

*knowledge management tool adoption,
Polish and German manufacturing companies, case study*

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STUDYING THE ADOPTION OF A KNOWLEDGE MANAGEMENT TOOL WITHIN GERMAN AND POLISH MANUFACTURING COMPANIES: AN EMPIRICAL CASE STUDY

Abstract

This article elaborates on the influence of motivational factors for workers in a manufacturing company in the context of the use of a knowledge management tool and is based on data obtained from 85 Polish and German Manufacturing Companies from the cross-border cooperation region of Lubuskie/Poland-Brandenburg/Germany. This is followed by a discussion of the results of empirical studies and of the supporting literature.

1. INTRODUCTION

Workers in companies should absorb, store, transform and share knowledge (both tacit and explicit) within a firm for an improvement of its performance. According Alavi and Leidner, knowledge management tools are based on information technology and support the processes of the creation, storage, transfer, and sharing of knowledge among employees [1]. Collections of tools which support explicit knowledge management include: the internet, intranets, databases, data warehouses, information systems (e.g. ERP, BI, CRM), Case-based Reasoning (CBR) applications, information boards and databases of experts. Among those tools which support explicit knowledge management within a company, we can list: knowledge maps, e-learning, web-blogs, social media, internal networks of practitioners (industry blogs), internal compendia

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of knowledge, video-conferencing, newsletters, corporate portals. Additionally, among the methods which support both kinds of knowledge management (tacit and explicit) it is possible to identify ones such as: study visits, daily formal direct meetings, daily informal meetings, coffee breaks, business trips, seminars, conferences and integration meetings.

Managers in manufacturing companies understand that they should implement new technology to support the knowledge management process within their company, (Pfisterer, Streim, and Hampe, 2013), but they still need to determinate the motivators for workers before they will be able to use the new technology for this activity [5, 19]. According to Luthans, motivation is a process that activates employees to achieve the goals of company [13]. So, workers should be motivated to the aim of facilitating the adoption and use of a knowledge management tool. Therefore, it is necessary to identify the motivational factors for workers in a manufacturing company that contribute to a successful adoption of new knowledge management tools.

Based on this concept, this paper elaborates the main motivational factors for workers in a manufacturing company in the context of the adoption and use of a knowledge management tool. Using survey data from 62 Polish Manufacturing Companies from the Lubuskie region; and from 23 German Manufacturing Companies from the Brandenburg region - it is possible to present a set of critical factors for the adoption (by workers) of new technologies to support the knowledge management process in a company in the cross-border cooperative region of Lubuskie/Poland-Brandenburg/Germany.

The remainder of this paper is organized as follows. Section 2 presents the theoretical background of the study. Section 3 describes the research methods. Section 4 explains the research methodology, discusses the results and provides a conclusion of the research. Section 5 summarizes the research results.

2. MOTIVATIONAL FACTORS FOR WORKERS CONTRIBUTING TO THE IMPLEMENTATION OF A KNOWLEDGE MANAGEMENT TOOL

In the literature there are generally two approaches to motivation: theories on factors of motivation and general-process theories on motivation [15]. According to the approach on the factors of motivation used in this study, the significance of motivational factors for workers contributing to the implementation of a knowledge management tool in a manufacturing company is investigated.

Among the theories of factors of motivation, Król and Ludwicyński distinguish the following theories of motivation [10]:

- McGregor's X and Y theory,
- Herzberg's two-factor theory,
- reinforcement theory,
- expectations theory.

Vera-Munoz, Ho and Chow describe motivation as a major factor that influences an employee to share his/her knowledge [20]. Moreover, Lu et al. state that a worker's beliefs about the usefulness of IT tools is the most important determinant in the adoption of this tool in a company [12]. Knowledge management tools should be able to support the capture, storage and organisation of knowledge within a company [7]. Lee and Hong suggest that the major types of KM tools implemented in a company are: intranets, content management systems, document management systems, relational and object databases, groupware and workflow systems, data warehousing systems and data mining systems [11]. For a successful implementation of a KM tool in a company, it is necessary to create a company culture to facilitate the capture, storage and sharing of knowledge among employees by that KM tool [14]. Based on the studies of George and Chattopadhyay [9], Allen, Shore and Griffeth [2], Patalas-Maliszewska and Krebs [17], and Patalas-Maliszewska [18], the following motivators for workers, in the context of the ability to absorb and use a new technology for supporting the knowledge management process in a company, are defined:

