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Desired Impact of an ERP Implementation on the Quality of Information

Abstract: This paper aims to present the expectations of the employees of the company in which the study has been conducted in terms of the impact of an ERP system implementation on the quality of information, in particular the information generated by the system of management accounting. To achieve the research objective, the authors conducted a case study using a questionnaire. The survey was conducted in a company which was implementing an ERP system. The results allow to conclude that the expectations of its employees in relation to the improvement of the quality of information were high. In particular, they desired an improvement in terms of speed of obtaining information and an increase in its accuracy. The respondents felt that the implemented system would be significantly useful in their work, mainly by supporting its most important aspects and improving control.

Keywords: information quality, Enterprise Resources Planning, ERP implementation, management accounting

JEL: M41

1. Introduction

Nowadays, the effectiveness of business management depends on the ability to use information which constitutes its resource. The complexity and dynamics of changes affecting the economy as well as the high degree of competition and the ever-growing number of companies on the market make management in modern enterprises a very difficult task. At present, it is not enough to adapt to these changes, it is necessary to anticipate them. In this context, the situation of modern companies was accurately depicted already in the 1970s by P. Drucker (1976: 32), who stated that managing a company is tantamount to managing the future, whereas managing the future is inextricably linked to information management. This statement, despite the passage of time, still seems to be up-to-date and describes well a company's management.

The activity of modern enterprises is primarily based on information, thus the ability to acquire it efficiently becomes essential (Aryani, Krismiaji, 2013). Information systems allow companies to adapt their activities to changes occurring in internal and external conditions. An efficient and effective information system is extremely important for organisations operating under conditions of strong competition. In times of information congestion, inadequate links or location of information, a system that allows more effective management becomes essential.

Enterprise Resources Planning (ERP) systems have become the most effective tool which constitutes a basis for the enterprise information system. This system consists of packages and supports most business processes (Hicks, Stecke, 1995; Jabłoński, Bartkiewicz, 2006). It ensures efficient data gathering and processing, as well as their subsequent analysis and presentation to users, thus it enables the implementation of functions of management accounting system. By integrating the management system (in particular decision-making) and the IT system of an individual enterprise, the ERP system should meet the information needs of the company (Hevner et al., 2004; Adam, O'Doherty, 2003; Hitt, Wu, Zhou, 2002).

According to Adamczewski (2014), the ever-growing pace of development of ERP systems and their increased importance in organisations' decision-making processes lead to the creation of a smart organisation which has the ability to learn, where knowledge and information are key features.

ERP systems are IT systems the most commonly used by modern companies (Gullkvist, 2013; Aryani, Krismiaji, 2013). They are meant to comprehensively link various levels of enterprise management and provide real time data, which improves the quality of information (Umble, Haft, Umble, 2003; Pabedinskaitė, 2010).

The aim of this paper is to determine a desired impact of an ERP system implementation on the quality of information obtained from the system of management accounting. The authors will try to answer the question what the desires regarding the newly implemented system in terms of information quality are. In order

to answer the posed question, the authors conducted research in a form of a case study in an energy company. The questionnaires that were used in the study were distributed among all its general managers and also the employees of its financial and accounting departments. The data obtained from the questionnaires were analysed by means of descriptive statistics and statistical tests. The study seems important from a theoretical and practical point of view. It allows one to get acquainted with the research on the subject conducted in previous years and to identify current expectations of the employees from the analysed organisation in terms of improvement of information quality. This may have an influence on a more accurate analysis of expectations related to the newly implemented IT system, and therefore lead to better customisation of its functionality, as its implementation process is considered to be one of the most difficult challenges for organisations (Furmankiewicz, Ziuziański, 2014), and most organisations are disappointed with the results of implementation. C. Huey-Wen et al. (2014) came to similar conclusions; he focused on implementation failures and stated that most organisations consider ERP to be not effective in achieving business objectives. It stems from the fact that system users do not share their knowledge.

