Implementation of IT-Business Alignment Model in the SMEs sector

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Abstract

The development of enterprises depends on the effective use of IT and e-business solutions. It is tied to the skillful investment, based on the long-haul and strategic decisions adapted from the BITA (Business IT Alignment) models. However, it appears that the workshop that supports professionally the BSC(IT) project work, in practice, is so complex and laborious, that it is destined principally for the large enterprises. This article, based on actual reports, depicts a certain distance between the companies. That distance, when left to itself, will eventually make the development of the small and medium-sized enterprises impossible.

Keywords: Business IT Alignment, Deployment of system, Development of SMEs sector, Difficulties of SMEe sector

1. Introduction

A precise use of the IT solutions is a current challenge for the companies. This tendency arises from, among others, the competitive needs of a company, which can be delivered ever more efficiently by IT systems. Nevertheless, their implementation requires economically justified investments, which fact implicates the necessity of solutions implementation into specified business areas, which are financially profitable and, ultimately, increase the enterprise's value. Consequently, it seems to be self-evident that the application of the BITA (Business IT Alignment) models is indispensable to ensure a balance between the Information Technology and business.

Nevertheless, this question is very intricate in the economic practice. This appears to be due to the variety of enterprises and their business models, as well as to the mere IT solutions. The paper is devoted to implement one of the BITA models into the medium-sized enterprises. Thus, it reveals practices (the so-called know-how), that accompany the BITA application by the contemporary enterprises.

2. Characteristics of companies of Zagłębie Dąbrowskie region

In March 2016, Local Development Agency from Sosnowiec and Organization of Software Engineers conducted research analyzing developmental needs of companies operating in Zagłębie Dąbrowskie region. Representatives of 20 companies participated in the survey. These companies were located in Sosnowiec, Dąbrowa Górnicza, Jaworzno and Będzin commune. There were representatives of 16 micro-enterprises, 3 small enterprises and 1medium enterprise. The share of micro-enterprises in the total number of surveyed companies confirms the overall ratio of these entities with relation to the whole sector of companies. The statistics

suggest that there are relatively many micro-enterprises with relation to other entities, since 37% of general number of employees are hired in this sector.**Barriers to development of SMEs sector**

One of the biggest barriers that entrepreneurs have to face is bureaucracy - according to global macroeconomic research conducted by Grant Thornton International in 40 enterprises, both in Poland and abroad. Excessive bureaucracy was mentioned by the surveyed as the second biggest barrier.

Most frequently, entrepreneurs indicated financial issues as a major barrier (40% of companies mentioned finances as the most significant problem that hinders development). Entrepreneurs pointed out other factors, such as the above mentioned bureaucracy, employees and competition. The following table presents the most common barriers that affect company growth.

Table 1. Barriers to development of companies in Zagłębie Dąbrowskie region

Modes		Average Answers
1.	Finances	3
2.	Bureaucracy	3,65
3.	Employees	4,3
4.	Competition	4,35
5.	Being dependent on other entities	5,55
6.	Technology	4,7
7.	Seasonality	4,8

It should be noted that one of the major aspects that enhance the improvement of competitiveness and innovativeness is establishing contacts between the sector of micro-, small and medium enterprises and institutions that support local business. These institutions specialize in providing services for MSMEs.

2.1. Cooperation between entrepreneurs and institutions supporting local business

With respect to the barriers concerning cooperation with institutions supporting local business, entrepreneurs indicated lack of their need for such cooperation as the most common barrier. Companies do not perform any activities in cooperation with these institutions because they think it would not contribute to prompt and substantial benefits. The major issue that hinders cooperation, according to the survey, is too rigid structure and excessive bureaucracy within these institutions. The results obtained in the survey carried out in Zagłębie Dąbrowskie region confirmed the above. 75% of companies surveyed in this region admitted that they do not use services provided by organizations supporting local business. Barely 25% of companies used services offered by these institutions. Among these institutions, the respondents indicated most frequently Local Development Agency in Sosnowiec, Commune Employment Agency in Sosnowiec, in Dąbrowa Górnicza and Będzin. Lack of information about an offer/lack of information about their activity were the main reason for not using their services. It was confirmed by 40% of companies which never used services provided by supporting institutions. Other research conducted in Poland also proved that there is insufficient information and promotion provided by institutions supporting local business. These organizations should be more recognizable, at least on a local market. It is a major problem since the way potential clients are informed about services is directly linked to availability and use of these services by MSME entrepreneurs.