- A Good Work Atmosphere (MF₁):
Company culture is defined as the most significant factor in knowledge sharing practices [4]. McDermott stated that company culture can facilitate knowledge sharing among employees [14].
- Organizational Commitment (MF₂):
In this study, organizational commitment describes the extent to which an employee wants to be a part of an organization [3].
- Internal Communication (MF₃):
The internal communication concept relates to whether or not senior managers and all employees communicate with each other [21].
- Training (MF₄):
It is argued that training may improve the work attitudes of employees [6].
- Coaching (MF₅):
According to Evers et al., it has been observed that providing coaching enhances outcome expectancies and self-efficacy [8].
- Internally Organized Meetings (MF₆):
It is argued that meetings can serve to maintain solidarity and collegiality between the chair and any participants [16].

According to the results of the literature study, it is possible to define the following research model (Fig. 1):

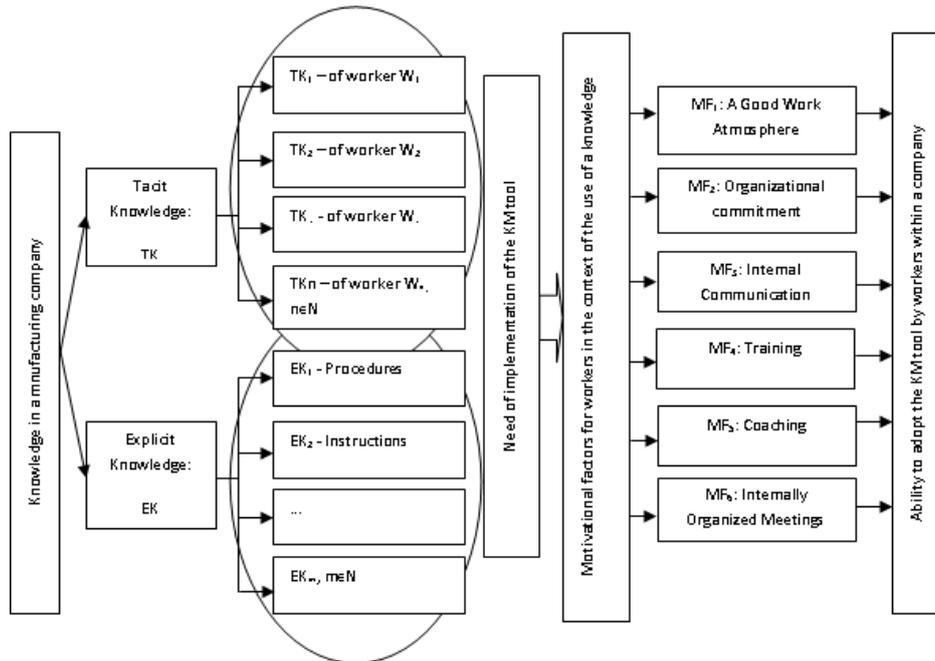


Fig. 1. A concept model [source: own study]

The conceptual model posits, from the preceding argument, that workers in a manufacturing company will be able to absorb and use a KM tool if they are motivated appropriately. So, the question arises of which motivational factors for workers contributing to the implementation of a knowledge management tool enable their ability to adopt this KM tool within a company?

3. RESEARCH METHOD

In order to describe the ability to adopt a KM tool within a company, survey data were collected from 62 Polish Manufacturing Enterprises from the Lubuskie region and from 23 German Manufacturing Enterprises from the Brandenburg region between January to September, 2014 (Polish Enterprises), and between November 2015 to January 2016 (German Enterprises). Additionally, data were collected from 85 manufacturing enterprises from cross-border cooperative region of Lubuskie/Poland and Brandenburg/Germany in which the companies were categorised as either “construction” or “automotive”, or “others”. The distribution of the categories of companies was strictly defined numerically:

- Polish manufacturing companies (N = 62): construction: 24 (39%), automotive: 30 (48%), others: 8 (13%),
- German manufacturing enterprises (N = 23): construction: 5 (22%), automotive: 15 (65%), others: 3 (13%).

The manufacturing companies in the research were approached and surveyed in the form of direct meetings, email surveys and/or phone surveys. The respondents consisted of managers (over 80%) and chief executive officers. The surveys were intentionally provided in manufacturing companies from the Lubuskie/Poland and Brandenburg/Germany cooperative region, because these regions form a special joint “cross-border area” and the chosen 85 manufacturing companies from the “automotive” and “construction” sectors contribute about 20% of those enterprises in the cooperative region.

