

IT reliability as a manifestation of the alignment between information systems in organization and the needs of chosen management techniques

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ABSTRACT: *The paper presents the importance of the alignment between information systems (IS) and the needs of various management techniques manifesting itself in the growing level of the perceived reliability of IT in organization. IT reliability is discussed as new framework for the analysis of IS in organization. Five different management techniques are considered, Controlling, Business Continuity Management (BCM), Enterprise Resource Planning (ERP), Client Relation Management (CRM) and High Commitment Management (HCM), differing in their needs for IS support. Empirical research is conducted and IT reliability relation with time of use of those different management techniques is analyzed among more than 1000 organizations from two business contexts (Poland and Switzerland) in order to determine whether the alignment is growing in time and is manifested by IT reliability.*

KEY WORD: *IT reliability, controlling, BCM, ERP, CRM, HCM*

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I. INTRODUCTION AND LITERATURE REVIEW

Information technology (IT) is the factor, which completely changed the way contemporary organizations use management techniques and techniques. Rapidly growing role of information systems (IS) needed for efficient and proper use of those techniques brought sudden changes in almost all of them. Those changes are mainly connected to the fact that IT completely reshaped the information processes within and outside of the organization. However, it is important to remember that nowadays, the fact of using IT is not a factor differentiating organizations. Almost every organization, which has implemented at least one management method, also has IS supporting those techniques. Hence, the new framework is needed to differentiate the IT used by various organizations and analyze its actual potential to influence management techniques, since the research gap clearly exists in this regard. The main objective of using management techniques is to positively influence the organization management and boost not only the organization' efficiency but also the variety of organizational benefits gained from those techniques. Considering the growing role of IT in securing the proper use of those management techniques, it seems justified to consider what is the role of IT in supporting the ability to gain those benefits.

Hence, there are three main aims of this paper. First of all, to analyze the IT in organizations from different business contexts (differing in case economic development translating into different stage of IS availability) using new framework (IT reliability). Second of all, to verify the existence of the relation between IT reliability in organization and time of use of chosen management techniques (differing in case of their sensitivity and need for IT support). Third of all, to verify through this analysis whether the alignment between IS and management techniques needs increases over time and is manifested through growing level of perceived IT reliability. To achieve such aims, empirical research was conducted in two business contexts – Poland and Switzerland through survey which gathered information concerning IT reliability and five chosen management techniques: Controlling, Business Continuity Management (BCM), Enterprise Resource Planning (ERP), Client Relation Management (CRM) and High Commitment Management (HCM), differing in their needs for IT support.

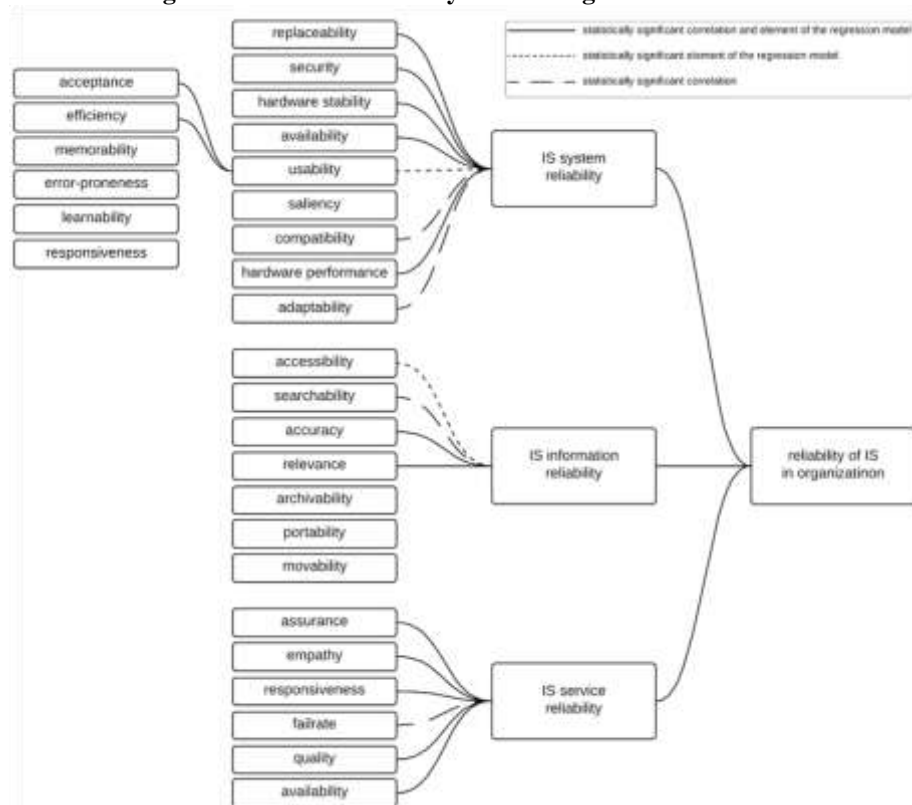
Many authors underline that it has become necessary for the organizations to integrate IS for all management techniques in order to build its potential to influence organizational competitive advantage, performance and competitiveness (Tsubira, Mulira, 2004; Bieńkowska et al., 2017). However, since the relevance and the need for IT use in organization seems to finally be undisputable, there is a need for the analysis and evaluation of its use in organization. The concept of 3 R (reliability, resilience and robustness) emerged in the literature few years ago (Little, 2003) and underlines that the key factor influencing the ability to

profit from using IT is its appropriate functioning in organization (Tworek, 2018a). Hence, the main element of this concept is IT reliability. When almost every organization operates using some kind of information system (IS), its reliability seems to be one of the key factors influencing organization's competitive advantage from using it and its ability to support various management techniques used in organization (Tworek, 2018a).

1.1. IT reliability

The reliability of IT in organization is understood as measurable property of IT, useful for its control and management, identifying its quality level and pointing out potential problems (Zahedi, 1987) and it is directly linked to the efficiency of IT components, especially those critical to its proper operations. Therefore, it can be said that IT reliability in organization is a notion build by factors connected to 3 different IT theories. First one is DeLone and McLean success model (DeLone, McLean, 2003), second one is Lyytinen (1987) 4 types of IS failure and third one is TAM model (Davis, 1985). Therefore, in order to fully develop the notion of IT reliability, it was crucial to identify factors that are constructs for each of 4 identified variables proposed in the IS reliability model (see Fig 1). To identify all of them, the search of articles published from 2000 to 2018, with key words "IT in organization", "IS in organization", "measurement" was conducted with EBSCO and ProQuest databases. From all available publications, those concerning lists of factors describing IT in organization were purposefully selected. Based on those research (Niu et al., 2013; Palmius, 2007; Finne, 2005; Irani, 2002), all factors potentially related to IS reliability in the context of above-mentioned 3 IS theories were identified and assigned to proposed 4 variables in the process of model development made by Tworek (2016, 2018a).

Figure1. Model of reliability of IS in organization



Source: Tworek, 2018a

The final model of IT reliability in organization has been developed by Tworek (2016) and verified in various business contexts (Tworek 2018a, 2018b) and it is presented in Figure 1. The reliability of IT in organization consists of 4 factors: reliability of information included in IT in organization, reliability of support services offered for IS in the organization and reliability of system itself, which also includes the usability of this system. Each factor is built by series of items, listed on Figure 1.

1.2. Management techniques and the role of IT in shaping them

Various management techniques differ in case of their need for IT support in the phase of implementation and operation in organization. For the purpose of this paper, five different management

techniques were selected in order to demonstrate different sensitivity to IS support and different level of standardization and alignment of existing IS available for every organization to choose from and implement. Moreover, it is crucial to underline that as time goes by and changes in the internal and external conditions of the organization functioning occur (changes in size or configuration of organization, information technology development, emergence of new markets, etc.), existing IS aimed at supporting various management techniques must be improved to assure the continues alignment between IS and current needs, otherwise they will lose the ability to perform the functions for which they were created, and the organization will cease to benefit from the implementation of those management techniques (Bienkowska et al., 2018).

1.2.1. Controlling

Controlling, is understood as "management support (...) consisting of coordinating the process of solving specific management tasks, supervising and monitoring the course of their implementation, as well as participating in the performance of these tasks, mainly in the field of planning, controlling and providing information" (Bieńkowska, Kral, Zabłocka-Kluczka, 1998: 289) and can be described as one of the most often used techniques of management in contemporary organization (Bieńkowska, Zgrzywa-Ziemak, 2011).