The analysis of the survey conducted in Zagłębie Dąbrowskie region showed that in fact it was 45% of companies that used the above services, not 25%. The companies benefit from available trainings most frequently (7 out of 20 companies), conferences, congresses, meetings (5/20 companies), promotion on a local market and projects (2/20 companies), consultancy and financial support (1 company). The research conducted in the whole country confirmed the

above. According to the findings, entrepreneurs benefit from trainings and consultancy, as well as services that concern financial aid available to develop entrepreneurship. These are usually various grants, the majority of which is available for startups.

According to my own research, it can be stated that the companies from Zagłębie Dąbrowskie region expect promotion on a local market in the first place and financial support. Consultancy, coaching and trainings were enumerated further.

Table 2. Areas of assistance that should be provided by institutions supporting local business - according to entrepreneurs (own work)

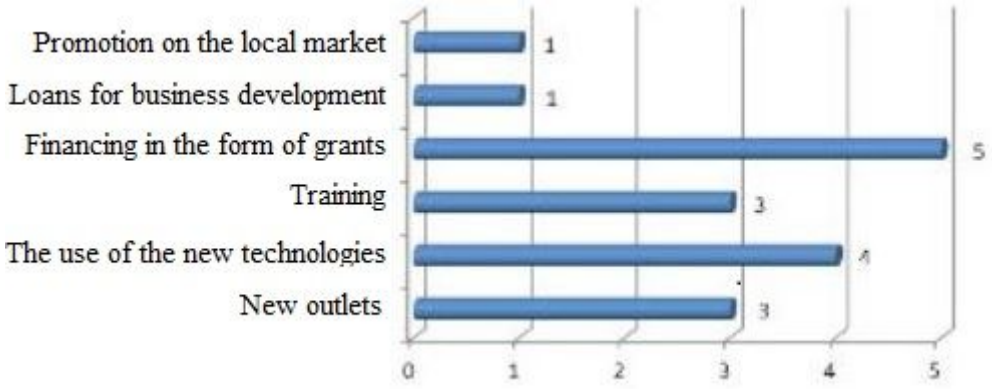
	Fields of development to be performed by institutions supporting local business
1.	Promotion on a local market 45% firm
2.	Financial support 45% firm
3.	Consultancy, coaching, trainings 25% firm
4.	Projects 20% firm
5.	Conferences, congresses, meetings 20% firm
6.	Contacts with other companies 20% firm

Companies from Zagłębie Dąbrowskie region emphasized their interest in the following aspects of consultancy and coaching: raising external funds for company development, management, running projects and financial optimization. Many entrepreneurs would also be interested in consultancy concerning online sales and ways of obtaining new course participants. With respect to training services, companies from Zagłębie Dąbrowskie region mentioned trainings in the field of customer service and business psychology. They also highlighted their interest in areas concerning regulations and legislative changes, as well as raising, managing and accounting of projects. With respect to conferences/meetings, entrepreneurs would rather focus on networking, IT, planning company development, raising funds, getting prospects, sales and coaching. As for projects, entrepreneurs need support in the following fields: innovativeness, IT projects on a regional level, e-learning. They mentioned incorporation of innovative solutions as a crucial issue with respect to conferences and meetings with institutions supporting local business and entrepreneurs. It should be emphasized that numerous companies are interested in such meetings, mainly due to opportunities to raise funds in the EU programming period 2014-2020. During direct meetings it occurs that implementation of innovative solutions contributes directly to gaining competitive edge, not only on a local market, but also in the region or even the whole country.