2. Information and its value for management

In the modern world, the word 'information' is one of basic concepts. Despite this fact, it has not yet been clearly defined. It is commonly associated with such words as data, knowledge or message. However, these terms are not synonymous. Only by transforming acquired messages and data and assigning them specific characteristics, they become information (Borowiecki, Kwieciński, 2003). This is the case when data are used to solve specific problems by recipients or to reduce confusion and uncertainty. Information is "some content that is a description, command, order or prohibition, transmitted in any way from a sender to a receiver" (Gościński, 1977).

Today, information is a core asset of any business (Aryani, Krismiaji, 2013). The ability to acquire information, the speed and knowledge of methods of processing information, as well as the ability to use it in the process of management are factors that determine competitiveness of business entities. Fully valuable information that constitutes a resource of an enterprise should have four basic functions (Rojek, 2001). The first one is to support the process of change, understood as provision of relevant information in a process of continuous decision-making by managers. The second one is to allow communication between employees and management by exchanging information. Another one is related to the improvement of knowledge of individual employees, which helps them to understand aims and principles of their company. The last function enables bonding with the environment which determines market survival and achievement of business objectives.

The importance of information in terms of a management process is very significant and increasingly appreciated by practitioners. Today, information is treated as the fourth factor of production. Citing the definition of management understood as "...a set of decision-making activities that ensure control of processes and resources in order to link them and use in an effective, efficient way to achieve the best possible effects under existing conditions (legal, economic, social and ecological)" (Penc, 2005), it can be observed that this process is mainly compared to the process of decision-making. The relevance of decisions depends, above all, on the quantity and quality of information available to decision-makers (Gorla, Somers, Wong, 2010; Gullkvist, 2013).

Information useful for management is referred to as management information. This is a special type of information that enables people to perform basic management functions such as planning, organising, motivating and controlling. This information is always correlated with one of the functions and allows decision-making at various levels of management (Hitt, Wu, Zhou, 2002; O'Leary, 2008). It should be useful, understandable for its recipient, up to date, and verifiable by a reliable source (Roman, 2012).

When making rational economic decisions, information that comes from the management accounting system is of particular importance. It enables a description of decision-making situations under certain conditions of management of an enterprise (O'Leary, 2008; Aryani, Krismiaji, 2013). Management accounting is a system that makes the decision-making process subject to achieving a given company's core objectives, therefore it provides more useful information in the decision-making process. This is also due to the fact that planning data provided by the management accounting system are estimated and management is primarily focused on the future. Besides, the scope of information processed in management accounting is much broader than in the financial accounting system.

Numerous definitions of management accounting also confirm that this system is primarily based on processing information for management purposes. Kaplan and Atkinson (1998) have determined that this system provides information which supports managers in planning and controlling the business. The whole system, however, involves collection, classification, processing, analysing and providing information to the management. In another definition, management accounting is defined as a process that focuses on identifying, measuring, collecting, analysing, preparing and communicating information that is intended to support managers in achieving company goals (Horngren, Foster, Datar, 1991). Drury (2005) defined management accounting as the accounting department responsible for supplying people in the enterprise with information to help them make the right decisions and improve efficiency of their actions. To sum up, the purpose of management accounting can be defined as providing information that meets the special needs of managers and employees who are decisive in terms of a given organisation's future (Sobańska, 2010).

In order to ensure a smooth information process in a business organisation, information systems are created. For management, such a system should take into account the following needs (Spoz, 2015): providing information presenting a given company's current condition, gathering analytical and forecasting data, as well as expert information used in the processes of decision-making. The quality of information systems should be assessed in terms of usefulness of generated information for the management process (Spathis, 2006; Gullkvist, 2013). This usefulness depends on the qualitative characteristics of generated information. These include its validity, reliability, comparability or availability.

3. Qualitative characteristics of information

Each item of information has a certain quality that is different depending on different recipients. When analysing this concept, one needs to take into account many characteristics that determine the quality of information. It mainly involves the ability to use certain information. Information can be used in different ways depending on the needs of recipients, their interests or understanding of the information. The same information may also have different meanings for the same recipient depending on the situation or problem that needs to be resolved. For a particular user, the value of information is transient.