It is often underlined that "the implementation of controlling almost automatically connects with the implementation of the IT system" Młodkowski (2007), as it seems impossible to create, transform and transfer management information without appropriate IT systems (Peleias et al., 2009; Lira et al, 2012). Therefore, it can be assumed that there is a variety of IS available for every organization to implement as IT support well-aligned with the needs of Controlling.

1.2.2. Enterprise resource planning (ERP)

Enterprise resource planning (ERP) is a holistic and integrated management method concerning all core business processes in organization, usually with a full IT support (Al-Mashari et al., 2003). There are various commercially available systems, which promise seamless integration of all information flows in the organization, from financial and accounting information, to human resource information, supply chain information, and customer information (Umble et al, 2003). Moreover, those systems are rarely implemented in-house, most organizations are turning to off-the-shelf ERP systems to manage organization (Al-Mashari et al, 2003; Holland and Light, 1999). Hence, it can be assumed that there are a lot of well-aligned IS available for every organization.

1.2.3. Customer relationship management (CRM)

Customer relationship management (CRM) is a management method aimed at managing organization's interaction and relations with past, current and potential customers. Most authors' underline that nowadays customers' loyalty is one of the key factors building organization's competitive advantage and there is a significant need for supporting this field of organization's operations (Chen & Popovich, 2003; Brown & Coopers, 1999). Fickel (1999) underlined that nowadays, when CRM is aimed at linking functions from "front office" (eg. marketing, sales etc.) with those from "back office" (eg. HR, logistics etc.) and with "touch points", in which organization interacts directly with the clients.

There is no discussion that IS existing in the company should be aimed at supporting CRM and without them it is impossible to efficiently use this management method (Ngai et. al, 2009; Payne & Frow, 2005). This notation CRM is also commonly used in IT development companies to described IS dedicated to the support of this method (Payne & Frow, 2005). Hence, there are standardized and well-known IS aligned with the needs of CRM available for every organization to choose from.

1.2.4. Business Continuity Management (BCM)

The Business Continuity Institute defines BCM as "a holistic management process that identifies potential impacts that threaten an organization and provides a framework for building resilience with the capability for an effective response that safeguards the interests of key stakeholders, reputation, brand and value creating activities" (Randeree and Narvani, 2012, p.473). BCM aims at creating an organization's resistance to the occurrence of various threats and is considered as a socio-technical approach focused on identifying and preventing operational risks. Usually the role of IT in the creation of BC plans – for long considered as a central point of BCM – is strongly emphasized (Wan, 2009). However, IT support seems to be also very important during the event and post-event continuity management.

However, based on the literature review it can be concluded that IS supporting various aspects of BCM are not very well standardized and there is a need for the alignment between IS and BCM needs in each organization to gain benefits from IT support.

1.2.5. High Commitment Management (HCM)

High Commitment Management (HCM) or what the Americans term High Performing Work Systems (HPWS) (Hutchinson & Kinnie, 2000) is a management method focuses on personal responsibility, independence, and empowerment of organization members across all management levels instead of focusing on one authority. Jha and Cumar (2016) suggest that there are three aspects of employees' commitment. Social commitment – the level at which an employee communicates with other members of the team and organization. Intellectual commitment – the level at which an employee uses his / her intellect to perform tasks and improve the efficiency of performing these tasks. Emotional Commitment – the level at which an employee is emotionally involved in implementing goals of the organization.

While there are studies providing valuable data on the HCM implementation and operation (Hutchinson & Kinnie, 2000), there is almost no analysis concerning the role of IT support for the processes by which these plans and policies come to be implemented, and how the processes of managing employees elicit a positive response, if they do (Hutchinson & Kinnie, 2000). Therefore, it can be concluded that IS for supporting HCM are the least standardized and the need for the alignment between IS and HCM needs in each organization is extremely important.