Incorporating innovative solutions, as well as research and development activity are key aspects that contribute to development of micro-, small and medium enterprises. 13 out of 20 surveyed company representatives from Zagłębie Dąbrowskie region confirmed that they have noticed their company development over the past 3 years. It should be noted that they indicated that the development concerned gaining new prospects, improving partners network, sales and services they provided. Unfortunately, none of them pointed to incorporation of innovative solutions or research and development.

As research findings from Zagłębie Dąbrowskie region suggest, innovations are rated as one of the factors contributing to company growth, not an effect of this growth. The main determinants of company development from this region are: grants (5/13 respondents indicated grants as a key factor) and implementation of new technologies (4/13 respondents highlighted this aspect). Participation in trainings and new markets turned out to be useful as well (3/13).

Table 3: Factors that influenced the development of companies from the Zaglebie Dabrowskie



The analysis shows that 7 out of 20 companies have their development strategy. 5 of them have a strategy for 2-3 years and 2 companies have a strategy for 5 years and longer. Such a strategy is assessed to have an actual effect in almost 50% (4.9 in a range 1-10). In summary, it can be stated that awareness of entrepreneurs with regard to company development strategy and its influence on company development is increasing. This aspect more and more frequently boosts company success on a market.

2.2. Mutual expectations

The findings obtained in the course of research in Zagłębie Dąbrowskie region demonstrate that entrepreneurs expect institutions supporting local business to provide first and foremost financial aid, assistance in raising EU grants and regional promotion. The respondents indicated that such institutions should be more visible and draw more interest to differences with respect to the specificity of SMEs sector, since this group is often treated as homogeneous – they said.

In conclusion, it must be stated that institutions supporting local business should create needs for applying innovative solutions and the sector, particularly of micro- and small enterprises, should target more on strategic and tactic activity. This will enable not only medium but also micro- and small enterprises to gain an actual competitive edge.

3. IT BSC Model by Van Grembergen

The model of Van Grembergen extends the original Kaplan and Norton BSC card with so-called IT Balanced Scorecard, which is comprised of: IT Strategic BSC, IT Development BSC, IT Operational BSC.

The link between the original Business BSC and the IT Strategic BSC is due to the cascade of cards. On the operational level, they are bond, principally, by the so-called outlook Corporate contribution.

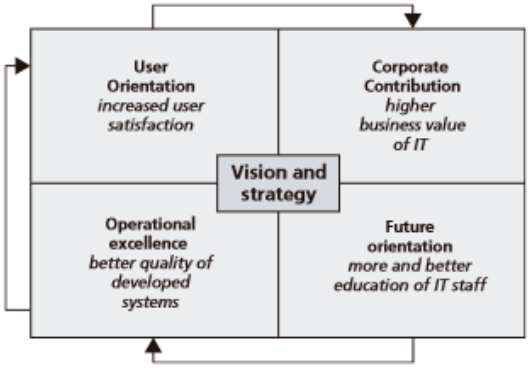


Fig. 1. Cause-and-effect relationships within the IT Balanced Scorecard (Van Grembergen W., Saull R., De Haes S., "Linking the IT Balanced Scorecard to the Business Objectives at a major Canadian Financial group", Journal for Information Technology Cases and Applications (JITCA), vol. 5, no. 1, 2003

- User orientation

The outlook of the user orientation focuses on the increase of the user satisfaction with the IT solutions application.

- Corporate contribution

The corporate contribution outlook oscillates around the increase of the business value obtained from the IT solutions application.

- Operational excellence

The operational excellence outlook refers to an improvement of the quality of the creation of IT systems/solutions.

- Future orientation

The future orientation outlook focuses on a higher level of competence and the IT staff formation.

3.1. Specificity of the BITA (Business IT Alignment) model application

The application of the IT Balanced Scorecard model constitutes a challenge for companies itself. Practitioners report on the so-called know-how accompanying the implementation; having it in mind makes the successive employment of the IT Balanced Scorecard possible. Thus, this paper summarizes below the practice of implementation of the IT BSC processes.

