUC.

Table 3: Definitions for the 10 factors influencing the occurrence of IUC.

Lastly, the participants were also asked to provide solutions to the most influential barriers for the occurrence of IUC. The provided solutions were merged with the more detailed description of the factors and the solutions offered in the interviews of study two.

Study 2

The primary goal of the second study was gaining more profound and detailed information about how the factors are influencing the occurrence of IUC and how these factors can be influenced themselves. In addition to that, the second study would also provide being a test on whether or not the list of factors found in study one is complete and correct

Procedure

These goals have been achieved by conducting nine semi-structured qualitative in depth interviews (Baxter & Babbie, 2004). The interviews lasted approximately one hour. Before the start of the interviews, subjects which should be discussed during the interview were identified. Subsequently, some questions in those directions were developed. During the interview, the researcher could always deviate from these questions, though, when the participants' answers provided reason for it. The outline for the interviews was as followed:

- First, the participant was asked to tell something about his work and organization. This aimed to let the participant speak more freely and provided needed information which allowed the researcher to understand the context in which the participant worked.
- Subsequently, the participant was asked to describe some examples of situations in which IUC occurred, or should have occurred. The participant was asked why IUC did, or why it did not occur. This section provided information about which influencing factors the participants could think of from the top of their mind. It was not yet directed or biased due to explicit questions about the factors found in study one.
- Next, the participants' mindset was altered into a 'solution focused' mindset, by asking some questions based on De Shazer's Solution Focused Brief Therapy Theory (De Shazer et al., 2007). Participants were asked to imagine a situation where IUC occurred perfectly, and they were asked what was different in that imaginative situation as opposed to the current situation. In addition, they were asked to rate the current situation on a scale from '1' to '10', in which '10' equals the imaginative situation. After the participants indicated where on the scale they stood, they were asked what would be necessary to improve IUC in their organization with one point.
- Subsequently, more detailed questions were asked about a few of the factors found in the first study. Often, during the rest of the interview, these factors – or a variation – would have already come up and then they would have also been asked. The detailed questions were about how the factor influences the occurrence of IUC, what kind of effect the factor has on IUC, whether the participant could think of an example, and how the participant would think the factor can be influenced.
- At the end of the interview, the participant was asked to summarize the interview by citing what he or she thought were the three most influential factors for the occurrence of IUC.

Participants

Nine participants took part in study two; they originated from two different organizations. These organizations had also taken part in the first study. Per organization, one participant took part in both the first and the second study; the other seven participants were new to the research. Participants were nominated by key informants who were asked to select employees whom they believed could tell a lot about the research subject. The two organizations were chosen because their core business differed a lot: five participants worked in a hospital, the other four participants worked in a publishing company. The size differed also; while the hospital had approximately 10.000 employees, the publishing company had approximately 350 employees. These differences were important for the generalizability of the research.

Analysis and results

The interviews were tape recorded and transcribed. Afterwards, they were analyzed by selecting every moment a participant said something about the occurrence of interaction between employees of different units. In the nine interviews, 366 of such moments were found. An example mentioned by one of the respondents that clearly illustrates a situation in which IUC should have occurred is stated below:

“In my company, three independent units had an interest in starting a particular project. However, the units did not know this from one another, and thus they were independently trying to achieve the same goal at the same time. All three units had prepared a budget plan; sadly, all three budget plans were rejected because other projects seemed more important for the organization. Had the three units known they were all interested in the same project, they could have shared their findings with one another and they could have supported each other, which would have led to a better budget proposal in which the importance of the project for the organization would have become much more clear. Then, the management would probably have accepted the joint proposal. Unfortunately, the units now have to wait a whole year to be able to hand in their proposals again.”

Adjusting the list of factors

The researcher categorized all 366 moments into overarching categories. It was tried to categorize them into the ten factors found in study one, but it was also possible to add or change the overarching categories when the data provided reason for this. Since it did, one factor was added, one factor was removed, and the naming and definitions of a few factors were changed to better accommodate the meaning of the factors. An overview of the changes and the reasoning behind them can be found below:

- A new factor ‘physical environment’ was added: Originally, this factor belonged to ‘other organizational characteristics’; however, this factor was mentioned 40 times in the interviews by seven of the nine participants as a factor influencing the occurrence of IUC. Participants mentioned that “It is difficult collaborating with a unit that is located far away on another floor.” or “Due to a more open physical environment, it was proven here that people could more easily find each other and everybody became more accessible.” Therefore, this factor was considered to be important enough to become a new factor.
- The factor ‘other organizational characteristics’ was removed: After ‘physical environment’ had become a separate factor, the ‘factor’ ‘other organizational characteristics’ became a rather vague, residual factor which existed of incoherent examples that were named only one or two times or by only one participant. Examples such as pressure from outside of the company (stakeholders, investment companies, et cetera), reorganizations, the history of the organization, the extent to which the organizational core values support IUC, the amount of part-timers in the organization, or the ‘factor’ coincidence: “By coincidence I started talking with someone who was busy with a similar project, which resulted in IUC”. These examples all were not mentioned enough to give cause to add another factor. They were also not suited to fit into the same residual container, though. Therefore, ‘other organizational characteristics’ was removed and future research would need to prove that (one of) these examples are of significant influence on the occurrence of IUC.
- The factor ‘Formality of the organization’ was removed: In the interviews it appeared that the formality of the organization depended much on the structure of the organization. It was mentioned that “With our organization structure, there are a lot of people in the

hierarchy who have to give their opinion on decisions”. Therefore, it was decided it was more of a side effect of ‘organizational structure’ instead of a separate factor.