Information should have a set of features that will enable its evaluation and assessment of its usefulness. Useful information makes sense desired by the user and is significant in terms of the purpose for which it was obtained. The content of useful information should correspond to the recipient's information needs. It is the usefulness that makes information valuable. In the process of management, information is useful if it is used when solving a particular problem, that is, when it determines its solution. In management, usefulness is a synthetic term for each configuration of qualitative characteristics of information (Unold, 2004). It stems from the fact that, depending on the type of a management problem, how it is solved, or the solver, different qualities are required from the information.

The value of information depends on its quality. The concept of information quality is generally understood as a set of characteristics that information should have in the process of managerial decision-making. This is subjective because each feature can influence the quality of information if it is desired by a certain recipient. The issue of scope of characteristics that information should have to become useful for the purpose of managerial decision-making has been addressed in the subject literature since the 1970s. This problem has been mainly present in works related to accounting and information systems. Qualitative characteristics of information cited by selected authors are presented in Table 1.

Table 1. Basic qualitative characteristics of information

Year of publication	Author	Qualitative characteristics of information
1970	R.R. Sterling	Detailed, relevant, objective or subjective, reliable.
1972	G.A. Feltham	Useful, relevant, informational, reliable, timeliness.
1973	R. Kolman	Useful, usable, relevant, correct, experiential, profitable.
1987	J. Kisielnicki	Minimal characteristics (up-to date, available, comparable, reliable). Optimisation characteristics (active, secure, response time, flexible, easy to use, reliable, confidential, priority, reproducible, stable, detailed, efficient.
1990	J.A. Senn	Objective, relevant, important, accurate, coherent, up-to-date.
1994	T. Kiziukiewicz	Useful, relevant, up-to-date, available, complete, reliable, profitable.
1999	A. Sopińska	Up-to-date, relevant, complete, accurate.
2003	R. Borowiecki, M. Kwieciński	Up-to-date, understandable, operative, accurate, secure source, reference to the future.
2006	A. Karmańska	Useful for decision-making, "just in time" reporting, usable.
2007	M. Olender-Skorek, K.B. Wydro	Up-to-date, indisputable, reliable, diligent, understandable, useful.
2008	J. Zimmermann	Useful, relevant, up-to-date, available, profitable.
2012	J. Turyna	Attributes of individual data (accuracy, form, frequency, relevance, scope, original, unique, up-to-date, time horizon). Attributes of sets of information (relevance, completeness, up-to-date).
2012	W.K. Roman	Available, up-to-date, integrity, comparable, reliable, accurate, complete, indisputable.
2013	Y.A. Aryani, Krismiaji	Available, timeliness, up-to-date, true representation.
2013	B.M. Gullkvist	Accurate, complete, relevant.
2016	K.A. Zarańska	Up-to-date, integrity, accurate, complete, indisputable, flexible, relevant.

Source: own elaboration based on Sterling (1970), Feltham (1972), Kolman (1973), Kisielnicki (1987), Senn (1990), Kiziukiewicz (1994), Sopińska (1999), Borowiecki, Kwieciński (2003), Olender-Skorek, Wydro (2007), Zimmerman (2008), Turyna (2012), Roman (2012), Aryani, Krismiaji (2013), Gullkvist (2013), Zarańska (2016)

The table shows that the cited authors assign very different qualities to information. However, it can be seen that some of these qualities are repeatedly encountered in the above-presented publications. One of such features is relevance, which is understood as adapting given information to a specific decision-making problem. In such a situation, the information should have a significant value and be relevant to achieve a specific purpose, i.e., satisfy the user's information needs. Being up-to-date was another characteristic which was frequently cited in the

above-mentioned publications. This feature means that the information is relevant to the actual condition of an organisation it relates to. Information should reflect the current level of a process or phenomenon about which the decision is made. Accuracy of information means that it should reflect a true image of a process or phenomenon to which it relates. This characteristic is determined by a degree of closeness and detail of the obtained data in relation to reality.

Reliability is another very important feature of information. It is related to the ability to validate information by assessing and verifying its sources. Reliability of information is also determined by its faithfulness to reflect characteristics of the phenomenon concerned and on the basis of objectivity level and impartiality during its processing and presentation. Completeness of information is yet another frequently cited feature, and it is described as completeness in terms of content of data which describe an event, a phenomenon or a process. It also means that tailor-made information should lead to elimination of information gaps (Roman, 2012: 186).

