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Barriers to Knowledge Sharing for Prosumers and Global Team Employees

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Knowledge-based companies, which are the foundation of the knowledge economy, must seek innovations, ideas and knowledge both inside and outside the company. This means that they must build their business on knowledge which may be found inside and outside the company. The knowledge of the employees, which comprises the internal knowledge of the company, is embedded in the business reality but is created by a limited number of people who are often used to thinking in a specific way or one imposed by the managers. On the other hand, the knowledge of the consumers is created outside the company, and thereby forms an external source of knowledge. That knowledge is created by numerous people who are not constrained by the internal regulations or rules of the company. Modern companies must gather the knowledge of their employees and consumers, which means they must create good conditions for knowledge sharing. Consumers and employees can share knowledge seamlessly, but very often they are reluctant to do so even if suitable conditions are developed. The challenge for businesses is to find and overcome the barriers that discourage their prosumers and employees from sharing their knowledge. Analyzing only the barriers within the company would limit the research process by excluding the external flow of knowledge. The aim was to analyze the external and internal knowledge sharing barriers. Identifying these barriers would help develop common solutions to overcome these barriers. Hence the main aim of this paper is to identify the knowledge sharing barriers for prosumers and global team employees which seem to have nothing in common. The contribution of this paper is showing common barriers for knowledge sharing among both prosumers and global team employees in order to fulfil the research gap extant in the literature.

The paper is organized as follows: first a literature review was undertaken regarding knowledge sharing barriers amongst prosumers and global team employees, research questions were followed by the research methodology and literature sections; then the results, analysis, and discussion; and concludes with a summary and limitations.

Role of global teams and prosumers in knowledge sharing – literature review

Global teams are defined as those with professionals located in different countries with different cultures (McDonough et al., 2001). Teams have an important role in knowledge sharing (Becker, 2003). Global teams are becoming the "new normal occurrence" as businesses expand across borders, with skill shortages forcing companies to tap into broader talent pools. It is assumed that global teams are able to integrate specialized and globally dispersed capabilities, to understand local needs and demands, and leverage cultural diversity. To achieve their objectives and ensure the employees share knowledge with their colleagues located in different parts of the world, companies undertake many activities to facilitate knowledge sharing by developing incentives and rewarding those who are willing to share. Revolutionary ideas in many cases appear on the edge of the company and in its external environment.

Thus, enterprises can also benefit from knowledge which is outside the company – from prosumers. In the case of prosumers it is very difficult to elicit exactly the border between the company and its external environment. The modern approaches to prosumers and prosumption theory stress that the prosumer is an individual who can share knowledge and experience with enterprises involved in specified business activities and projects (Hernández-Serrano et al., 2017; Rayna & Striukova, 2016). In sharing knowledge, they have an impact on products and services, especially their shape, look, design, and functionality. By doing so they collaborate with companies in parallel with their involvement in their business projects (Aghamirian, Dorri, & Aghamirian, 2015; Trejo, Gutiérrez, & Guzman, 2016).

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Knowledge sharing barriers

Knowledge sharing barriers among global team employees

The use of global teams by companies has been boosted by developments in technology that facilitate communication between team members located in different offices around the world, and has quickly become a preferred option in high-tech firms (Monalisa et al., 2008). Developments in communication technology have led to the need to analyze the routines of work teams, in an attempt to understand what types of resources are necessary for knowledge sharing by these teams to be effective and collaborative, whether they are local or geographically distributed (Coakes et al., 2008). Table 1 presents knowledge sharing barriers based on the literature review.

The knowledge sharing barriers given in Table 1 are explained in detail below.

Absorptive capacity is a barrier to knowledge sharing. It is defined as the ability of a company to identify the value of new knowledge and to use it (Cohen, & Levinthal, 1990).

The relationships between employees from the organization, especially between members of different teams, form another barrier to knowledge sharing (O'Dell, & Grayson, 1998; Riege, 2005; Assudani, 2009). Ignorance is due to the fact that those with knowledge are not visible, so that those who need the knowledge are not aware of who has it (O'Dell, & Grayson, 1998), which is classified as a relationship barrier.

Time is identified as a barrier. Employees who are overloaded with work have difficulty finding the time to share knowledge with their colleagues (Yao et al., 2007).

Common frameworks can form a barrier, when collaboration between geographically dispersed team members is hindered due to the lack of a common framework (Assudani, 2009). The existence of a framework that represents effective knowledge dissemination is important for the global team.

Organizational structure also appears as a barrier to the effective dissemination of knowledge (Espinosa et al., 2003). Companies consisting of silo type structures, with people divided into offices, locations and divisions, will certainly experience difficulty in transferring knowledge between the teams. This is due to the fact that team members will tend to focus solely on achieving their goals and not concern themselves with the goals of the organization as a whole (O'Dell, & Grayson, 1998).

The strategic decision to use global teams leads to some specific barriers, such as distance, time and cultural differences. Distance is cited by some authors as a barrier to knowledge dissemination (Levina, & Vaast, 2008; Kotlarsky et al., 2008; Martins et al., 2004; Assudani, 2009) as it reduces or totally excludes face-to-face interaction and makes a shared identity difficult to achieve. The fact that teams work in different time zones may be a barrier for knowledge sharing (Espinosa et al., 2003), meaning that there is a greater need for explicit knowledge to achieve an exchange of knowledge (Kotlarsky et al., 2008).

Cultural differences are listed as one of the reasons for the failure in offshore software development projects (Rai et al., 2009). Different countries have their own ways of working and these sometimes hinder interaction and cause conflicts between teams (Krishna et al., 2004).

The use of global teams by companies has benefits, although sharing knowledge becomes more complex.

Knowledge sharing barriers for prosumers

If enterprises can benefit from external knowledge, one step is to encourage prosumers to share knowledge even though the process of encouraging knowledge sharing is a difficult task (Lam, & Lambermont-Ford, 2010). Typically, an enterprise leads a project where the prosumers participating have an opportunity to share knowledge. Often it is provided with various information and communication technologies (ICTs). Such projects could be delivered as a discussion forum, dedicated web page, ideas sharing platform, mobile application, etc. (Kettles, St. Louis, & Steinbart, 2017; Ford, & Mason, 2013). What is important is that it is possible to indicate the

Table 1. Barriers to knowledge sharing in global teams

Barrier	Authors
Technology	Assudani, 2009; Riege, 2005; Kyobe, 2010
Time	McDermott, & O'Dell, 2001; Riege, 2005; Yao et al., 2007
Common framework	Assudani, 2009
Silo type structure	O'Dell, & Grayson, 1998
Distance	O'Dell, & Grayson, 1998
Cultural differences	Alavi, & Leidner, 2001; Li, 2010
Professional qualifications	Remus, & Wiener, 2009
Relationship between team members	O'Dell, & Grayson, 1998; Riege, 2005; Assudani, 2009
Absorptive capacity	Assudani, 2009; Riege, 2005; Kyobe, 2010

Source: authors' own study.

factors which contribute to prosumer involvement in a specific project, including the look, design, scope and content of the project. It could be a popular ICT or a well-prepared promotion campaign as well. On the other hand, there is a set of barriers which may hinder or prevent prosumers from knowledge sharing. Based on the observation of the projects for prosumers and literature review, the relevant knowledge sharing barriers are presented in Table 2.

Table 2. Knowledge sharing barriers for prosumers

Barrier name
Time
Lack of information about opportunities to share knowledge
Lack of interest in sharing knowledge (at all)
Incompatibility of knowledge sharing with current consumer's needs
Lack of required knowledge for sharing with an enterprise
Lack of required technological skills
Lack of help or support from the enterprise
Lack of incentives
Reluctance to knowledge sharing
Reluctance to engage with a specific enterprise
Lack of physical (technological) environment for knowledge sharing
Reluctance to give private information

Source: Eisenbardt, Ziemba, & Mullins, 2018.

The literature offers two approaches to knowledge sharing namely: eagerness and willingness to share knowledge (van den Hooff, Schouten, & Simonovski, 2012; Ziemba, & Eisenbardt, 2014). The former means that prosumers are eager to share knowledge because of some personal benefits. The latter stresses that prosumers would like to share knowledge, but most would do so if their efforts were to be rewarded (Humphreys, & Grayson, 2008; Gafni et al., 2014; Ziemba, & Eisenbardt, 2016). From that perspective, the incentives can help to overcome or minimize the barriers listed above. Some researchers stress that differences exist between the willingness of prosumers to share knowledge and the generation they represent. These generational differences are especially visible in the value linked to incentives intended to encourage consumers to share knowledge (Ziemba, & Eisenbardt, 2016; Gafni et al., 2014). On the other hand, these differences may have an impact on barriers that may hinder them from knowledge sharing.

Research Methodology

Research problem and questions

The main purpose of this paper is to fill the research gap on indicating the barriers which are significant for prosumers as well as for employees in knowledge sharing. Thus, the main research question is: which barriers are significant for prosumers and global team employees? To meet the purpose of the paper and to answer main research question the study focuses on addressing the following specific research questions:

Q1: Which barriers are significant for global team employees?

Q2: Which barriers are significant for prosumers?

Q3: Which barriers are common for both employees and prosumers?

The research follows an exploratory approach to discover common knowledge sharing barriers for prosumers and global team members.

To find the answer to the main and specific research questions, as well as to present a complete picture of knowledge sharing barriers from the employee and prosumer perspectives, we combined two research methods in our study – qualitative and quantitative (Creswell, 2013). Our approach was in line with the research conducted by Rivera-Vazquez et al. (2009), which focused on overcoming cultural barriers for innovation and knowledge sharing. The authors used qualitative-based research consisting of interviews carried out among the employees and questionnaires submitted to the prosumers.

Research process

1. A critical review of existing studies to explore the concepts of prosumption and prosumer, global team employees, and barriers to knowledge sharing. The review embraced four bibliographic databases: Ebsco, ProQuest, Emerald Management, and ISI Web of Knowledge.

2. The quantitative research was planned for the prosumers, and a suitable survey questionnaire designed. The questionnaire contained a question concerning specified barriers to sharing their knowledge: what are the reasons or barriers that discourage you from sharing your knowledge with enterprises? For each barrier the respondents had to choose one of five responses, according to a 5-point Likert scale: (1) definitely no, (2) rather no, (3) neither yes nor no, (4) rather yes, and (5) definitely yes. Using the CAWI (Computer-Assisted Web Interview) method, the survey questionnaire was implemented as a website hosted on a Polish platform, Ankietka.pl. The pilot survey was conducted in November 2014. Data collection took place in 2015. The sample comprised people of different ages, genders, levels of education and ICT skills. The responses were screened and outliers excluded, which left a final research sample of 388 usable, correct and complete questionnaires. Cronbach's coefficient alpha was employed for reliability checking, which for all the analyzed items was 0.881. For that the purposes we decided to use only the outcomes from prosumers aged 35+. This decision was

made based on the assumption that there are large differences between the willingness of prosumers to share knowledge and the generation they represent. Thus, the final sample for the study was 63 prosumers, who were of a similar age to the global team employees, allowing the samples to be compared without biases. The demographic analysis of the research sample is presented in Table 3. The data were stored in Microsoft Excel format. The collected data were analyzed using Microsoft Excel and Statistica software to generate findings on the second research question (Q2).

3. Qualitative research on global team members. This research stage followed the recommendations of Dubé and Paré (2003) regarding protocol development and expert validation of the interviews. A pilot study was carried out with three interviewees, in the Poland office between September and October 2016. Following minor revisions to the wording of the questions, the main study was carried out between November and December 2016. The main form of data collection was a semi-structured interview based on eight employees from company A with its headquarters in London, UK and five employees from company B based in Prague, Czech Republic. Second, the interviewees were based in different functional departments and were chosen with the aim to obtain a broader view of the key influences that shape their perceptions.

The research was based on interviews with employees from two companies (A and B) that had global teams. As they requested, the names of the companies will not be revealed. These companies were selected because they have had projects involving global teams for at least three years. Company A was a consulting company acting as the specialist in research and advisory services for the maritime sector. Founded in 1970 to provide information and advice to the global maritime industry it has since worked with over 3,000 clients in more than 100 countries. The company was privately owned, with offices in London, Delhi, Singapore and Shanghai, supported by associates across the world. Company B was a construction company set up in 1996, based in Netherlands with offices all over the world. The key products of the company were connected with road building and hydraulic engineering. The two companies selected for the study represented the construction and consulting sectors, both of which are heavily knowledge based. Identifying knowledge sharing barriers would therefore offer many insights for practitioners and theorists in this respect.

The choice of interviewees was based on key people who possessed knowledge about the company processes, and people capable of responding to the survey questions. In company A, eight employees were interviewed, six based in the UK, one in China and one in Singapore, as shown in Table 4. In company B, five employees were interviewed with all of them based in the Czech Republic, as shown in Table 5. The interviews were conducted with the use of Skype® and each lasted 15 minutes on average.

The data were analyzed using content analysis, as recommended by Bardin (2008). The interview was validated by two professors with experience in the area.

Table 3. Analysis of the research sample

Demographic profile	Number of respondents	Percentage
Gender		
females	51	81%
males	12	19%
Age		
50+ years	22	35%
36–50 years	41	65%

Source: authors' own study.

Table 4. Profiles of interviewees in company A

Interviewee	Time in the company (years)	Experience with global companies	Working in country
A1	3	3	UK
A2	5	5	China
A3	3	20	UK
A4	7	20	UK
A5	5	10	UK
A6	1.5	1.5	UK
A7	3	10	UK
A8	10	20	Singapore

Source: authors' own study.

Table 5. Profiles of interviewees in company B

Interviewee	Time in the company (years)	Experience with global companies	Working in country
A1	10	10	Czech Republic
A2	3	5	Czech Republic
A3	5	10	Czech Republic
A4	5	10	Czech Republic
A5	10	30	Czech Republic

Source: authors' own study.

Research Findings

The findings from this study provide some critical insights into understanding the barriers that affect knowledge sharing amongst global team employees and prosumers.

Significant barriers to knowledge sharing by global team employees

In relation to the first research question „Which barriers are significant for global team employees?" the barriers identified in the literature section were confirmed by the interviewees. When discussing the barriers, it became apparent that they were interrelated. Table 6 includes all the barriers indicated by the employees in companies A and B.

The respondents from company A listed more barriers in knowledge sharing than those from company B. The most visible barriers in companies A and B were: time, cultural differences, silo type structures and professional qualifications.

During the content analysis, professional qualifications emerged as an influential barrier to knowledge sharing. Professional qualifications can negatively affect time if knowledge is unevenly spread between team members. On the other hand, having high qualifications can positively influence the absorptive capacity. As one of the experts said (A6): „People with an IT background feel superiority over those with non-IT backgrounds, and we can find it difficult to grasp some concepts."

Technology influences the distance as it helps to solve communication problems, as it contributes to the creation of relationships over time by providing people with contact and providing documentation regardless of where the person may be. However, technology has also another element, as pointed out by one respondent (A4) "it means people talk less and write more."

Silo type structures was confirmed by the majority of respondents as a barrier to the knowledge sharing process. Respondent A2 compared silo type structures to a close-minded mentality. Respondent A8 added that "it allows people to stay within their own limits. People are afraid they might lose relevance and importance if they share everything."