1.3. Research hypotheses

Rapidly growing role of IS needed for efficient and proper use of all management techniques brought sudden changes in almost all of them. As described above, there is no discussion concerning the fact that their proper use in organization requires the support of IT. IT is generally known not only as a factor influencing organization's ability to effectively implement management method, but also retaining their efficient use (Payne & Frow, 2005; Bieńkowska et al., 2018). Since it can be assumed that IT is no longer only a precondition for using this management method, it needs to be underlined that during the time of management techniques use in organization, some changes occur that seem to be a source of influence on the perceived reliability of IS dedicated for their support. Hence, the two-sided relation between the time of use and IT reliability needs to be acknowledged. On the one hand, reliability of IT in organization is the characteristic of IT perceived by its users (employees of the organization). Hence, the user experience and personal opinion about the IT is especially important in rating its reliability and influences the final evaluation of IS (Bieńkowska et al., 2018). Thus, it should be underlined that IT reliability is closely connected with the alignment between the analyzed IS and the user's tasks, it is designed to support (Niu et al, 2013). Hence, it can be concluded that the better the IS is tailored to support the given tasks, the more satisfied is the user and the higher is the level of the perceived IT reliability (Bieńkowska et al, 2018). On the other hand, many authors underline that in case of management techniques support, IS should be tailored according to the organization needs and continuously aligned with them in order to achieve results from using this management method (Bieńkowska et al, 2018; Lira et al, 2012). Hence, it can be concluded that time of use of management method has a potential relation with IT reliability through this alignment.

Moreover, this alignment should increase over time and employees of organizations, which use each management method for a longer period of time should perceive IT as a more reliable than those, where management method was used for a shorter period of time. It is important to add that many IT lifecycle models underline that IS is becoming more adjusted and aligned to the given requirements over time and through the continuous improvements process, which is aimed at tailoring the IS to the current organization's needs (Kale, 2000). Therefore, the longer the management method is used in the organization, the more time passed for the adjustment process to take place (Bieńkowska et al, 2018). Thus, it can be assumed that the perceived level of IT reliability will increase over time because the users will benefit from the fact that IS are becoming more customized to their needs and will recognize that they are more useful to them from the variety of reasons (e.g. improving user experience, information flow, support service).

However, in case of different management techniques, the alignment between organization's needs and IS will have different level of importance for the organization. In case of some management techniques, IT support is more important than in case of others. Hence, it can be assumed that the correlation between management method time of use and perceived level of IT reliability will differ among management techniques visualizing different value of this alignment for the organization.

Considering all the above, the following research hypotheses were formulated:

H1a. The longer the time of use of controlling in organization, the more reliable the IT. (this hypothesis was already verified and the results are published by Bieńkowska et al., 2018)

H1b. The longer the time of use of BC in organization, the more reliable the IT.

H1c. The longer the time of use of ERP in organization, the more reliable the IT.

H1d. The longer the time of use of CRM in organization, the more reliable the IT.

H1e. The longer the time of use of HCM in organization, the more reliable the IT.

H2. The strength of the relation between management method time of use and perceived level of IT reliability differs between various management techniques.

1.3.1. Business context – sample choosing

Nowadays, verification of hypotheses concerning IT use and organizations’ operations and management based on only one business context seems insufficient. Especially since the economy maturity is an extremely important factor determining the scope and depth of IT use in organizations (Archibugi & Coco, 2004). There is a great difference between developing and developed economy in this case. In case of the former one, IT is still in the phase of being aligned to the organizations’ needs. In case of the latter one, IT is usually already aligned, best solutions are identified and best practices are well spread among organizations. Hence, in this paper the proposed hypothesis will be verified in two business contexts (developing economy – Poland; and developed economy – Switzerland), taking into account those differences – especially important considering the aims of this paper. Hence, additional hypothesis is proposed:

H3. The strength of the relation between management method time of use and perceived level of IT reliability differs between various business contexts.

The selection of Poland and Switzerland is not random. There are huge differences between economies of those two countries and they are typical examples of developing and developed economy (see Table 1). Moreover, according to 2018 index of Economic Freedom, there is a great difference between business contexts in which organizations from Poland and Switzerland are operating. Switzerland is the 4th freest economy in 2018, which is characterized by political stability, transparent legal system and sound regulatory regime. Poland is ranked on 45th place in 2018 and is still sometimes characterized even as transition economy. Archibugi and Coco (2004) seem to confirm that with the use of ArCo (Technological Capabilities Index) considering Switzerland as a part of first group (most developed countries) and Poland as a part of second group (developing countries with the potential to join the first group).

Table1. Comparison of Switzerland and Poland economy

Measure	Poland	Switzerland
Government type	parliamentary republic	federal republic (formally a confederation)
GDP per capita	\$29,300 (2017 est.)	\$61,400 (2017 est.)
GDP - composition by sector	agriculture: 2.4% industry: 40.2% services: 64.3% (2017 est.)	agriculture: 0.7% industry: 25.6% services: 73.7% (2017 est.)
Population below poverty line	17.6% (2015 est.)	6.6% (2014 est.)
Budget	revenues: \$90.8 billion expenditures: \$102.2 billion (2017 est.)	revenues: \$223.5 billion expenditures: \$222.1 billion note: includes federal, cantonal, and municipal budgets (2017 est.)

Source: *Index of Economic Freedom (2018)*

II. RESEARCH METHODOLOGY

The survey was conducted in order to gain knowledge about the level of IT reliability, and the scope, quality and time of use of chosen management techniques among organizations operating in two business contexts: Poland and Switzerland. The pilot survey was conducted in early 2018 among the group of 50 organization, indicating the issues concerning ambiguity of several questions. It led to the collection of random answers given as a response for those questions. They were rewritten in order to obtain the more reliable results, ensuring the informed response from the respondent. The main research was conducted as a part of a research project “The IT reliability influence on the quality of management methods and techniques”, no. 2017/01/X/HS4/01967 financed from the funds of the National Science Center in Poland. The main survey was conducted in March 2018, among organizations located in Poland and Switzerland, using online survey service: SurveyMonkey. Only one survey was carried out anonymously in one organization. Efforts had been made to make sure that the questionnaire was filled in by employees who have a broad view of the entire organization, therefore it was mostly done by employees from senior management positions.

2.1. Sample characteristics

The research sample contains the organizations operating in Poland and Switzerland. 558 valid responses were collected from Poland and 564 valid responses were collected from Switzerland. It is a very large sample for this kind of study and can be a basis for overall conclusions concerning the given topic. However, the sample cannot be considered as representative, since the population of organizations operating in those two countries is very large and the method of including organization in the sample do not supported its

representativeness. Sample characteristics are presented in Table 3 and 4 and clearly show that the sample is covering organizations of all sizes and all types.

Table2. Research sample characteristics from Poland.

Organization size	Manufacturing organizations	Service organizations	Trade organizations	Total
Micro (below 10 people)	66	31	10	107
Small (11-50 people)	48	72	20	140
Medium (51-250 people)	42	77	15	134
Large (above 250 people)	71	92	14	177
Total	227	272	59	558

Source: own work

Table3. Research sample characteristics from Switzerland.

Organization size	Manufacturing organizations	Service organizations	Trade organizations	Total
Micro (below 10 people)	64	33	17	114
Small (11-50 people)	39	72	23	134
Medium (51-250 people)	21	35	58	114
Large (above 250 people)	49	92	61	202
Total	173	232	159	564

Source: own work

2.2. Research results

To verify whether the level of IT reliability is indeed different in two analyzed business context, the U Mann - Whitney analysis was performed. The analysis was aimed at confirming that there is a statistically significant difference between the perceived level of IT reliability in organizations operating in Poland and in Switzerland. The results of this analysis are presented in Table 4. The analysis confirmed that there is a statistically significant difference between level of overall IT reliability (and each element building it: system reliability, usage reliability, information reliability and service reliability) in two analyzed business contexts. Moreover, considering the descriptive statistics, it can be concluded that level of IT reliability is much higher in organizations from Switzerland than in those from Poland.

Table4. IT reliability in organizations from Poland and Switzerland

	Group									Test U Mann - Whitney	
	Poland (n=558)			Switzerland (n=564)			All (n=1153)			Z	p
	M	SD	MD	M	SD	MD	M	SD	MD		
IT system reliability	2,64	0,95	2,56	3,87	1,09	4,00	3,24	1,19	3,00	-17,913	<0,01
IT usage reliability	2,64	0,95	2,67	3,76	0,97	3,83	3,19	1,11	3,00	-17,859	<0,01
IT information reliability	2,66	0,95	2,71	3,88	1,05	3,93	3,25	1,17	3,00	-18,129	<0,01
IT service reliability	2,64	0,98	2,50	3,87	1,10	4,00	3,24	1,20	3,00	-17,656	<0,01
IT reliability (Total)	2,65	0,89	2,58	3,84	1,01	4,01	3,23	1,12	3,01	-18,594	<0,01

source: own work

To verify whether the organizations from Poland and Switzerland differ in case of management method use, descriptive statistics concerning the use of each management method were calculated for those two groups and are presented in Table 5. The results show that there are significantly more organizations using each management method more than 10 years in Switzerland than in Poland. The smallest difference occurs in case of Controlling (the oldest and most known management method). However, in case of other techniques, the number of organizations using them more than 10 years in Switzerland is around 100% (in case of CRM) to even 400% (in case of BCM and HCM) higher than in Poland.

Table5. Number of organization using the specific management method

Management method	Poland			Switzerland		
	Not used	Used	More than 10 years	Not used	Used	More than 10 years
Controlling	42	516	121	29	533	185
BCM	77	476	50	41	520	235
ERP	65	494	41	30	533	136
CRM	59	498	63	14	529	133
HCM	82	475	50	46	515	244

source: own work

In order to verify the identified hypotheses, the Pearson’s correlation analysis was performed for both samples (organizations operating in Poland and in Switzerland). The research results concerning correlation between time of use of analyzed management techniques and IT reliability are presented in Table 6 for Poland and in Table 7 for Switzerland. First of all, the correlation is positive and statistically significant for all elements building IT reliability and overall IT reliability in case of every management method time of use for both samples. Second of all, the Pearson’s correlation coefficients are much higher for sample of organizations operating in Switzerland, which suggests that the relation between IT reliability and management techniques time of use is stronger among those organizations than in case of those operating in Poland. Hence, the obtained results allow for the positive verification of H3, confirming that the strength of the relation between each management method time of use and IT reliability differs significantly in different business contexts.

Moreover, the research results allowed for the positive verification of hypotheses H1a (the extended verification process is published by Bieńkowska et al (2018)), H1b, H1c, H1d and H1e in both business contexts (Switzerland and Poland), confirming that indeed it is true for every analyzed management method that its time of use is positively related with perceived level of IT reliability in organization. What’s more, for both samples and every management method the highest correlations are usually occurring in case of IT system reliability and IT service reliability. Hence, it seems that those elements of the model, which are containing items definitely describing characteristics building alignment of IS with organization’s needs (such as e.g. system compatibility, adaptability or support service responsiveness), are indeed crucial in case of the relation with management techniques time of use.

Table6. Correlation analysis between time of use of management techniques and IT reliability (sample from Poland)

Time of use of the method	IT system reliability	IT usage reliability	IT information reliability	IT service reliability	IT reliability
Controlling	r=0,482 ^{**} , p<0,001	r=0,349 ^{**} , p<0,001	r=0,434 ^{**} , p<0,001	r=0,378 ^{**} , p<0,001	r=0,485 ^{**} , p<0,001
BCM	r=0,283 ^{**} , p<0,001	r=0,243 ^{**} , p<0,001	r=0,202 ^{**} , p<0,001	r=0,267 ^{**} , p<0,001	r=0,268 ^{**} , p<0,001
ERP	r=0,317 ^{**} , p<0,001	r=0,297 ^{**} , p<0,001	r=0,282 ^{**} , p<0,001	r=0,313 ^{**} , p<0,001	r=0,325 ^{**} , p<0,001
CRM	r=0,355 ^{**} , p<0,001	r=0,284 [*] , p<0,001	r=0,295 ^{**} , p<0,001	r=0,319 ^{**} , p<0,001	r=0,337 [*] , p<0,001
HCM	r=0,291 ^{**} , p<0,001	r=0,251 ^{**} , p<0,001	r=0,223 ^{**} , p<0,001	r=0,280 ^{**} , p=0,005	r=0,281 ^{**} , p=0,001

source: own work

Table7. Correlation analysis between time of use of management techniques and IT reliability (sample from Switzerland)

Time of use of the method	IT system reliability	IT usage reliability	IT information reliability	IT service reliability	IT reliability
Controlling	r=0,555 ^{**} , p<0,001	r=0,544 ^{**} , p<0,001	r=0,572 ^{**} , p<0,001	r=0,549 ^{**} , p<0,001	r=0,570 ^{**} , p<0,001
BCM	r=0,539 ^{**} , p<0,001	r=0,475 ^{**} , p<0,001	r=0,514 ^{**} , p<0,001	r=0,533 ^{**} , p<0,001	r=0,545 ^{**} , p<0,001
ERP	r=0,456 ^{**} , p<0,001	r=0,432 ^{**} , p<0,001	r=0,413 ^{**} , p<0,001	r=0,462 ^{**} , p<0,001	r=0,461 ^{**} , p<0,001
CRM	r=0,409 ^{**} , p<0,001	r=0,378 ^{**} , p<0,001	r=0,363 ^{**} , p<0,001	r=0,409 ^{**} , p<0,001	r=0,408 ^{**} , p<0,001
HCM	r=0,553 ^{**} , p<0,001	r=0,471 ^{**} , p<0,001	r=0,522 ^{**} , p<0,001	r=0,563 ^{**} , p=0,005	r=0,553 ^{**} , p=0,001

source: own work

2.3. Discussion

There are differences between Pearson’s correlation coefficients calculated for different management techniques indicating that the cooccurrence of long time of use and high level of IT reliability is much more likely for some management techniques than for others. In both samples, the correlation is strongest in case of Controlling. However, keeping in mind the specificity of each sample, it should be underlined that it is the only management method which was reported to be used longer than 10 years by large groups of organizations from both countries. In case of other techniques, in the sample from Poland there was much lower number of organizations indicating the use of the method exceeding 10 years that in the sample from Switzerland. Hence, considering it together with the fact that correlation coefficients are higher in case of Switzerland, it can be assumed that results from this country may be consider more useful for the analysis of differences between management techniques in this regard.

Moreover, it should be underlined that in case of Controlling, ERP and CRM, it is quite clear when to assume that organization is using those techniques. There are solid indicators (like Controlling unit in organizational structure, ERP system implemented or CRM standards and systems available), which can be used by respondents as a solid basis for stating that this method is used in organization. However, in case of HCM and BCM it is not so simple to state in which point there is only some set of guidelines in organization, which are in line with one of those techniques and in which point this set of guidelines and procedures indicates the actual use of one those techniques in organization. Hence, in case of sample from Poland, where there are a lot of organization reporting that HCM or BCM was recently implemented and not a lot of those reporting its longer use (Table 5), it can be assumed that the techniques are not fully implemented in all those cases.

Nevertheless, it should be pointed out that there is an interesting conclusion coming from the analysis of four other management techniques (besides Controlling) from both samples. In case of Poland, there is a stronger correlation between IT reliability and time of use of ERP and CRM than BCM and HCM. The situation is opposite among the organizations from Switzerland, where the correlation is stronger in case of BCM and HCM. However, considering the fact the IT support is more obvious in case of ERP and CRM (as stated before, those management techniques are connected from the beginning with specific IS and there are a lot of well-aligned solutions available for the organizations to choose from), it is not a surprise that in the still developing economy of Poland, the alignment manifested through analyzed correlation is stronger for those techniques than for those, where it is harder to achieve it (HCM and BCM). Hence, in case of more developed economy (Switzerland), where IS are presumed to be more aligned with management techniques' needs, results show more significant influence on perceived level of reliability in case of techniques with less standardized IT support needs (HCM and BCM), where this alignment is much harder to obtain and may simply be still developing in Poland, where those techniques are used for much shorter period of time.

Therefore, the obtained results are more than sufficient for positive verification of H2, confirming that there is a difference in the relation between management method time of use and IT reliability in case of different management techniques. Hence, it can be concluded that indeed there is a different sensitivity for the alignment between management method needs and IS available in organization, translating into different level of perceived IT reliability.

III. CONCLUSIONS

In the light of verification of all hypotheses, it can be concluded that indeed, the alignment (gained with time) between the IS supporting each management method and needs of those techniques is important for all analyzed techniques (Controlling, BCM, ERP, CRM and HCM).

First of all, the IT in organizations from different business contexts (Poland and Switzerland) was analyzed using new framework - IT reliability and the obtained results are furthermore verifying its potential use for the analysis of IS in organizations. Second of all, the existence of the relation between IT reliability in organization and time of use of chosen management techniques was confirmed for all analyzed techniques – Controlling, BCM, ERP, CRM and HCM. Third of all, the analysis revealed that the alignment between IS and management techniques needs increases over time, which manifests in growing level of perceived IT reliability. Moreover, it was also concluded that the correlation coefficients differ in case of analyzed management techniques confirming their different sensitivity and need for IT support. Also, the correlation coefficients differ in case of business context showing that more developed economy (Switzerland) is reporting much higher IT reliability level and much stronger relation between this level and time of use of each management method. Hence, it can be assumed that the IS supporting each management method are better aligned to its and organizational needs in the context of more developed economy.

Hence, it can be concluded that IS are indeed an important factor influencing organizations ability to gain benefits from implementing and using analyzed management techniques (Controlling, BCM, ERP, CRM and HCM). It seems that this support is most important in case of Controlling.

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