The list of factors for the ability to adopt a KM tool in a company was based on feedback surveys and its sources are listed here:

Adopting KM tools: the degree to which there is a perceived need to support the capture, storage and sharing of tacit and explicit knowledge by information technology within a company.

- AKMT-factor1: I know that, in my organization, the use of KM tools to support the capture, storage and sharing of tacit and explicit knowledge is not very important.
- AKMT -factor2: I know that, in my organization, the use of KM tools to support the capture, storage and sharing of tacit and explicit knowledge is not important.
- AKMT -factor3: I know that, in my organization, the use of KM tools to support the capture, storage and sharing of tacit and explicit knowledge is marginally important.
- AKMT -factor4: I know that, in my organization, the use of KM tools to support the capture, storage and sharing of tacit and explicit knowledge is important.
- AKMT -factor5: I know that, in my organization, the use of KM tools to support the capture, storage and sharing of tacit and explicit knowledge is very important.

Factors that motivate workers to adopt and use KM tools in a Polish and in a German manufacturing company were based on feedback surveys and their sources are listed here:

The factors that motivate workers to adopt and use a KM tool: The degree to which the implementation of this factor within a company has a positive influence on the adoption and use of a KM tool by an employee:

- MF-factor1: I know that the implementation of motivational factors in my organization is not very important for the adoption and use of a KM tool.
- MF-factor2: I know that the implementation of motivational factors in my organization is not important for the adoption and use of a KM tool.
- MF-factor3: I know that the implementation of motivational factors in my organization is marginally important for the adoption and use of a KM tool.
- MF-factor4: I know that the implementation of motivational factors in my organization is important for the adoption and use of a KM tool.
- MF-factor5: I know that the implementation of motivational factors in my organization is not very important for the adoption and use of a KM tool.

The surveys used for testing the research model (see Fig. 1) were developed by a five-point defining scale.

4. RESEARCH ANALYSIS

The concept model was analysed using a correlation approach in order to estimate the ability to adopt and use a KM tool by workers in Polish and in German manufacturing companies. A moderated correlation approach, using Statistica ver. 10.0, was used to test the defined hypothesis. The data were carefully examined with respect to linearity, equality of variance and normality. No significant deviations were detected. Table 1 presents descriptive correlations for the main variables. Table 1 presents descriptive correlations for the main variables.

In table 1, we find descriptive correlations between the motivational factors which influence the ability to adopt and use a KM tool by workers in Polish and in German manufacturing companies. The defined interaction of the implementation of the motivational factor namely: coaching makes a contribution to the ability to adopt and use a KM tool by employees (corr = 0.3274) in Polish Manufacturing Enterprises, and also in German Manufacturing Enterprises this relationship makes a major contribution (corr = 0.5006). The other relationship between the motivational factors and the ability by workers to adopt and use a KM tool are not expressed either in Polish or in German companies. It is very interesting that similar research results were received from both German and Polish Manufacturing Enterprises (based on research results from Polish and German Companies in a special joint cross-border region of Lubuskie/Poland and Brandenburg/Germany). This may possibly be a good recommendation for an area of further cooperation between Polish and German manufacturing companies in this special region regarding the field of knowledge transfer among workers in those companies.

Tab. 1. Research results [source: own study]

Construct/Item: AKMT-factor1/ AKMT-factor2/AKMT-factor3/ AKMT-factor4/ AKMT-factor5-MF-factor1/ MF-factor2/ MF-factor3/ MF-factor4/ MF-factor5	Correlation	r2	t	p
Polish Manufacturing Companies				
MF ₁ / AKMT	0.0933	0.0087	0.7261	0.4706
German Manufacturing Companies				
MF ₁ / AKMT	-0.0575	0.0033	-0.2638	0.7945
Polish Manufacturing Companies				
MF ₂ / AKMT	0.0663	0.0044	0.5149	0.6085
German Manufacturing Companies				
MF ₂ / AKMT	0.2184	0.0477	1.0254	0.3168
Polish Manufacturing Companies				
MF ₃ / AKMT	0.2381	0.0567	1.8993	0.0623
German Manufacturing Companies				
MF ₃ / AKMT	0.1791	0.0321	0.8343	0.4136
Polish Manufacturing Companies				
MF ₄ / AKMT	0.0714	0.0051	0.5545	0.5813
German Manufacturing Companies				
MF ₄ / AKMT	0.1910	0.0365	0.8915	0.3827
Polish Manufacturing Companies				
MF ₅ / AKMT	0.3274	0.1072	2.6841	0.0094
German Manufacturing Companies				
MF ₅ / AKMT	0.5006	0.2506	2.6499	0.0150
Polish Manufacturing Companies				
MF ₆ / AKMT	0.0526	0.0028	0.4076	0.6850
German Manufacturing Companies				
MF ₆ / AKMT	0.3437	0.1182	1.6771	0.1083

