Towards Flexible Support for Dynamic and Interwoven Small Companies

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Abstract

In this paper we present initial findings from a qualitative field study of the use of cooperation technology of small companies of the children's media sector. We report three core findings: companies need and use cooperation technology; companies have a strong desire to control incoming and outgoing information; and companies have strong needs for secure applications and data transfers.

1   Introduction

In this paper we present initial findings from our qualitative study of the use of cooperation technology in and between companies of the children's media (CM) sector of Thuringia, Germany. Thuringia has Germany's highest concentration of children media companies (KinderMedienZentrum 2007). Most of these CM companies are located in a small geographical area and highly interwoven—that is, many of them have intense contacts and dynamic spontaneous cooperation. Besides big CM companies (e.g., the KI.KA in Thuringia is among Europe's biggest children TV stations), the CM companies are mostly small with up to twenty employees. So, overall this is a well-suited field for research, due to its agglomeration of locations, similarity of size, and homogeneity of business sector.

The need for close cooperation among small companies has already been studied and documented in literature (e.g., Gabriel & Kerlen 2002). It has also been emphasised that information and communication technology plays an important role for this cooperation (e.g., Mertens et al. 2008). Some studies in literature have shown valuable general findings in how information and communication technology is actually used for these purposes (e.g., Camarinha-Matos & Afsarmanesh 2003).

In this paper we report on a specific study of a very dynamic and highly interwoven sector: we describe the method and general setting, and we present initial findings. Finally, we derive suggestions for the design of flexible cooperation support for such a sector.

2   Method and General Setting

The study reported in this paper is based on semi-structured expert interviews that were thematically coded and analysed.

Interviewing *experts* can generate interesting and reliable data. According to Littig (2007) an expert is defined as an individual that holds a position with a dispose of special knowledge and decision-making power within a company (e.g., manager, executive director).

Semi-structured and guideline-based *interviews* were conducted for qualitative data gathering. This type of interviews allowed us to examine our questions and still gave enough freedom to the interviewed experts (Fielding & Thomas 2001). The guideline was generated through a secondary market analysis and is based on empirical findings of a previous case study (Bingenheimer & Gross 2009).

The *data* has been coded thematically in order to obtain an overview of the entirely transcribed material and to build relations of the single cases to each other for further analysis (Joffe & Yardley 2004). Coding categories were initially developed deductively from the theoretical guideline, and then inductively adapted and extended from the transcribed data (with the MAXQDA software).

Concerning the *general setting*, eight experts (3 female and 5 male; aged 30 to 55 years) were interviewed in their workaday environment during November and December 2009. All experts were from higher management, including responsibility for information and communication technology. The interviews lasted 45 to 90 minutes. Confidentiality about the data was agreed.

3   Initial Findings

In respect to confidentiality we present our findings anonymously. Due to space limitations we refrain from word-for-word citations. The next subsections report on a specific finding.

3.1   Use of Cooperation Technologies

First results refer to the use of technologies in the CM companies. The technologies are classified according to five common types of social interaction (coexistence, communication, consensus, coordination, and collaboration), internal versus external use, and desktop versus browser (Web. 2.0) technology (Gross & Fetter 2009) (cf. Figure 1).

The experts reported intensive use of plenty and diverse social network tools for *coexistence* support (e.g., XING, FACEBOOK). The main intention is representation and presentation as well as acquisition to find potential customers or cooperation partners.

Figure 1. Overview of cooperation technology used (the figures show the number of nominations; multiple nominations were possible such as for example one company can use multiple social networking tools).

Concerning *communication* technologies we found an intensive, and sometimes by experts referred to as essential, use of telephone and email for inter- as well as for intra-organisational communication. Furthermore, we detected that companies combine traditional desktop applications with instant messaging (IM) systems—widely used is text messaging, but also audio and video messaging were reported. The reasons for the use of IM from an internal perspective are fast data transfers and fast personal requests. Especially in open plan offices companies use IM to avoid disrupting colleagues. Furthermore, companies with distributed offices use constant IM group chats and regular IM video conferencing meetings for team building among colleagues. In external communication the companies also use IM text messaging for fast requests and data transfers, with cooperation partners and selected long time costumers (most companies reported the use of SKYPE due to its wide spread use in the children's media sector).

In order to support *consensus* finding between employees only a single company uses a concerning tool (i.e., MINDMANAGER). *Coordination* is supported by several digital calendar systems. The calendars are in use for personal organisation and are therefore missing group-functions.

Almost all respondents reported the use of file servers for document management and administration in order to support internal *collaboration*. Only one company reported the cooperative use of a task management tool. EXCEL is the most common program for internal co-operatively managing projects, and sometimes used externally. Shared editors are neither used in intra- nor in inter-organisational cooperation.

3.2   Desire for Selective Information Disclosure

The social interaction among the CM companies is characterised by mutual information disclosure. The experts reported that the quantity and quality of disclosed information as well as the need for receiving information disclosed by others strongly depends on their companies' structure, and their experiences in cooperation with the respective other company.

We found that concerning *structural* characteristics companies with a broad range of competencies want to disclose their core competencies to costumers more specifically, because they do not want to confuse their customers with a too broad and heterogeneous spectrum of competencies. Moreover, in the interaction among CM companies, the similarity of the company structures influences their need for receiving information from others: the interest is big for medium similarity, and small for low or high similarity (since in the latter case, there is either too little overlap or too much redundancy).