Undoubtedly, timeliness, i.e. delivery in a timely manner, is an extremely important feature of information quality. It is possible thanks to application of specific IT tools – ERP systems, where information is collected, processed and transferred in real time.

The subject of influence of an ERP implementation on the quality of generated information and its further use was very rarely discussed in previous studies (Fladrowska, 2004; Zviran, Pliskin, Levin, 2005; Ifinedo, Rapp, Ifinedo, Sundberg, 2010; Kuo, Lee, 2009). In many cases, the studies investigated only expectations of future users and compared them with the improvement of information quality after the implementation of an integrated system (Granlund, Malmi, 2002; Lech, 2003; Spathis, Constantinides, 2003; Zarzycka, 2012b). The recipients of information expected an increase in its quality and better adaptation to their needs by means of its unification. The respondents claimed that it was important for them to be able to acquire necessary information without involving additional people (Lech, 2003). Some researchers (Spathis, Constantinides, 2014) have pointed out a wide scope of ERP applications which are used for calculating financial and non-financial performance indicators, multi-dimensional profitability analyses, budget planning and control, and liquidity management. Due to this wide scope of applications, managers automatically expect an improvement in the areas mentioned in terms of speed and simplicity of accessing management information.

On the other hand, Granlund and Malmi (2002), after examining a group of financiers, pointed out that an ERP implementation is not always accompanied by application of new solutions and tools in terms of accounting system. Furthermore, the most advanced tools of management accounting exist outside an ERP system. An analogous situation is present in Polish companies (Zarzycka, 2012b), where in terms of six companies under investigation, the implementation of ERP

did not result in any significant changes in the system of management accounting. Saatcioglu (2009) lists the control of information flow as one of five factors determining satisfaction with an ERP implementation, along with such factors as better management, control of financial and material flows, and improved IT performance.

Primary expectations are consistent with the results obtained after an ERP implementation. The use of an ERP system in a company ensured a coherent flow of information as well as provided detailed data about processes taking place in the enterprise (Rut, Kulińska, 2013). In terms of improving quality of information after the implementation of an integrated system, it was also important that costs could be allocated to a greater number of responsibility centres and individual jobs, which resulted in much greater detail of information about costs (Fladrowska, 2004).

In ERP systems, information can be used multiple times in different departments and it has no negative impact on its quality, validity and accuracy, information does not lose its usefulness and consistency. These systems also allow immediate update and introduction of new data, thus ensure one of the most important qualities of information – timeliness (Fajfer, 2011).

The issue of impact of an ERP implementation on the functioning of enterprises, especially in terms of expectations related to improvements and suitability of the system, is of utmost importance due to great importance of managerial decisions regarding the future functioning of enterprises. There are a lot of studies showing the impact of already implemented systems on the quality of work of financial and accounting departments (Granlund, 2011; Kanellou, Spathis, 2014; De Toni, Fornasier, Nonino, 2015).

However, the research conducted so far in Polish organisations has not analysed the impact of implementation of an ERP system on the changes of quality of information generated by the management accounting system. The research gap was identified by the authors of this article. The following study is an attempt to answer the question of how, according to the employees of the researched organisation, the implementation of an ERP system should impact the quality of information, in particular its availability, accuracy, understandability, reliability and speed of acquisition.

4. Desired impact of an ERP implementation – survey results

4.1. Research methodology

To achieve the aim of the article, the authors conducted research in a form of a case study, based on the standardised questionnaire, in a selected company. This research method is empirical as it analyses and evaluates phenomena occurring in reality, and it is especially used for descriptive research. It answers the question of what, where, and how something happened. On the basis of collected information, a case study method allows an in-depth analysis of a problem and the presentation of its specific nature. However, it must be stressed that the obtained results cannot be generalised due to a large number of variables and their dependencies that are specific to the examined object.

The research investigating the implementation of an ERP system was carried out in a large enterprise operating in a power industry[1]. The survey consisted of two parts. The first section related to the characteristics of the respondents and the other one contained questions that allowed to obtain data on the integrated system being implemented. The questionnaire was distributed among middle-level managers and top-level managers who were recipients of information generated by the system of management accounting and among the employees of the financial and accounting department, i.e. people who were responsible for providing information. 179 questionnaires were received (43% response rate) and classified for further analysis. During the study, descriptive statistics and statistical tests were applied, and on their basis the authors drew conclusions on the opinions and expectations of the respondents in terms of the implemented IT system. The results are presented in the following part of the article.

4.2. General characteristics of the respondents

On the basis of data obtained from the questionnaires, the respondents were grouped according to their role in the organisation, experience in terms of computers and the type of ERP-class system users.

The respondents were also asked to identify their role in the organisation. In relation to this question, four groups were isolated. Management at the level of the entire company (the highest position) was indicated by only 2.2% of the respondents. Most

[1] The name of the analysed company was not disclosed due to the need for keeping a trade secret, and the company itself was presented in a very general manner so that its identification on the basis of the information obtained from the paper was not possible.

of the surveyed respondents indicated that they held a middle management position (45.8%) or in the plant's or regional administration (40.8%). These groups accounted for approximately 86.6% of the total. The next question related to the experience of working with a computer. More than 91% of the respondents indicated familiarity with only basic office programmes such as Word, Excel or Power Point. Only 5.6% of the respondents worked with domain systems including finance and accounting systems. Only two people (1.1%) had experience working with an ERP system.

In the case of the question that related to the type of integrated system users, most of the people surveyed responded that they would be involved in the preparation of data and their introduction into the system (48.6% of the respondents). Slightly fewer people (42.5%) indicated that they would use the information generated by the system to, for example, make decisions. Almost 9% of the respondents did not specify their future responsibilities.

4.3. Desires in terms of the quality of information generated by the ERP system

The questionnaire contained a question in which the respondents were supposed to determine their desires in terms of qualitative characteristics of the information generated in the information system. The authors identified the following five qualities, i.e. accuracy, availability, reliability, speed of acquisition, and understandability. The respondents were asked to evaluate both the present state determined as a starting point (marked with the letter "S") as well as their expectations in terms of the quality of information after the implementation of an integrated information system ("E"). The respondents indicated their answers on a 5-point scale, where "1" meant very high expectations, while "5" very low expectations. The results obtained after the study are presented in Table 2.

On the basis of average responses of the respondents, it can be concluded that they had the highest expectations in terms of speed of obtaining management information generated by the implemented ERP system. In the case of this feature, the difference between mean scores was the highest. This aspect in the current enterprise system was rated by the respondents on average at 3.32. Almost 60% of the respondents rated this feature as moderate or low, while only 4.5% claimed that the speed of information acquisition was very high. After the implementation of an integrated IT system, the respondents expected this feature to improve to 2.19. More than 30% of the surveyed people expected a very high rate of information flow and an additional 52% a high or at least average rate. Accuracy of information was another feature with regard to which the respondents had high expectations. In the current situation, this parameter was rated at 3.13. This is due to the fact that more than 41% of the respondents indicated moderate accuracy of information,

and additional 30% rated it as low or very low. Expectations to improve this feature were high. Almost 61.5% of the employees of the surveyed company expected very high or high accuracy of information generated by the integrated system. Only two people (1.12%) thought that after the implementation of ERP, the accuracy of information would be very low. This allowed to obtain an average rating of 2.18. It should be also noted that this rating is the highest in terms of expectations about the quality of information after the implementation of an ERP system.

Table 2. Comparison of qualitative characteristics of information

Qualitative characteristic	*N*	Mean	Change in mean	Change in mean %	Mode	Mode population	Standard deviation
Accuracy S	165	3.13	0.94	30.15	3	74	0.89
Accuracy E	168	2.18			2	64	0.98
Availability S	162	3.12	0.88	28.25	3	67	0.92
Availability E	166	2.24			2	51	1.05
Reliability S	161	3.00	0.79	26.42	3	71	0.97
Reliability E	164	2.21			2	61	0.96
Speed S	159	3.32	1.13	34.12	3	59	1.04
Speed E	165	2.19			1	54	1.05
Understandibility S	163	2.85	0.49	17.30	3	77	0.92
Understandibility E	167	2.36			2	53	1.07