To determine the nature of significant interactions of the factor: *coaching*, which influence the ability of employees to adopt and use a KM tool in manufacturing companies, the study tests the research model using regression analyses which estimate this effect. The success of the implementation of a KM tool in a manufacturing company clearly increases when knowledge workers are motivated by coaching. Therefore, a potential AKMT model, which describes the potential chance of success for the adoption of a KM tool, for the manufacturing companies surveyed in this study can be formulated (see Fig. 2):

$$AKMT = 2.5227 + 0.2846 \times MF_5 \quad (1)$$

where: *AKMT* – the significance of the ability of employees in a manufacturing company to adopt and use a KM tool,
MF₅ – the motivational factors for employees in a manufacturing company for the ability to adopt and use a KM tool.

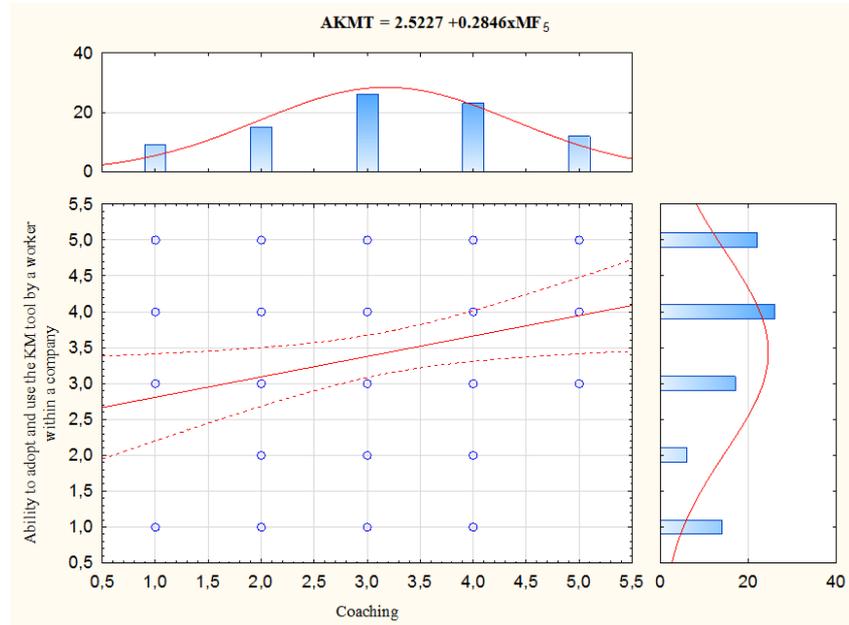


Fig. 2. An AKMT model [source: own study]

This study was motivated by the actual needs of the managers of Polish and German manufacturing companies in the joint cross-border area: Lubuskie/Poland and Brandenburg/Germany, who have a need to implement a knowledge management tool to support the capture, storage and sharing of tacit and explicit knowledge within a company. Hence starting with a review of the different motivational factors for employees used in the companies under study, the author identified that the motivational factor: *coaching* may well be very helpful in adopting a new technology to act as a KM tool in a manufacturing company. A theoretical model was developed and tested; however, it confirmed that the use of the motivational factor: *coaching* plays a strong relevance regarding the ability to adopt and use a KM tool by workers within a company.

5. CONCLUSIONS

This research analysis highlights the need for the implementation of coaching, as indicated by the success of the factor: *coaching*, for workers in the context of improving the ability to adopt and use a new technology for supporting knowledge management processes in a company. The study was based on empirical results from 85 manufacturing companies in the joint cross-border area: Lubuskie/Poland and Brandenburg/Germany.

The empirical findings of this study confirm the positive influence of the one motivational factors: *coaching* on the ability of workers to adopt and use a KM tool. Also it is suggested that managers in a manufacturing company, when they decide to implement a new KM tool, should incorporate a motivator for workers: coaching, in this way improving the likelihood of success of the implementation process. When firm are investing in specialized information technology, firms need to invest in additional resources to safeguard the success of KM-tool implementation.

Acknowledgement

This work was supported in part by the project: “Assessing the relationship between business strategy and knowledge transfer in German Manufacturing Enterprises” by the German Academic Exchange Service (DAAD), Bonn, Germany, Nr: 235585.

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