The *experiences* with other CM companies were reported to result into specific trust-levels, depending on the perceived quality of the social interaction. The trust-level in turn influences the selective information disclosure preferences. The higher the trust-level between companies, the higher the willingness to cooperate and to disclose sensible information with a higher granularity. Some reasons for negative experiences and low trust-level are cooperation failures ending in legal disputes.

Some technical implications of this desire for selective information disclosure were mentioned. Several experts commented on their use and wishes for selective presence and availability in IM. For instance, two experts reported that they use a single IM account with work and private contacts; in order to avoid private interruption at work, they do not reply to private messages at the workplace. Two other respondents do not use IM in the workplace at all, in order to avoid interruption. When asked if they would arrange IM contacts in groups with distinct availabilities, they said that this would be a useful feature to prevent undesired disruptions and would motivate them to use IM in inter-organisational and distributed project teams. Besides the own disclosure, experts want to prevent information overflow through automatic filters of incoming information.

3.3 Data Security

Despite the successful use of cooperation technology as described above we found resistance towards cooperation technology for consensus, coordination, and collaboration support—especially for external use. While some of the respondents reported a strong basic interest in using browser-based coordination and collaboration technologies the distrust in some tools (e.g., GOOGLE DOCS or GOOGLE WAVE) with respect to data security outweighs the potential benefit. It was reported by most of the experts that their small CM companies do not have the resources for setting up their own secure systems for collaboration. They can neither afford the financial investment of buying individualised secure software, nor have the staff with the technical skills or time to set up and administrate such secure software on their own. These reasons lead to a lack using cooperation technologies.

Furthermore, two respondents had strong concerns on the security of technology for communication support (e.g., ICQ, SKYPE). In particular, they mentioned virus attacks through security holes in these systems, as well as unintentional leak of sensible data.

4 Conclusion and Discussion

The initial findings from our qualitative field study in the children's media sector of this paper lead us to the following suggestions for flexible cooperation support of dynamic and interwoven small companies:

- The CM companies use a range of applications for *social interaction*. While social network tools are mainly used for representation and acquisition, IM tools are used—to complete email and telephone communication—by their inherent possibilities of team building in distributed offices (e.g., through regular video conferencing). Project and document management applications are used for collaboration. Tools for consensus building as well as for external coordination and collaboration are hardly used. Therefore, cooperation technology should be stronger integrated bridging internal as well as external social interaction and covering also areas of currently low use.

- The CM companies reported a need for fine-grained *selective disclosure* of own information as well as for filtering incoming information, due to their different trust-levels for different cooperation partners. Therefore, cooperation technology should provide advanced concepts for selective information disclosure taking into account the subtle social relationships and interaction of the companies' embeddedness.

- The CM companies have strong *security* needs, especially in relation to browser-based technologies and inter-organisational collaboration tools. It was reported that tools for consensus as well as external coordination and collaboration would be used more intensely, if they provided more security. Therefore, it is essential that cooperation technology provides high-standard security to leverage the technical integration and selective information disclosure.

Overall the findings are interesting, but only a bigger sample would allow an identification of organisation types. Future studies with a comparable focus, yet in other business sectors could provide insight into the generalisablity of our findings. Based on the findings it would be interesting to develop, transfer, and study cooperation technology in context.

References

Bingenheimer, S. and Gross, T. Cooperation in Virtual Organisations: An Intra-Organisational Case Study. In *Proceedings of the Seventeenth International Information Management Talks - IDIMT 2009* (Sept. 9-11, Jindrichuv Hradec, Czech Republic). Universitaetsverlag Rudolf Trauner, Linz, 2009. pp. 333-340.

Camarinha-Matos, L.M. and Afsarmanesh, H. Elements of a Base VE Infrastructure. *Computers in Industry 51*, 2 (2003). pp. 139-163.

Fielding, N. and Thomas, H. *Qualitative Interviewing.* In Gilbert, N., ed. Researching Social Life. Sage Publications Inc., Thousand Oaks, CA, 2001. pp. 123-144.

Gabriel, P. and Kerlen, C. Die Besonderheiten der Kooperation von Kleinunternehmen in 'Virtuellen Unternehmen'. In *Mensch & Computer - 2. Fachuebergreifende Konferenz - Vom interaktiven Werkzeug zu kooperativen Arbeits- und Lernwelten - M&C 2002* (Sep. 2-5, Hamburg, Germany). Teubner, Stuttgart, 2002. pp. 85-94.

Gross, T. and Fetter, M. *Computer-Supported Cooperative Work.* In Stefanidis, C., ed. The Universal Access Handbook. Hillsdale, NJ, Lawrence Erlbaum Associates, 2009. pp. 43:1-22.

Joffe, H. and Yardley, L. *Content and Thematic Analysis.* In Marks, D.F. and Yardley, L., eds. Research Methods for Clinical and Health Psychology. Sage Publications Inc., Thousand Oaks, CA, 2004. pp. 56-68.

KinderMedienZentrum. *The KinderMedienZentrum.* http://www.kindermedienzentrum.de/ fileadmin/batt/images/kmz/download/Broschuere_KMZ_final_15_10.pdf, 2007. (Accessed 10/5/2010).

Littig, B. Interviewing Experts or Interviewing the Elite. What makes the Difference? In *Proceedings of the Conference on Interpretation in Policy* (May 31-June 2, Amsterdam). 2007.

Mertens, K., Ruggaber, R., Popplewell, K. and Xu, X., eds. *Enterprise Interoperability III: New Challenges and Industrial Approaches.* Springer-Verlag, London, 2008.

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