Cultural differences were highlighted by the interviewees as a barrier in themselves as well as influencing other barriers. Cultural differences, including language and customs, can hinder absorptive capacity and also relationships (Companies A and B).

Over the course of this study it was also possible to note some barriers that were not found in the literature. These can be grouped under one barrier: poor management (managers do not imply the importance of knowledge sharing, which is why team members use "I do not have enough time" as an excuse, so that many people protect knowledge for their own gains (A5). One respondent from company A (A3) linked management abilities to a lack of new technology skills by managers who "are inept with new technologies and don't want to be embarrassed." Another respondent from company B admitted that "People are afraid that knowledge sharing will lead to more control of their work by managers." It is essential to create supportive environments (B1), as confirmed in the literature, yet attitudes to knowledge sharing as well as knowledge sharing behaviors in the organization depends on conditions that vary across institutional and cultural environments (Michailova, & Hutchings, 2006). The second barrier not mentioned in the literature review is related to the lack of time to share knowledge, which was mentioned most frequently by respondents in company A.

Time is considered a barrier, as finding the right time for a meeting on-line or telephone call is challenging, because different time zones hamper communication (Company A) and relationships as people have less time to work together (Company B). Knowledge sharing is best achieved with several team members working together within close proximity. Having team members across different countries can be essential for the business to be successful; however, it restricts knowledge sharing, as respondent A7 noted.

Having a good *relationship* within the team affects how people interact and work to overcome the barriers. It is known that we as human beings prefer to work with people who we like, which may mean we like people who have similar values to ours. A good working atmosphere influences work efficiency as we are more willing to do something for a colleague we like.

Table 6. Knowledge sharing barriers for global team employees in companies A and B

Barrier	Company A	Company B
Technology	A4	B2, B3
Time	A1, A3, A7, A8	B2, B3
Silo type structure	A1, A2, A6, A7, A8	B4
Distance	A4, A5, A7	–
Cultural differences	A3, A4, A5, A8	–
Professional qualifications	A3, A5, A6, A8	B5
Relationship between members of different teams	A5, A6, A8	B1, B3
Absorptive capacity	A1, A4	–

Source: authors' own study.

Significant barriers to sharing knowledge for prosumers

To answer the second research question: "Which barriers are significant for prosumers?" frequency procedures were employed. The outcomes are presented in Figure 1.

The outcomes presented in Figure 1 show that the main barrier for prosumers to share knowledge is Lack of information about opportunities to share knowledge, indicated by 69.8% of prosumers, followed by Reluctance to give private information, indicated by 58.7% of prosumers, and Lack of interest in sharing knowledge, indicated by 55.6% of prosumers. What is more, also significant for prosumers can be Incompatibility of knowledge sharing with current consumer's needs and Time. The less important barriers seem to be both of them, i.e. Reluctance to share knowledge, which means a general reluctance of prosumers towards that activity, and Reluctance to engage with a specific enterprise, which emphasizes that the majority of prosumers do not pay significant attention to the prior bad experiences with knowledge sharing.

Barriers to sharing knowledge which are common to prosumers and global team employees

To answer the third research question: "Which barriers are common to employees and prosumers?" a conceptual framework for knowledge sharing barriers was developed (Figure 2).

The framework presented in Figure 2 shows that there is a possibility to list core barriers which are common to both prosumers and employees. Additionally, it stresses that there are other important barriers specified separately for prosumers and for employees, which may be significant for one group and marginal for the other.