N – number of observations

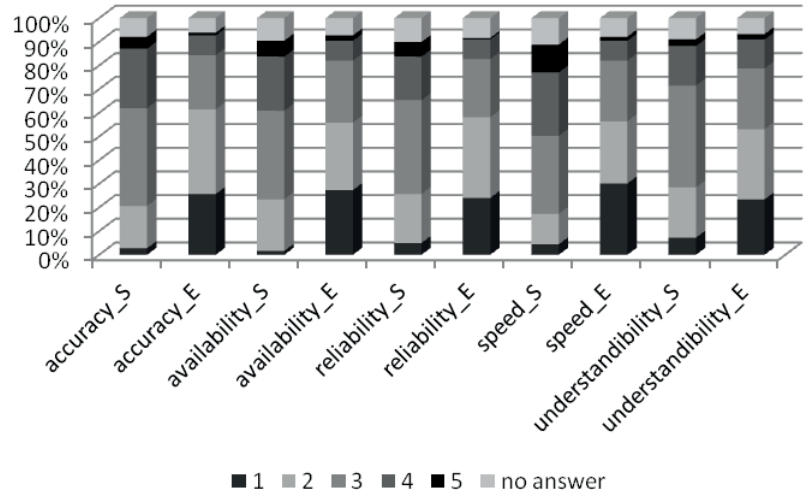
Source: own elaboration

Slightly smaller differences between the initial situation and the respondents' expectations occurred in terms of information availability. In the current situation, it was rated at 3.12, however the rating indicating the expectations regarding the implementation of an ERP system increased to 2.24. This change is due to the fact that only slightly over 23% of the respondents rated the availability of information at present as high or very high, while in the case of expectations it was almost 56% of the respondents. A similar situation could be observed in terms of reliability of generated information. 25.7% of the respondents rated this parameter at present as high or very high. It should be noted that only one person assessed the reliability of information obtained from the new integrated system as very low.

Little improvement was expected by the respondents in terms of understandability of information. The difference between the mean scores was the smallest in this case. The respondents rated their expectations at 2.36, while in terms of current situation – at 2.85. Such a small difference is due to the fact that currently 71.5% of the respondents rated this feature as very high, high or average, while 78.8% of the respondents indicated their expectations at the same level. In addition, it should be taken into account that among characteristics describing the quality

of management information at present (before the implementation of an ERP system), understandability was rated by the respondents at the highest level and as the only feature it reached a mean rating below 3.

The differences in the number of indications of various levels of all the qualitative features of information in the current situation (the feature was marked with "S") and in terms of expectations of the respondents after the implementation of ERP ("E") as described above are shown in Figure 1.



Note: 1 – very high; 3 – moderate; 5 – very low.

Figure 1. Respondents' evaluation in terms of qualitative features of information

Source: own elaboration

The results of Wilcoxon signed-rank test carried out by the authors show that the presented differences between evaluation of qualitative characteristics of information available in the current system and expectations in terms of information generated by ERP are statistically significant. The results of the test are presented in Table 3.

Table 3. The results of Wilcoxon signed-rank test related to the qualitative features of information

Qualitative characteristic of information	*N*	*Z*	*P*
Accuracy	118	7.538056	0.000000
Availability	115	6.862467	0.000000
Reliability	97	6.762881	0.000000
Speed of aquisition	120	7.416637	0.000000
Understandibility	101	4.612267	0.000004

Note: *N* – sample size, *Z* – value of test statistics in Wilcoxon's test, *P* – probability value for Wilcoxon's test; $\alpha = 0.05$.

Source: own elaboration

The authors of the study also carried out an analysis of the relationship between the respondents' expectations regarding the quality of information generated by the implemented ERP system and their expectations with respect to the suitability of the entire system. Spearman's rank correlation coefficient was used to evaluate the relationship between the respondents' expectations. Spearman "rho" was used to examine the relationship between two ordinal variables. The correlation coefficient that describes the strength and the direction of the relationship between the variables is between –1 and 1, where –1 means a perfect negative correlation and 1 indicates a perfect positive correlation. Thus, the nearer the absolute value of the coefficient is to zero, the weaker the relationship between two variables. All the correlations were statistically significant at the 0.05 level (the value of the correlation Spearman coefficient in each case was less than 0.05). The Spearman's rho values for each correlation are shown in Table 4.

Table 4. Spearman's rho correlation coefficients

Specification	Accuracy	Availability	Reliability	Speed	Understandibility
Improvement of work quality	0.3893	0.4496	0.3947	0.4647	0.4829
Improvement of control over work	0.4683	0.5304	0.4454	0.5047	0.5056
Faster performance of tasks	0.3942	0.4733	0.3472	0.4874	0.4624
Support of key aspects of work	0.4143	0.5166	0.3769	0.4514	0.5307
Improvement of the respondent's productivity	0.3916	0.4761	0.4080	0.4680	0.4993
Improvement of the respondent's work	0.3927	0.4746	0.3744	0.4049	0.4336
Performance of more tasks	0.3786	0.4328	0.3441	0.4257	0.4241
Increased effectiveness of the respondent	0.4053	0.4837	0.3859	0.4984	0.5031
Easier performance of work	0.4023	0.5144	0.3953	0.4734	0.4961
Usefulness in the respondent's work	0.4346	0.5301	0.4083	0.5358	0.5349

Source: own elaboration

As it can be inferred from the above-presented table, the correlations are weak or moderate (the value of the correlation Spearman coefficient (rho) < 0.5 – according to Guilford's classification). The strongest of relationships (rho = 0.5358) was related to the respondents' expectations with respect to the improvement of speed

of information acquisition and general usefulness of an integrated system in the respondent's work. In this case, 23% of all the respondents who indicated a very high level of expectations related to the improvement of speed of information acquisition from the new ERP system also considered that such a system would be very useful or extremely useful in their work. Another 13% of the respondents with a very high level of expectations related to the improvement of speed of information flow predicted that the usefulness of an integrated system would be great.

A slightly weaker relationship also occurred between the usefulness of ERP in the performance of tasks by the respondents and another qualitative feature of information, i.e. understandability (rho = 0.5349). Expectations in terms of this feature of information were also strongly correlated with anticipated support of key aspects of work by the newly implemented system. 42% of the respondents who expected high or very high understanding of ERP information at the same time hoped for significant, large or at least average support of the most important aspects of their work by this system.

Expectations of the respondents in terms of availability of information in the new IT system were strongly correlated with four aspects of their work, which, according to the respondents, would improve after the implementation of an ERP system. As in the case of relationships, also this feature was strongly correlated with the expectations of the respondents related to the support of key aspects of their work and an overall usefulness of the system (Spearman's rho coefficients 0.5166 and 0.5301 respectively). The respondents who expected greater information availability also thought that the implementation of an integrated IT system to a very large extent (8% of the respondents), large extent (22%) or at least a moderate extent (14%) would facilitate performance of their work. A strong correlation (rho = 0.5304) also indicates that the respondents who hoped for a significant or very significant improvement of information availability in the new system also expected a significant improvement of control over their work.

5. Conclusions

The results of the research are partially consistent with conclusions of other authors (Quattrone, Hopper, 2001; Granlund, Malmi, 2002; Scapens, Jazayeri, 2003; Spathis, Constantinides, 2003; Lech, 2003; Poulymenakou, Borotis, 2005; Sangster, Leech, Grabski, 2009; Galani, Gravas, Stavropoulos, 2010; Zarzycka, 2012a). In a study by Spathis and Constantinides (2003), 98% of the respondents indicated that increased demand for faster generation and delivery of information determined the implementation of an ERP system. A survey conducted by Poulymenakou and Borotis (2005) in Greek companies showed that the decision about the implementation of an integrated system was primarily influenced by increased demand for

information necessary for decision-making which was available to users in real time. However, Granlund and Malmi (2002) emphasise that although the implementation of an integrated system guarantees a general increase in the speed of information acquisition, it mainly depends on the abilities of users, not just on the functionality of ERP. Kanellou and Spathis (2013) explored the benefits of an ERP implementation for the accounting department, focusing on the relationship between the quality of information and the user's satisfaction with an ERP implementation. After researching 193 companies in Greece, flexibility in generating information, improvement of integration of accounting applications (many companies use more than one application simultaneously), improvement of reporting quality, as well as improvement of decisions based on up-to-date and reliable information were observed. The researchers also pointed out that the implementation of ERP can be a source of data for new accounting practices, and consequently support these practices. This is in line with the research by Spathis and Constantinides (2004), who drew attention to the demand for real-time information and its beneficial influence on the decision-making process.