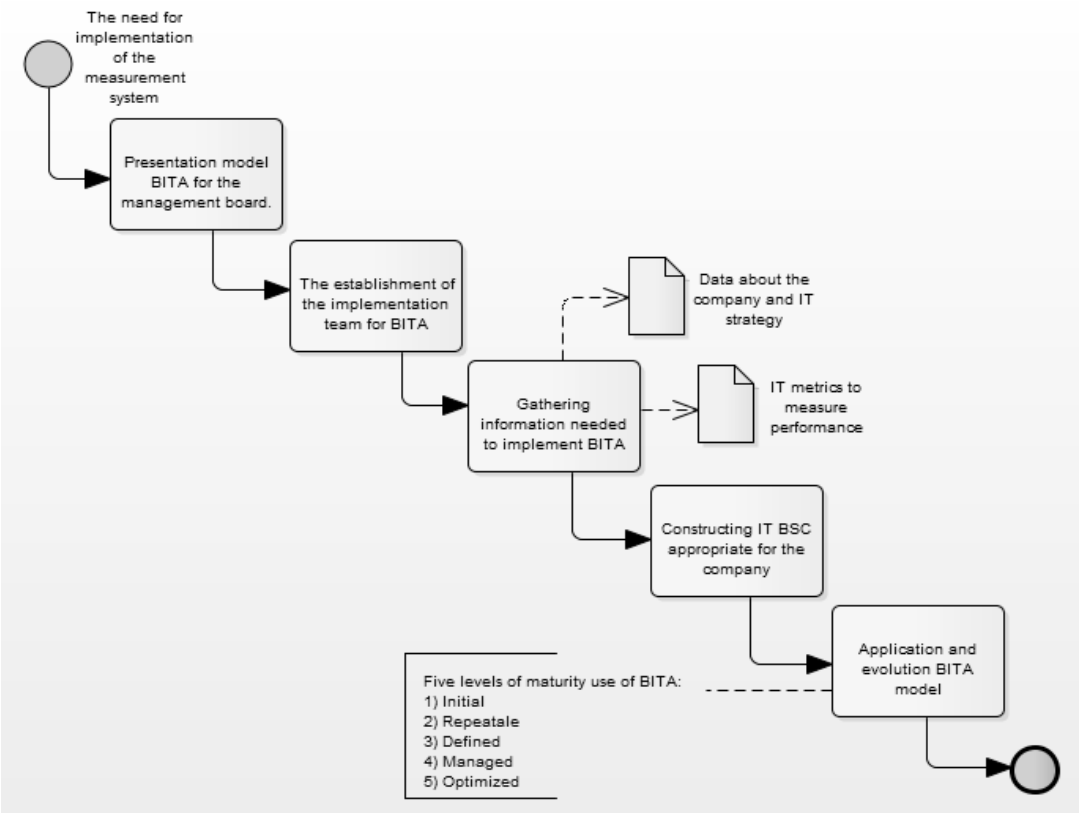


Fig. 2. Scenario of implementation BITA Model

- **Recognizing the need of implementation of a measurement system**

To begin with, it has to be notices, that in Poland, as well as in other countries, the micro, small and medium-sized (SMSE) enterprises prevail. In the companies of that size, only on exceptional occasions special posts, related to the described BITA measurement system, are created. Mostly, it is during the course of executing typical activities by the manager staff, that a necessity of a measurement system implementation is seen (*ad hoc*). Additionally, it means that the execution of the process illustrated in the picture 1 is not a part of the standard procedures. Thus, attention may be paid to different key aspects of the enterprise. For instance, the parameters of the assessment of the competitive position of the company. Many environments draw attention to issues such as: the image of the company in the market background and the competitiveness, the competence and quality of products in the eyes of the customers, the profitability and costs of the company, and others.

- **Presentation of the BITA model before the company's executive board**

Presentation of the BITA model before the company's executive board seems a trite issue. