

IT INFRASTRUCTURE MANAGEMENT – STANDARDS AND ISSUES FIT BUSINESS NEEDS

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Abstract: *The subject matter of this article has grown on the basis of the success of IT projects issues. Despite the elaborated methods, techniques and tools, still more than half of IT projects does not end successfully. The article refers to the area of IT infrastructure management as an integral part of IT projects and alignment IT - business. Research are oriented to the identification of the causes for the lack of effective cooperation IT - business. The formal application of good practices based on regarded standards, norms and certificates is shown. The condition of alignment IT – business were based on the results of empirical research rated and pointed out the bad practices. This approach served as the basis for the description of the key areas of the phenomenon under study and to specify recommendations for effective work on the shared vision of IT - business.*

Keywords: *alignment IT - business, best practices, ISO standards, IT infrastructure management, organizational culture*

JEL Classification: *D8, M1, M2, O3*

1. INTRODUCTION

Currently a one-way relationship stage IT – business is ending. In any case, on this plane is no longer possible to reach alignment IT - business. Creating products only on declared business needs, without their analysis and mutual dialogue is ineffective. On the other hand there is a lack of clearly defined guidelines to achieve optimal alignment of IT - business. Research reports from several years of record more than 50% of IT projects not successful [6]. The continuous actuality of the issue of IT projects success, despite technological and methodological advances leads deeper analyze this phenomenon [2], [4], [20]. Therefore, research in this direction and based on the formulation of guidelines and rules is an opportunity to complete a significant gap in the field.

In addition, it should be noted that in the area of IT projects it is not enough to adopt the general principles of settlement of the projects success. According to which, if the project is on budget, time and the specified range and quality, you can record a complete success [1]. From the point of view of management, in the context of alignment IT - business, these parameters should not be the sole determinant of IT projects success. In this way, every IT project complying with these parameters, even being only a reflection of existing processes in the organization, should be considered as successful. But it is not so. The contemporary IT projects should be an effect of interaction of IT - business, in which as a result of innovative solutions the transformative business processes with the help of new methods and technologies from the IT area will be created [3].

For such an evolution, however, need is a maturity of both parties - business and IT and close cooperation. Otherwise, IT activities will be only reactive rather than proactive. Research in this area should therefore be carried out in the direction of factors, tools and methods that enable of IT projects obtaining rank of activities from the sphere of management in organizations. They shouldn't be

seen only as an implementation tool. The aim should be to the model in which IT will be deeply embedded in the structure of the organization, included in her every action and together make up the company's culture [19].

2. IT INFRASTRUCTURE MANAGEMENT STANDARDS

In recent years, a systematic growth of the need for business support implementation of standards in the IT area in organizations could be observed. This policy is executed through the implementation of standards, the use of best practices and recognized project management methodologies [24]. This confirms the increase in awareness of the growing engagement between business and IT. The investments made in this area indicate that organizations recognize the possibility of a better, safer and uninterrupted operation by standardizing its IT area.

These standards are based on the best international norms and supported by certificates [21]. They apply to all organizations, or parts thereof, regardless of type, size and type of the organization. The scope of application of these requirements depends on the organization's operating environment and complexity. You can identify three types of IT-related standards which organizations are keen to implement [8]:

- information security (ISO/IEC 27001 PN-ISO/IEC 27001),
- business continuity (ISO 22301 or BS 25999),
- IT service management (ISO/IEC 20000 PN-ISO/IEC 20000).

Figure 1 shows the increase in certificates of these groups in the Polish organizations in the years 2001 to 2012.

The standard for Information Security ISO / IEC 27001 provides a comprehensive information security not only at the level of ICT but also personal, physical, and organizational – legal [13]. Standardization of business continuity according to ISO 22301 or BS 25999 is designed to protect organizations, especially in high risk areas, such as IT or telecommunications [10].

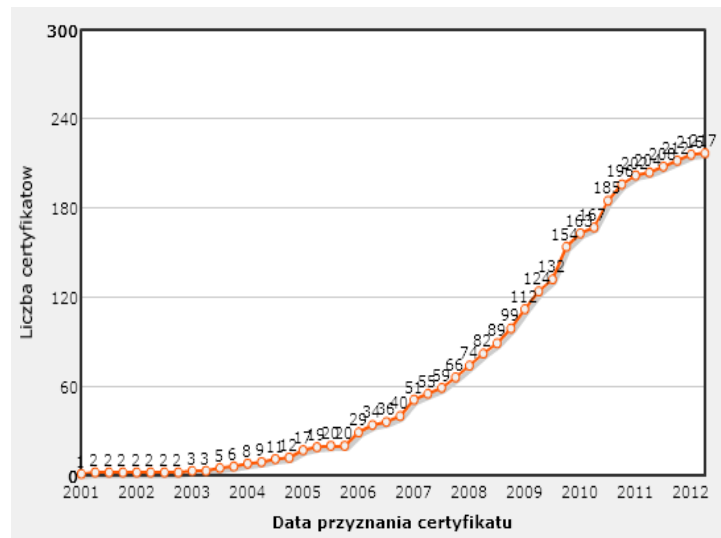


Figure 1 The growth of certificates in Poland (ISO/IEC 27001 PN-ISO/IEC 27001, BS 25999, ISO/IEC 20000 PN-ISO/IEC 20000)
Source: <http://www.iso27000.pl/sites/view/stat=2=1>

It is a set of procedures that make up the actions and policies of the organization in the event of failure, and other factors disrupting planned business activities. The guardian of proper IT infrastructure management is ISO / IEC 20000. Its guidelines treat problems of IT in organizations in a comprehensive manner, taking into account not only the software, hardware, IT staff, but also budgeting, change management, incident and problem and its relationship with the environment (customers, suppliers, partners, etc.). Two norms are composed on this standard. The first, ISO / IEC 20000-1 deals with the requirements of IT services management system [11], and the other ISO / IEC 20000-2 provides guidance on the quality of IT service management processes [12].

Implementation of these standards is designed to enable organizations to work effectively with a shared vision of IT - business. However, the dynamically growing number of companies using the standard for IT service management and applying for certificates doesn't correlate with an increase in the success of IT projects. Most of the surveyed companies from the SME sector in Poland in 2011-2012 declared the use of recommended "best practices" in the implementation of IT projects. At the same time, however, answered that nearly half of the projects end in failure because of resistance to change, and about 30% due to the lack of full involvement of the business. As for the IT teams, implementing projects in these companies, it was

considered in the 80% that they are too much oriented towards the inside. It makes impossible for them to fully understand the strategy and priorities of the business and focus sufficiently on the end user.

3. FACTORS OF ALIGNMENT IT - BUSINESS

Only the IT infrastructure management and implementation of IT projects based not only on the best standards, compliance with the norms, or have a certificate, but focused on proactivity, will fit them to real business needs. On the other hand, the degree of alignment is sufficiently possible, as far as the maturity of the organization. This conclusion is based on empirical research conducted by the author in the case of IT projects implemented in the SME sector in Poland in 2011-2012.

The study also allowed to establish that the maturity of the organization can be analyzed as a client maturityⁱ. The approach proposed by the author, it is done by evaluating the awareness and involvement. This will be helpful in the following assessment:

- organization's environmental status (organizational culture),
- readiness for change,
- the current status of IT infrastructure management in the organization (management methods, the method of selection and types of IT infrastructure, degree of utilization administered to IT solutions).[14]

Table 1 Rules for IT and business in the context of alignment IT - business

| The rules for IT | The rules for business |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> – IT changes are not an end in itself, – any change should be based on business, – take care of the changes understanding by all business interested parties, – achieve of involvement business interested parties already at the stage of defining the needs and maintaining this throughout the entire duration of the project cycle, – awareness of the quality and scale benefits to business interested parties, – constant monitoring of the project and responding to changes, – decision to discontinue the IT project, when the modification in accordance with changing conditions is not possible | <ul style="list-style-type: none"> – skill of defining the needs of addressed to IT, – IT needs proper motivation - dictated by the efficiency of business processes support, and do not desire to use the latest technology, – anticipation and awareness of the consequences of the changes and a willingness for them, – active participation in the project and ongoing reporting of changes, – real, full use of the implemented solutions |

Source: own

The qualitative research methods (interviews, observation) [7], [22] made it possible to establish rules for both sides - both for IT and the business (Table 1). These rules aim is to help with the alignment IT - business in the management of IT infrastructure and IT projects.

An important issue in alignment IT - business in addition to maturity is the size and type of customer. The study showed that more easily are obtained alignment in micro organizations and SMEs than in large and great (over 2000 employees) companies. Also, research reports reveal a much greater dynamics investing in new IT solutions in the micro and SMEs [23]. Regarding the type of customer, within the meaning of economic sector, a certain regularity was also observed. A better alignment IT - business is characterized by the private sector (companies and corporations), in which was observed more proactive processes. For the public sector (state and local institutions) and non-profit organizations (associations and foundations) whereas was recorded a lower level of alignment and advantage of reactive processes in this area.

Analysis of the results showed that the key to alignment IT - business and its effectiveness are the factors that underlie of motivation to initiate and start the process. Due to these factors the motivation can be divided into [5]:

- motivation from the inside – result of them are proactive processes, enhanced cooperation of IT - business, better application and utilization of projects effects,
- motivation from aboveⁱⁱ (regulations, the need to meet the standards, market requirements - partners, competitors, etc.) without internal motivation - reactive actions (most common in the public and non-profit sector), which are usually technological support for listed processes; they are rarely solutions modifying the essence of the processes.

In the research area of alignment IT - business must be apply the important distinction between the degree of alignment and alignment efficiency [15], [16]. Degree of alignment, says to what extent applied IT solutions support business processes, interact with company strategy, but also modify its organization and functioning by proposing new solutions. These are due to proactive actions from the part of IT. The alignment efficiency doesn't necessarily go hand in hand with the degree of alignment. Even if a implemented IT solutions potentially have the highest degree of alignment, without the awareness and involvement of the end user doesn't demonstrate the expected efficiency. Therefore active participation of all interested parties on the business side from the first phase - the initial phase of defining needs – is so important [17]. The most important for alignment efficiency are proactive activities of business side.

4. IT SERVICE MANAGEMENT AND PROBLEMS OF NEEDS IDENTIFICATION

A good example of the real needs of customers in the IT sphere is called "small assembly". This phenomenon keeps on Polish market for years and is a sort of sensation. It is the negation of theoretical considerations and logical conclusions, which lies at the basis of the analysis of development trends in the IT area. Forecast that with time the "small assembly" will be displaced by factory equipment ready and well-known brands. Meanwhile, the share of "small assembly" in the IT market over the last 10 years has always been above 50%, with a slight decrease in 2008, where it dropped to 47%. In 2011 was recorded 56% share, in 2012 58% interest and there is still an upward trend (Figure 2) [25]. This trend has not wavered even by the need to use the CE mark.

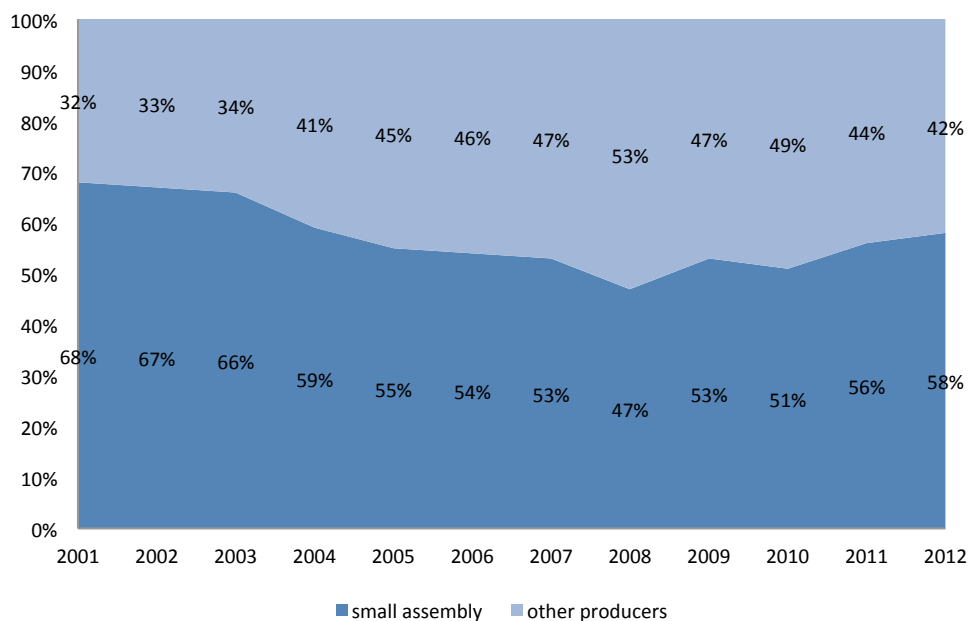


Figure 2 The share of "small assembly" in the IT equipment market in Poland

Source: Report on IT market in Poland 2012 - Development forecasts for 2012-2016, PMR Publications, 2012.

Customers are mostly SMEs and individuals. The detailed studies have shown important reasons by which this phenomenon occurred. These are mainly motives that guide the IT customers choosing the "small assembly":

- direct contact with the vendor / service provider,
- flexibility in the contract,
- easily accessible service,
- individualism,
- continuity of contact.

Above factors are an important reference point for research on ways to meet the needs of IT through proper shaping of IT infrastructure management. This gives a clear indications not to re-evaluate implementation of standards, norms, certifications, if they will not support the coherence of the company activities with customer expectations.

5. ZONES OF ALIGNMENT IT – BUSINESS

The result of research conducted by the author is to distinguish within the alignment IT - business on the following areas:

- Zone I - support business process standard IT solutions (in terms of hardware, software, technology, methodologies),
- Zone II - support business process innovative IT solutions (specially created for the specific needs of the existing business processes),
- Zone III - modification the organization's business processes through its interaction with the capabilities of IT.

Most often in the surveyed companies were solutions of I and II zone. However, the highest level of alignment and profits yield successful projects in the area of zone III. These zones were evaluated in the surveyed companies. Ease of application solutions from the first zone was assessed as high, the second zone - as the average, and the third zone - as low. Whereas the results of time consumption and risk remain in the first zone at low level, in the second zone - at the average level, and in the third zone - at high level.

Answers on questions about the need and the way for interaction of IT - business provide essential information for the solutions of the problems of each zone alignment IT -

Table 2 Interaction of IT - business in each zones of alignment IT – business

| The zones of alignment IT – business | The extent of IT - business interaction |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Zone I | <ul style="list-style-type: none"> – initial consultation, – needs defining, – selection of ready IT solutions, – application solutions, – training |
| Zone II | <ul style="list-style-type: none"> – initial consultation, – needs defining, – cyclical consultation at the stage of product development tailored to the existing business processes, – cooperation in the implementation phase of the product, – training, – service (including modifiability) |
| Zone III | <ul style="list-style-type: none"> – initial consultation, – defining of needs, – generating conception of business processes modification dictated by IT capabilities, – close cooperation throughout the production and implementation cycle of the product, – training, – monitoring of implemented, functioning solutions |

Source: own

business. In the first zone the need for interaction of IT - business often further confined only to the buying process technology (hardware, software, etc.). Slight percentage of companies took actions related to the need of interaction in the course of the solutions implementation and process training for employees. In the solutions of the second zone it became necessary to interaction on the defining needs stage. In the third zone whereas apart from interaction on the defining needs stage, came the need cyclical consulting and training.

The obtained results of the declared of IT - business interaction are not satisfactory. They allowed, however, to establish relationships and finding that this interaction has a direct impact on the degree of alignment IT – business [18]. Therefore, should be regarded it as one of the key elements of the IT projects. Deepened interviews in this area have enabled clarification of recommendations for each zone. They are summarized in Table 2.

In addition, studies have shown that for the quality of the alignment IT - business it is important not only the extent of IT - business interaction, but also its character as well. In the first zone interaction can be based on the meetings of the IT and business representatives. In the second zone, however, especially for larger projects (more complex substance) it is the secondment of some employees to ongoing consultation with the IT team. The third zone, in turn, requires the creation for the project a special team consisting of both IT staff and business employees. The preferred option in the third zone is also including to the team independent domain experts.

In which area will be the organization of its activities in the field of IT, that will depend on awareness of the needs and the prevailing culture of IT - business cooperation. A very important but difficult task is the distinction, in which zone one should operate at a given time. For parts of the organizations the first zone will be quite adequate to achieve a high degree of alignment IT - business. In their case the transition to the second zone could only increase IT costs without translation into efficiency.

But to remain in the first zone, while the solutions from the second zone are needed will act as a constraint to the entire organization and its functioning. The transition to the third zone requires a large risk and responsibility, both of IT and business. This is connected with the radical changes, modifications being processes, and often complete transformation strategy. Simultaneously, however, successfully completed the project in this area give most profitable and competitive advantage. Importance and complexity of these decisions the more points to the need for close cooperation of IT - business. Importance and complexity of these decisions suggest the need for close cooperation of IT - business.

Only on that basis the organization will be able to make sure that it is in the appropriate zone for themselves. Then the moment of the need to change the zone will not be overlooked, due to the dynamic changes in both the IT and the market.

6. CONCLUSION

In most of surveyed companies lack of skills appropriate to clarify and present the needs and expectations of the business side were observed. On the IT side was observed the lack of understanding enough for proposing effective solutions. The fundamental need is proper communication

and cooperation at the interface of IT - business. The organization must pass the saying "what" is the need for defining "why" - what is the business purpose, for which processes require support or modification. Whereas, IT should integrate in their actions to foster awareness of the value and power of properly tailored IT solutions as well as the possibilities of modification and innovation for business. This process can be a natural when a IT page will be involved at an early stage of business strategy or changes development. IT itself has to get out of the reactive role (reactive support) and enter the path of proactive - conception, creation, innovation for existing needs. Cooperating business processes with IT from the beginning will take a different direction and value. The first creating a process and then supporting it in a reactive IT solutions will always generate higher costs, a greater number of errors and gaps in alignment IT - business or lack of it. However, the most significant threat is the loss of opportunity to optimally design business processes and even entire strategy, through proactive inclusion of innovative IT capabilities. This require, of course, to change the entire culture of the organization. But this is the only way to achieve true maturity in alignment IT - business.

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ⁱ Research IT customer maturity is one of the author's research trends in the area of the success factors of IT projects. Are the subject of separate publications.

ⁱⁱ An example of a motivation from above can be the Act on the information system of health obliging medical facilities to transition to electronic medical records from August 1, 2014, or the need for investment by utilities companies in smart grids and counters.