However, there is no doubt that greater availability, speed or accessibility of automatic reporting ensured by an ERP implementation reduce the number of responsibilities of information recipients including management accounting specialists or managers. Thanks to this, they can devote their time to in-depth analyses, innovative activities or support their management in the decision-making process (Lech, 2003; Zarzycka, 2012a). According to Scapens and Jazayeri (2003), the implementation of an ERP system did not change the nature of information generated by the management accounting system, yet it increased the scope of controllers' activities and sought information which was more future-oriented. Integrated IT systems that provide access to a wide range of data immediately after they are introduced and regardless of geographic location of the unit where they were introduced have a significant impact on the quality of work of management accounting professionals who are in charge of branches that are geographically dispersed (Quattrone, Hopper, 2001). The accuracy and relevance of information generated after the implementation of an integrated IT system are features that are very highly evaluated by the users of the system (Silesian IT Cluster, 2013). Improved quality of information obtained from ERP indicated by users of the newly implemented systems provided better support for strategic and operational planning and hence increased business efficiency (Booth, Matolcsy, Wieder, 2000; Galani, Gravas, Stavropoulos, 2010). Information of better quality provided to users after the implementation of ERP also led to an improvement of decision-making process in the organisation (Sangster, Leech, Grabski, 2009).

The article made it possible to determine the desired impact of an ERP implementation on the quality of information provided by the management accounting system, in particular on its availability, accuracy, understandability, reliability and

speed of its acquisition. The study conducted by the authors indicates that the employees of the analysed enterprise have high expectations in terms of improvement of information quality. These expectations are mainly related to the improvement of speed of information acquisition in the new integrated system and greater accuracy of information. At the same time, the respondents expect that the implementation of an ERP system will facilitate performance of their duties, for example, by supporting key aspects of their work and improving control.

From a theoretical point of view, the article presents expectations of employees from an enterprise operating in Poland related to the improvement of information quality as a result of an ERP implementation. The article also allows to familiarise oneself with the studies conducted in previous years that analysed the subject matter. This makes it possible to compare current expectations of employees with regard to the quality of management information with the results from previous research. On the other hand, from a practical point of view, the conclusions may contribute to a more accurate analysis of expectations of future users of an ERP system and, consequently, to a better adaptation of its functionality to the needs of recipients. The conclusions may be used both by external consultants and by employees of enterprises planning to implement an ERP system. The conclusions of the study may also improve the efficiency of IT implementation process.

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Pożądany wpływ implementacji zintegrowanego systemu informatycznego na jakość informacji

Streszczenie: Celem przedstawionego w artykule badania jest określenie oczekiwań pracowników badanego przedsiębiorstwa w stosunku do wpływu implementacji zintegrowanego systemu informatycznego na jakość informacji, w szczególności generowanych przez system rachunkowości zarządczej. Dla realizacji tak określonego celu badawczego zastosowano studium przypadku z wykorzystaniem kwestionariusza standaryzowanego ankiety w przedsiębiorstwie wdrażającym system ERP. Uzyskane wyniki pozwalają na stwierdzenie, że oczekiwania pracowników w zakresie poprawy jakości informacji były wysokie. Największe nadzieje pokładano w poprawie szybkości pozyskiwania informacji oraz ich dostępności. W opinii respondentów zintegrowany system informatyczny miał przede wszystkim podnieść jakość ich pracy przez wsparcie najważniejszych jej aspektów oraz poprawę kontroli nad nimi.

Słowa kluczowe: jakość informacji, zintegrowany system informatyczny, ERP, implementacja, rachunkowość zarządcza

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