Figure 1. Barriers for prosumers
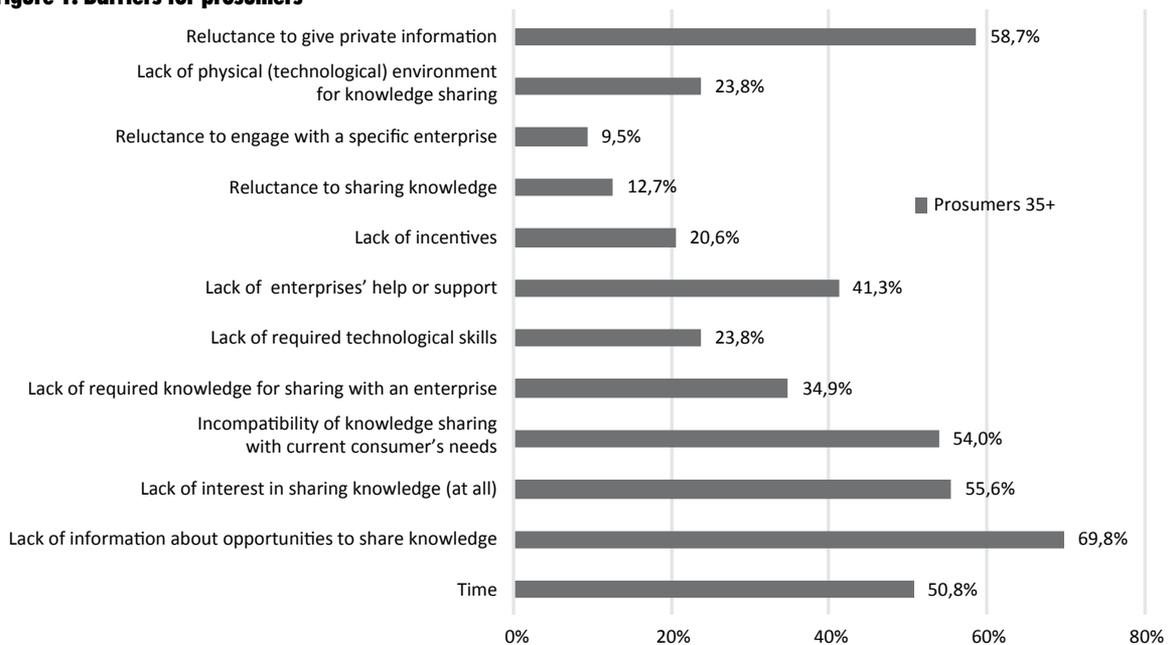
Source: authors' own study.

Figure 2. Conceptual framework of knowledge sharing barriers for prosumers and employees
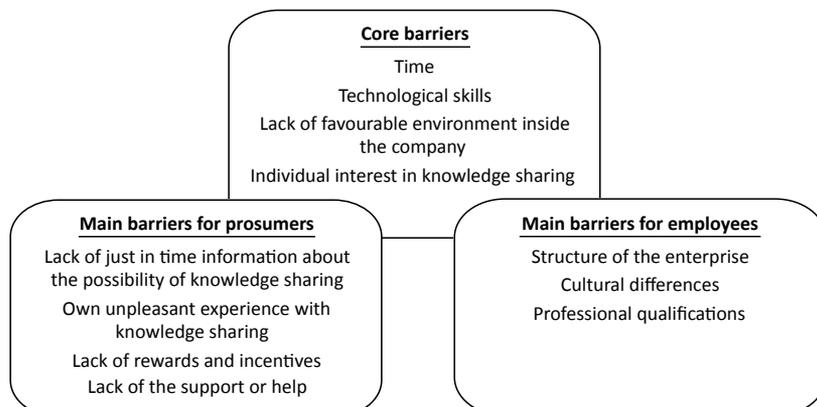
Source: authors' own study.

Conclusions

The contribution of this study to the field of knowledge management is twofold. First, by identifying barriers to knowledge sharing for employees and prosumers. Second, by investigating which common barriers play a greater or lesser role in knowledge sharing for prosumers and employees.

Companies need to pay attention to the potential barriers to knowledge sharing that occur among prosumers and within global teams, in order to gain fresh understanding from prosumers and ultimately to succeed. The relevance of the barriers to knowledge sharing identified in the literature was confirmed. The barriers described by prosumers and global team members include three basic problems, i.e. lack of time, information and support related to technological issues. The benefit of using the qualitative and quantitate approach in the study was that the common barriers for knowledge sharing could be established in samples that seemed to have nothing in common.

Time was indicated as a significant barrier by both prosumers and employees. Technological issues were indicated as an important barrier in company B (construction company) where employees complained about the IT abilities of management whilst it was one of the less significant barriers for prosumers. The majority of prosumers found that the lack of information about opportunities to share knowledge was the greatest barrier for them, while for global teams it was the lack of company support or help and, more importantly, the lack of management skills. The main barrier for prosumers, which was the lack of information about opportunities to share knowledge, can be considered twofold. First, it may mean that there is a lack of suitable information for prosumers on the market, meaning that the ways that companies try to inform prosumers are insufficient or wrong. On the other hand, it could mean that prosumers do not seek the information or simply ignore it. In turn they feel that there is a lack of information about the projects in which they can actively share knowledge, even though companies offer them these possibilities very often. The greatest barrier to knowledge sharing in global teams proved to be silo type structures and time.

It was not mentioned directly, but conclusions can be drawn that as well the inability to share knowledge, by prosumers and global team employees, may be attributed to the management of companies. This is mainly about the incentives offered for prosumers. From the point of view of global team members, this inability is described as poor management skills.

The findings of this study make an important contribution to the literature on the knowledge sharing barriers in theory and practice. From the theoretical point of view the benefits of this study include an opportunity to consider that knowledge sharing barriers may be as common for groups that seemingly seem to have nothing in common, like prosumers and employees. Thus, it has been possible to create the framework which indicates core barriers common for prosumers and employees in knowledge sharing. It also shows that some barriers exist that are unique for prosumers and for employees.

From the managerial perspective this research offers insights for managers on how significant knowledge sharing barriers are and the role of managers in minimizing them effectively.

From a practical perspective the results presented may be useful for businesses. They show a different perspective on knowledge sharing barriers. For prosumers it means companies developing incentives and building informational campaigns on-line. From the perspective of global team employees, managers should be a role model by being a positive example in knowledge sharing, they need to introduce "informational campaigns" as well by informing employees why it is necessary to share knowledge. A knowledge sharing culture is a starting point in developing a knowledge management strategy and introducing a knowledge management system. Thus finally, companies must recognize the barriers which disengage their prosumers and global team employees through knowledge sharing barriers. This is a starting point in the know how required to encourage knowledge sharing for the benefit of the company itself.

Limitations and future research

As with many other studies, this study has its limitations. The first was in the selection of the respondents. The age of the prosumer research sample was limited to prosumers aged 35+. It is advisable to extend the research to prosumers and employees into the age range of less than 35 years old. In turn, this can help to overcome the second limitation, which was the relatively low number of respondents. The research will be continued in the future, including the further significant points:
- to ensure a higher response rate for deeper analysis;
- to develop a conceptual framework with dependent and independent variables. This will facilitate the focus on comparisons between different groups and countries;
- to conduct research on employees and consumers of one specific company, and to present the results from the perspective of the employees and consumers; a deeper analysis into which barriers discourage employees and consumers from knowledge sharing.

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Abstract

The main purpose of this paper is to determine which barriers are significant for prosumers and global team employees, and in turn what can discourage them from knowledge sharing. The main assumption was that prosumers and employees can share knowledge seamlessly, but that very often they are reluctant to do so. It seems to be a challenge for businesses to know which barriers hinder prosumers and employees in sharing knowledge. To find the answer to the main and specific research questions, as well as to present a complete picture of knowledge sharing barriers from the employee and prosumer perspectives, we combined two research methods in our study – qualitative and quantitative. The research process embraced a survey among prosumers and interviews with global team employees. The contribution of this paper is twofold: (1) a knowledge sharing barriers analysis, and (2) a conceptual framework development which presents the common barriers for knowledge sharing amongst prosumers and employees of global teams, to fulfil the research gap extant in the literature.

Keywords: global teams, consumer, prosumer, enterprise, knowledge sharing, knowledge sharing barriers

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