- The naming of ‘leadership style’ was changed into ‘manager’: In the interviews it appeared that not only the style of leadership had an influence on IUC, but also the extent to which a manager shows exemplary behavior and the extent to which a manager has a good relationship with other managers, for example. Thus, the broad term ‘manager’ suits the description better.
- The naming of ‘added value of IUC’ was changed into ‘mutual benefit for IUC’: In the interviews, it appeared that this factor was not only about the value of IUC, but more about the actual benefit and advantages IUC could provide for either the employee or the organization as a whole. A participant noted “You have to make people understand what they can gain from IUC: ‘what’s in it for them?’; you should make those advantages very explicit.” The extent to which the benefit is present for both parties involved in IUC, was also often mentioned to be important. Another participant mentioned that “It helps when there is a mutual sense of urgency and an awareness of a mutual strategy.” Thus, the new naming suits the description better.

Eventually, this leads to a definite list of nine factors which influence the occurrence of IUC.

Descriptions and definitions of the factors

A definition and description of each factor, the way they present themselves positively and negatively in organizations, and the way they can be influenced, are based upon the results of both study one and two.

1. Clarity of responsibilities and work activities

Definition: The extent to which the various organizational processes, roles and the associated responsibilities and tasks are clear and visible throughout the whole organization. Participants mentioned that when responsibilities are not clear, employees will not know who are colleagues with roles or talents that could benefit them, and thus, they would not involve these colleagues in IUC. As a participant argued, this is important: “Because all the right persons are involved in the project, we can get all the relevant input in a quick manner and we are able to adjust quickly.” When responsibilities are not clear, the right colleagues will not be approached and employees will possibly do the job themselves; this would probably cost more time and the result will probably be of a lesser quality.

Most participants mentioned that it would help when processes, procedures and responsibilities are made explicit, when employees communicate about their own work and when consensus is achieved about expectations of each other’s responsibilities. This will lead to less misunderstandings and more efficient work. One of the participants even reasoned: “I think it stands or falls with people knowing what happens where, who does what and how the work processes are running.” A participant also stated that next to expressing your role and value one could offer, delimiting is also important, in order to be sure to not get approached too much.

Furthermore, it is important that employees take ownership of their tasks and responsibilities. Some participants also mentioned that it would help when there is somebody in the organization who takes ownership of communicating about the internal processes. In their organization, this was not organized; nobody felt responsible for that: “The responsibility for communicating about internal processes is not really covered here. It would be wise to bring that more into picture.”

2. Employee

Definition: The employee's personality and abilities which lead to how the employee acts towards IUC. For one part, this is something naturally, for the other part, this can be taught and managed. Possibly the most influential factor is the employee itself. All participants have mentioned features of the employee which could stimulate or hinder the occurrence of IUC. These features include the employees' behavior, and their personal characteristics and skills, as a basis for their behavior. Personal characteristics participants considered to have a positive effect on the occurrence of IUC, were among others helpfulness, openness, transparency, having a high sense of responsibility, wanting to do something extras for somebody else, and being honest, proactive and assertive.

Behavior of employees which thwarts the occurrence of IUC include only thinking of their own interests and looking at their own work activities, complaining a lot, using IUC for profiling, being inaccessible and unreachable, and/or taking a passive stance. It helps when an employee lives up to agreements, reacts quickly, and is flexible, committed, independent and trustworthy. It helps to have the necessary skills for IUC, most importantly social skills: for example, listening, how easy you can make (informal) contact with somebody, and empathy. When an employee does not possess these qualities, or when he does not have any experience with IUC situations, these skills can be taught by coaching or training. For example, a participant said: "People struggle with an information overload. They are not in control of the information that is coming at them, or do not know how to handle it. This troubles the IUC because things do not get done, or you do not get an answer." Unsupportive behavior can be changed by giving reprimanding or giving feedback. Furthermore, behavior which is supportive of IUC could be made into a necessary competence included in a recruitment process and into a necessary competence of assessment interviews.

3. Manager

Definition: The way managers in the organization support IUC and the way they show their support. Although the basic element of IUC is that it takes places between employees, and not via their managers, participants agreed that managers still play a pivotal role in to what extent IUC occurs or not. One of the participants claimed that "a manager can really make a difference of almost 80%". The extent to which managers themselves think IUC is important, and the extent to which they stimulate IUC, has a major effect on the behavior of their subordinates towards IUC. It helps when managers are communicatively skilled, and are able to coach and motivate their employees to engage in IUC. Next to that, participants also mentioned that it would help when they would be assessed on their behavior towards IUC. They feel it should be a subject of performance evaluations, and incentives should be aimed at IUC results, instead of solely on unit results. Because participants noted that eventually, employees will mostly do the work they are assessed on. Managers should also trust their employees, should dare to delegate responsibilities and should give their subordinates the feeling that they support them. A participant explained this: "It helps when my manager supports me in undertaking initiatives, and when he gives me the feeling that I will not get judged when I have not consulted him first. When he gives me space to do things and when something does go wrong, that he supports me or at least takes me seriously and believes I did it with my best intentions." Managers can stimulate IUC by connecting employees of different units with one another and by making the mutual benefits or urgency of IUC clear, for example by linking the organizational strategy to the daily business.

According to the participants, another crucial element in managers' influence on the occurrence of IUC, is the extent to which they show exemplary behavior towards IUC. When they engage in IUC themselves, it removes potential resistance of adversaries of IUC and it shows the

advantages of IUC. A participant clarified: “When managers are giving the right example, others cannot think ‘we cannot do this, this is ridiculous’, because managers are doing it themselves. It removes resistance and shows others IUC is a good idea.” However, when managers hold on to their own traditional roles and hold off initiatives of other units, their subordinates will also follow this behavior. Thus, it is important that managers are aware of the influence of their exemplary behavior on employees’ behavior towards IUC.

Some participants also mentioned that managers could thwart IUC, when the managers of different units do not get along, do not have the same priorities or do not agree on certain matters. A respondent illustrated: “When managers of different units have different opinions, or do not agree on which things are important, it makes it harder for employees to engage in IUC. You will have to go into discussion, convince the other of your opinion. This works retardant.” One of the participants described how his situation was very beneficial: his manager was a manager of two different units. This made it a lot easier to work with the other unit, since his manager understood the interests of both parties. This helped the units a lot in getting things done.

4. Mutual benefit for IUC

Definition: The extent to which IUC offers benefits to the involved employees, and the extent to which these benefits are clear and recognized. Many participants stated that in order for IUC to occur, it should have a clear function, meaning, result and/or a sense of urgency. IUC will most likely occur when it offers advantages for the employees. Advantages of IUC include gaining a colleague’s knowledge or expertise, achieving a favorable outcome, or striving for a higher efficiency. As the participants argued, these advantages should be clear, should be recognized and should be felt: “Everybody needs to see and feel the importance of the goal of IUC.” The advantages are twofold: IUC should either benefit the employee as an individual, or it should benefit organizational goals. Participants do not agree upon which is most important. Some think IUC should mostly offer personal benefits, some say the benefits should lie outside of the employee.

Whether IUC benefits the employees themselves or the organization as a whole, participants do agree that the goals of IUC should benefit all involved parties. There should be a shared problem, it should be clear what they are striving for together, and the contributions of each individual should be clear. When the advantages are not clear to all parties, employees will not give their priority to IUC and they will spend their time, money, focus and energy into other things. Moreover, when IUC could offer disadvantages to another party, they would agree to IUC even less: “When my objective has consequences for the other unit which they think are harmful for them, they will not agree by themselves, but they will want to consult their supervisor first.”, one of the participants argues.

When it benefits the organizational goals, the employee should be involved with these goals and should support them. Some participants think it can help when the organization provides a clear strategy to which IUC can be connected. A strategy can make the goals of IUC more clear. These participants think it is important for the organization to make the strategy tangible for all employees. As one of the participants believed: “It is important that a clear strategy of the organization encompasses the IUC. That could serve as an important umbrella you need and that makes it easier to communicate and collaborate with different units. Then you know what you are doing it for and you are not just busy with your own task, but you are contributing to the mutual goal.” Some participants have noted that it can become difficult to engage in IUC when there is no broader organizational vision or framework in which the IUC can be organized.

5. Organizational ambiance

Definition: The ambiance in the organization as a result of various internal and external events. Many participants mentioned that when there is a positive ambiance in the organization in which colleagues trust each other, this has a positive impact of employees' state of mind, which causes you to be more flexible and to be able to handle more. A participant illustrates this: "The will, drive and energy that is present everywhere in the company helps IUC a lot. There is much commitment and love for the organization." Thus, an ambiance which shows a drive, energy and more business activity has a positive effect on the occurrence of IUC. Such an ambiance is thwarted by cultural differences between units, by a highly competitive environment, or by the presence of many political games. When that is the case, employees may tend to only engage in IUC when it is absolutely necessary for them and not when it only (or mostly) provides benefits for the other party: "When people play games and it is every man for himself, IUC only happens in moments that it is mandatory or when external parties or circumstances interfere." Some participants do note, though, that it differs per person and per organization what is a preferred ambiance.

Furthermore, participants mentioned that when employees (of different units) have a positive relationship with each other, they are more keen to help each other. It helps when there is a (personal) connection between colleagues; this makes it easier to seek contact or to ask a colleague of a different unit for help. In return, the colleague will be more likely to give the help. A participant said: "When you know someone and when you have already chatted with him or her, it makes it easier to approach them. Then, they are often more willing to do something for you." This will not be the case when people are suspicious of each other, distrust each other, or have prejudices of each other. This will cause the employees to work against each other and will result in an 'us-them-culture'.

Solutions participants have offered for creating a better organizational ambiance are twofold: on the one hand they suggest removing the 'bad apples' by transferring or firing them. On the other hand, the organization could arrange team building activities, mutual relaxation, build dialogue, release the work load and give rewards.

6. Organizational structure

Definition: The structure of the organization consisting of the amount of management layers and the current formal collaborations. Many participants have also mentioned the importance of the right structure for IUC. A participant argued that "When people work chain-oriented and process-oriented instead of task-oriented, IUC is the most relevant type of communication". According to the participants, engaging in IUC will be harder in an organization which is very hierarchical with a lot of vertical, top-down communication, and/or which has a lot of management layers or people who formally have to give an opinion about decisions.

IUC is also harder in organizations where units are organized differently, or in a compartmentalized organization, because then it is hard to communicate over the different units and employees are assessed on their performance in regards to their own unit. A participant clarifies: "This is a very compartmentalized organization. It is very hard to communicate with each other over the different compartments. Everybody has his own interests. It is not easy getting everybody to look upward and making the connection between them." It helps when there are already some functional collaborations or mutual projects present, when (communication) lines to other units are short, when there are less tight rules and entrenched processes, and when employees are allowed to work independently and responsibilities are delegated.

7. Physical environment

Definition: The size of the organization and the way the company premises are set up. Most participants mentioned that working in the same building as the employees they want to involve in IUC, improves the occurrence of IUC. Working on the same floor or in one open space would help even more. According to the participants, when they are in close proximity of colleagues, it gives more insight into when colleagues are available, communicating is easier and it is easier to drop by a colleague. This saves time and improves the occurrence of IUC. A participant stated that “When people who should be working on the same project, are located on one floor, or in one large open space, makes it much more open and accessible.” Participants said that when everybody works in closed areas, or when there are no good project rooms, this would hinder the occurrence of IUC.

In the organizations of some participants, the New Way of Working was also being introduced; they stated that this also influences the occurrence of IUC. Opinions on the success of NWW differ, though. Some participants thought it worked very well, since the new, open environment invited employees to communicate more with each other. Other participants witnessed that colleagues were mostly just busy searching for a place to work, instead of collaborating more with colleagues from other units, and some participants found that due to colleagues working during flexible hours or at home, it was not always clear who works when, which caused reaching them to be harder: “People are working in flexible hours, but I do not know from the top of my head when everybody is present.” Such side effects of the NWW should be taken into consideration when trying to improve IUC. It could help to provide employees with overviews of which colleagues are available at what times.

8. Support

Definition: The quality and quantity of on- and offline internal (communication) systems, information and tools that support employees in engaging in IUC. Many participants mentioned that the presence of on- and offline support can make it easier for employees to engage in IUC. Offline support can include coaching, training and/or leadership programs. Online support can include (internal) social media, knowledge data bases and/or online documents. Online support can help employees gain insight into what each other’s responsibilities are, what is the status of projects, or when colleagues are available, but it can also be a way to quickly ask a colleague for advice or to be connected with each other, even when they are not in the same physical area. A participant explained this: “Thanks to Twitter or Facebook I know exactly what everybody is doing, and even what they are doing privately. A much larger commitment arises. Online, I can adjust really quickly with various colleagues.”

Before these supporting systems ease IUC, certain conditions should be met, though. According to the participants, the systems should provide a benefit for the user; it should have possibilities and a content which are consistent with the goal of the system. Participants have mentioned they would like to have interactive systems, and content such as contacting information and information about colleagues’ working days. It should also be practically applicable; thus, it should be user friendly, it should be clear how to use it and it should not be outdated. Next, people should actually use the systems; some participants mentioned examples of only one employee or unit using the system, which did not help the collaboration any further. Lastly, barriers for using the systems should be removed, by guiding and assisting employees in using the systems. A participant argued that that is really important: “When people are not guided and assisted in using social media, a lot of people will quit using it. Because they might feel it is scary and difficult. Then, they do not get any trust and are not comforted.” Offline support can help with this. Participants’ opinions differ on whether they prefer online or offline systems.

Some prefer offline, face to face contact, some say this depends on the size of the group, and some prefer online support.

9. Time

Definition: The amount of time employees (think they) have or get to engage in IUC. About the factor ‘time’ opinions between participants vary. According to most participants, many people are always busy, have full agendas, work under a high pressure and might even be overloaded. Some participants say this results in only being able to execute their primary work tasks and work which is absolutely necessary. According to them, when employees are too busy, there is no room for ‘extra work’, such as IUC. However, it was also mentioned that “IUC is just part of the your job, and thus it should never be seen as extra work”, some participants think employees should make time for IUC – and thus prioritize it – and they say IUC can even save you time. Thus, time is a delicate factor on which opinions differ.

Inter-factor-relationships

While examining how the different factors could be influenced, many participants of both Study one and two also mentioned that some factors influenced each other. The most mentioned inter-factor-relationships can be found below.

Factor:	Influence on:	How:
Support	Physical environment	When the organization is large, good supporting systems and tools become more important.
Support	Clarity of responsibilities and work activities	Internal systems or tools can help making everybody's work activities more clear, or can help with finding people.
Support	Employee	Employees can be better enabled to engage (correctly) in IUC, when they receive training or coaching.
Support	Time	Good internal systems and tools can reduce the time IUC takes.
Manager	Mutual benefit for IUC	Managers can support the mutual goal of IUC, they can make it more clear, they can inform their employees about it, et cetera.
Manager	Employee	Managers can direct their employees to engaging in IUC, and it helps when they are supporters of IUC and they see the mutual benefit of IUC.
Manager	Organizational ambiance	Managers play a pivotal role in creating a good organizational ambiance, by showing example behavior.
Physical environment	Clarity of responsibilities and work activities	When the organization is large, it is harder to know everybody's responsibilities; When you are physically close to somebody, their roles are more clear.

Physical environment	Organizational ambiance	The physical environment has an effect on how you feel, an open environment can enhance a good ambiance.
Physical environment	Time	When employees do not have much time, IUC will occur more often when the employees are in close proximity to each other, and then, IUC will also cost less time.
Clarity of responsibilities and work activities	Mutual benefit for IUC	When roles are clear, you know what everybody can add to a project, which will contribute to the mutual goal of IUC.
Mutual benefit for IUC	Time	When employees (feel they) have less time for IUC, the perceived mutual benefit has to be higher, in order for the employees to engage in IUC. When the perceived mutual benefit is high, a high work load does not have to be an issue.
Employee	Organizational ambiance	Negative attitudes of employees have a negative effect on the organizational ambiance, while positive attitudes have a positive effect.
Organizational ambiance	Employee	When the organizational ambiance is good, employees will feel better and show better behavior towards IUC.

Table 4: Overview of the most mentioned inter-factor-relationships.

Although examining the coherence between the factors was not an initial goal of the study, it does provide some interesting insights into how the factors can be influenced. It would suggest that when organizations want to improve the organizational ambiance, they may choose to do this directly, by organizing a team building activity. However, they could also (or in addition) choose to do this indirectly, by making some changes into the physical environment or by stimulating their managers to create a better ambiance. Furthermore, when an organization chooses to directly improve its physical environment, it does not only improve the easiness in which employees can find each other, it also indirectly influences the clarity of responsibilities and work activities, the organizational ambiance and it saves employees time. Thus by only influencing one factor, you can have a positive effect on four factors. The information about these relationships between the factors, provides valuable information for organizations when considering which factor to influence.

Discussion

This research has succeeded in collecting in depth information about multiple factors influencing IUC, based on data collected from multiple organizations, in ways that was not achieved before this research. It benefited from the views of the most important actors in IUC: the employees. With the results of this research, a greater understanding of the factors influencing the occurrence of IUC was obtained. Each identified factor was described in a way that is also useful and recognizable for managers. These descriptions and clear examples from practice, will be meaningful for managers in regard to how they can establish and nurture an environment that fosters IUC.

Nine factors were identified of which employees thought they influenced the occurrence of IUC: ‘clarity of responsibilities and work activities’, ‘employee’, ‘manager’, ‘mutual benefit for IUC’, ‘organizational ambiance’, ‘organizational structure’, ‘physical environment’, ‘support’, and ‘time’. It is not ruled out that there are more factors having a significant influence on the occurrence of IUC, but these were the factors which were mentioned more than one or two times, by more than one participant, and on which the participants agreed upon that they were of influence.

Other scholars had also noted the influence of the extent to which employees identify with their own unit or with the organization as a whole (Burgess, 2005; Lomi et al., 2014). Participants in this study did not mention identification, though. They did argue that the existence of a ‘common organizational goal’ or a ‘mutual organizational benefit’ caused them to engage in IUC more, and that a conflict of interest between units thwarted the occurrence of IUC. They did not blame ‘identification’ for the presence of these matters, though. This might be explained by the self-reporting nature of this research. Identification is a rather abstract concept; perhaps the participants did not directly think of identification as an underlying cause for their behavior.

Earlier research had also mentioned the influence of ambiance and relationships between employees (Auh & Menguc; Goh, 2002; Tsai, 2002). The results of this research confirmed that trust between employees and a positive relationship improves the quantity of IUC. These factors are further explained with practical examples and the notion that it does differ per person what is a preferred ambiance.

Some parts of these factors had also been found in earlier research, but the results of this study offered some interesting additions. For example, Han and Anantamula (2007) and Wang and Noe (2010) had argued that support of a manager influences the occurrence of IUC. This research showed in what ways managers could influence IUC. Whereas they only talked about the ‘leadership support’ as a broad term, in this research it was found that not only they should show support, they should also show exemplary behavior towards IUC. Furthermore, it was found that the extent to which managers of different units get along, also influences the occurrence of IUC.

In accordance with scholars who researched the influence of organizational structure on the occurrence of IUC (Goh, 2002; Tsai, 2002; Willem & Buelens, 2009), this study found that organizational structures that are very formal and hierarchical, do not foster IUC. In addition, respondents noted that it also did not help when organizations are organized in a compartmentalized way. This caused every unit to have its own interest and made it difficult to collaborate. Willem and Buelens (2009) argued that structure was more complex than they previously thought and that the environment also played a role in the occurrence of IUC. This

was also confirmed in this research. Participants noted that it improved IUC when colleagues which who you should communicate and collaborate, are in close proximity. Preferably in the same space or on the same floor. Especially when colleagues are not in close proximity, online support becomes more important. Goh (2002) had also mentioned that the availability and usability of the right technology became necessary when the organization is widely dispersed. Participants in this study confirmed this. They argued that online support could enhance the occurrence of IUC. If certain conditions are met. The technologies should have the right possibilities, it should be practically applicable and it should actually be used by other colleagues. In order to meet these conditions, participants argued that assistance and guidance from the organization was desired.

Lastly, in earlier literature the influence of both extrinsic and intrinsic motivation was also mentioned. Researchers could not agree on which of these types of motivations had the best influence on IUC (Burgess, 2005; Cruz et al., 2009). Neither could the participants of this study. Some respondents thought that IUC would occur when there was a personal benefit to be achieved. Some thought these benefit should lie outside of the employee, and should aid the organization. From this, it could be concluded that it depends on personal characteristics whether employees need to be intrinsically motivated to engage in IUC, or whether they need the organization to extrinsically motivate them. The same personal characteristics may also influence the way employees see ‘time’ as a barrier for IUC or not. While some participants have argued that a lack of time could be a significant barrier for the occurrence of IUC, other participants felt that IUC is something obvious, for which you should just ‘make time’.

In regard to which of these nine factors are the most influential: In study one it was established that there were no major significant differences in the ranking of the factors. Based on the sample of this research, no significant conclusions can be drawn as to which factors are found to be the most influential on the occurrence of IUC. This research found the nine most important factors. Which of these nine is deemed most important, may differ from organization to organization; or from employee to employee. Further quantitative research in which the nine factors are scored on importance in multiple, different organizations, could be performed to confirm or deny this.

In regard to how the factors influence the occurrence of IUC and how the factors can be influenced in order to start supporting the occurrence of IUC, some interesting results were found. It was found that the factors are bipolar, and each factor thus has both a positive and a negative influence on the occurrence of IUC. The way they influence the occurrence of IUC either positively or negatively was extensively examined and described earlier in this paper. What was surprising, was that next to the direct influence each factor has on the occurrence of IUC, some factors also have an effect on each other. This means that, in order to enhance the occurrence of IUC, most factors can be either directly or indirectly influenced.

It will probably differ per organization – or even per unit – which factor(s) should get the first or most attention. In order to determine which one(s), the organization should determine how well each of the factors already supports the occurrence of IUC. Factors who do not support it well enough, should either directly or indirectly be influenced in a positive way.

Implications, limitations and future research

The findings in this research provide important implications for organizations. Organizations can use these findings to better understand why IUC does or does not occur in organizations, and

how this could be changed if necessary. This will ultimately lead to more successful organizations.

Furthermore, it offers new insights into the research of organizational knowledge sharing between units. Due to the data being collected from ten different organizations, this research diminished the interfering influence of various organizational characteristics on identifying the factors. The self-reporting view of the employee also proved to be interesting. This way, the findings were not based on second handed observations of managers, but they came straight from the primary actors in IUC.

Some limitations of this research should be taken into account, though. The goal of this study was to achieve more in depth information factors influencing IUC, as perceived by the primary actors of IUC. Because the research aimed to achieve a larger understanding, it was not able to use a large sample size or measure the extent of the factors' influence in quantitative statistics.

For starters, the sample size of this research was not very large. Although the size had no implications into the richness and scope of the data, with a larger sample per organization, the results could be validated more for the whole organization. Further quantitative research testing the findings in a larger sample, may further improve the results.

Another limitation of the current research is that it was solely examined which factors had an influence, it did not examine how large this influence was. Quantitative research aimed at examining what is the amount of influence each factor has on the occurrence of IUC, may improve the current results. As stated above, this research could not give a significant and satisfying answer to which of the nine factors are the most influential; broadening the sample and testing the influence with quantitative research may thus prove to be an interesting addition.

The research also did not take into account what the effect of the factors were on the quality of IUC, it only examined what factors influenced the quantity of IUC. While, for example, a better organizational ambiance may influence the quantity of IUC for the better, but it may very well influence the quality for the worse. Therefore, future research of the factors on the quality of IUC could be a valuable direction as well.

Lastly, research into the inter-factor-relationships may be interesting. The relationships discovered in this research were merely an observation on the side of the primary goal. Research specifically focused on the relationship between the different factors which will try to discover how they can exactly influence each other and to what extent, would be very valuable.

References

- Allen, S.A. (1979). "Organizational choices and general management influence networks in divisionalized companies", *The Academy of Management Journal*, Vol. 21, No. 3, pp. 341-365.
- Amayah, A.T. (2013). "Determinants of knowledge sharing in a public sector organization", *Journal of Knowledge Management*, Vol. 17, No. 3, pp. 454-471.
- Ardichvili, A., Page, V., & Wentling, T. (2003). "Motivation and barriers to participation in virtual knowledge-sharing communities of practice", *Journal of Knowledge Management*, Vol. 7, No. 1, pp. 64-77.
- Auh, S., & Menguc, B. (2013). "Knowledge sharing behaviors of industrial salespeople. An integration of economic, social, psychological, and sociological perspectives", *European Journal of Marketing*, Vol. 47, No. 8, pp. 1333-1355.
- Baxter, L.A. & Babbie, E. (2004). *The basics of communication research*. Wadsworth, Ontario
- Borman, W.C. & Motowidlo, S.J. (1997). "Task performance and contextual performance: the meaning for personnel selection research", *Human Performance*, Vol. 10, No. 2, pp. 99-109.
- Burgess, D. (2005). "What motivates employees to transfer knowledge outside their work unit?", *Journal of Business Communication*, Vol. 42, No. 4, pp. 324-348.
- Caligiuri, P. (2014). "Many moving parts: Factors influencing the effectiveness of HRM practices designed to improve knowledge transfer within MNCs", *Journal of International Business Studies*, Vol. 45, pp. 63-72.
- Castells, M. (2013). *Communication power*. Oxford University Press, Oxford.
- Chang, H.H., & Chuang, S.S. (2011). "Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator", *Information & Management*, Vol. 48, pp. 9-.
- Charles, M. & Marschan-Piekkari, R. (2002). "Language training for enhanced horizontal communication: a challenge for MNCs", *Business Communication Quarterly*, Vol. 65, No. 2, pp. 9-29.
- Cruz, N.M., Pérez, V.M., & Cantero, C.T. (2009). "The influence of employee motivation on knowledge transfer", *Journal of Knowledge Management*, Vol. 13, No. 6, pp. 478-490.
- De Shazer, S., Dolan, Y., Korman, H., Trepper, T., McCollum, E., & Berg, I.K. (2007). *More than miracles: The state of the art of solution-focused brief therapy*. The Haworth Press, New York.
- Duan, Y., Nie, W., & Coakes, E. (2010). "Identifying key factors affecting transnational knowledge transfer", *Information & Management*, Vol. 47, pp. 356-363.
- Dutton, J.E., Dukerich, J.M., & Harquail, C.V. (1994). "Organizational images and member identification", *Administrative Science Quarterly*, Vol. 39, pp. 239-263.

- Evans, M.M. (2013). "Is trust the most important human factor influencing knowledge sharing in organisations?", *Journal of Information & Knowledge Management*, Vol. 12, No. 4, pp. 1350038-1-17
- Fisher, R., Maltz, E., & Jaworski, B. (1997). "Enhancing communication between marketing and engineering: The moderating role of relative functional identification", *Journal of Marketing*, Vol. 61, pp. 54-70.
- Foss, N.J., Husted, K., & Michailova, S. (2010). "Governing knowledge sharing in organizations: Levels of analysis, governance mechanisms, and research directions", *Journal of Management Studies*, Vol. 47, No. 3, pp. 455-482.
- Gagné, M. & Deci, E. (2005). "Self-determination theory and work motivation", *Journal of Organizational Behavior*, Vol. 26, pp. 331-362.
- Goh, S.C. (2002). "Managing effective knowledge transfer: an integrative framework and some practice implications", *Journal of Knowledge Management*, Vol. 6, No. 1, pp. 23-30.
- Han, B.M. & Anantatmula, V.S. (2007). "Knowledge sharing in large IT organizations: a case study", *Journal of Information and Knowledge Management Systems*, Vol. 37, No. 4, pp. 421-439
- Hung, S.Y., Durcikova, A., Lai, H.M., & Lin, W.M. (2011). "The influence of intrinsic and extrinsic motivation on individuals' knowledge sharing behavior", *International Journal of Human-Computer Studies*, Vol. 69, pp. 415-427.
- Linstone, H.A., & Turoff, M. (1975). *The Delphi method. Techniques and applications*. Addison-Wesley Publishing, Boston.
- Lomi, A., Lusher, D., Pattison, P.E., & Robins, G. (2014). "The focused organization of advice relations: A study in boundary crossing", *Organization Science*, Vol. 25, No. 2, pp. 438-457.
- Lovelace, K., Shapiro, D.L. & Weingart, L.R. (2001). "Maximizing cross-functional new product teams' innovativeness and constraint adherence: a conflict communications perspective", *Academy of Management Journal*, Vol. 44, No. 4, pp. 779-793.
- Makela, K., Kalla, H.K., & Piekkari, R. (2007). "Interpersonal similarity as a driver of knowledge sharing within multinational corporations", *International Business Review*, Vol. 16, pp. 1-22
- Marschan, R., Welch, D. & Welch, L. (1996). "Control in less-hierarchical multinationals: the role of personal networks and informal communication", *International Business Review*, Vol. 5, No. 2, pp. 137-150.
- Mindbaeva, D., Pedersen, T., Bjorkman, I., Fey, C.F., & Park, H.J. (2003). "MNC knowledge transfer, subsidiary absorptive capacity and knowledge transfer", *Journal of International Business Studies*, Vol. 34, No. 6, pp. 586-599.
- Mintzberg, H. (1980). "Structure in 5's: a synthesis of the research on organization design", *Management Science*, Vol. 26, No. 3, pp. 322-341.

- Motowidlo, S.J., Van Scotter, J.R. (1994). "Evidence that task performance should be distinguished from contextual performance", *Journal of Applied Psychology*, Vol. 79, No. 4, pp. 475-480.
- Nooshinfard, F., & Nemati-Anaraki, L. (2014). "Success factors of inter-organizational knowledge sharing: a proposed framework", *The Electronic Library*, Vol. 32, No.2, pp. 239-261.
- Okoli, C. & Pawlowski, S.D. (2004). "The Delphi method as a research tool: an example, design considerations and applications", *Information & Management*, Vol. 42, pp. 15-29.
- O'Dell, C. & Grayson Jr., C.J. (1999). "Knowledge transfer: Discover your value proposition", *Strategy & Leadership*, Vol. 27, No. 2, pp. 10-15.
- O'Neil, J.W., Beauvais, L.L. & Scholl, R.W. (2001). "The use of organizational culture and structure to guide strategic behavior: an information processing perspective", *The Journal of Behavioral and Applied Management*, Vol. 2, No.2, pp. 131-150.
- Rahman, R.A. (2011). "Knowledge sharing practices: A case study at Malaysia's healthcare research institutes", *The International Information & Library Review*, Vol. 43, pp. 207-214.
- Reade, C. (2001). "Dual identification in multinational corporations: local managers and their psychological attachment to the subsidiary versus the global organization", *International Journal of Human Resource Management*, Vol. 12, No. 3, pp. 405-424.
- Tjosvold, D. (1988). "Cooperative and competitive dynamics within and between organizational units", *Human Relations*, Vol. 41, No. 6, pp. 425-436.
- Tsai, W. (2002) "Social Structure of "coopetition" within a multiunit organization: coordination, competition, and intraorganizational knowledge sharing", *Organization Science*, Vol. 13, No. 2, pp. 179-190.
- Wang, S., & Noe, R.A. (2010). "Knowledge sharing: A review and directions for future research", *Human Resource Management Review*, Vol. 20, pp. 115-131.
- Willem, A. & Buelens, M. (2009). "Knowledge sharing in inter-unit cooperative episodes: the impact of organizational structure dimensions", *International Journal of Information Management*, Vol. 29, pp. 151-160.

Appendix I – Measurement instrument Study 1

Question Round 1:

1. Imagine a situation in which Inter Unit Communication would have benefitted the organization. It does not matter whether IUC did, or did not occur. Could you describe this situation?
2. Which factors do you think could enable the occurrence of Inter Unit Communication?
 - a. Please give an explanation for each named factor why you think this factor influences the occurrence of IUC and how this factor influences the occurrence of IUC.
3. Which factors do you think could hinder the occurrence of Inter Unit Communication?
 - a. Please give an explanation for each named factor why you think this factor influences the occurrence of IUC and how this factor influences the occurrence of IUC.

Question Round 2:

1. An overview can be found below of the 36 enabling factors identified in the previous question round. To what extent do you think that the following factors enable the occurrence of IUC?
 - a. Please indicate on a scale from 1 to 10, for which 1 means: ‘does not enable at all’, and for which 10 means: ‘does enable very much’.
2. An overview can be found below of the 39 hindering factors identified in the previous question round. To what extent do you think that the following factors hinder the occurrence of IUC?
 - a. Please indicate on a scale from 1 to 10, for which 1 means: ‘does not hinder at all’, and for which 10 means: ‘does hinder very much’.

Question Round 3:

1. An overview can be found below of the eleven categorized factors which enable IUC, and on which original factors they are based.
 - a. Could you rank the eleven factors from ‘enables the most’ to ‘enables the least’?
 - b. Could you give a definition or description for each of the categorized factors?
 - c. Do you have any remarks in response to this categorization?
2. An overview can be found below of the ten categorized factors which hinder IUC, and on which original factors they are based.
 - a. Could you rank the ten factors from ‘hinders the most’ to ‘hinders the least’?
 - b. Could you give a definition or description for each of the categorized factors?
 - c. Do you have any remarks in response to this categorization?

Question Round 4:

1. An overview can be found below of the eleven categorized factors which enable IUC, and the definitions based on the answers to the third question round. Could you give an end evaluation on the current definition of each of the eleven enabling factors and possible other matters you think are important?
2. An overview can be found below of the ten categorized factors which hinder IUC, and the definitions based on the answers to the third question round. Could you give an end evaluation on the current definition of each of the ten hindering factors and possible other matters you think are important?
3. What do you think that would remove or prevent the following six hindering factors?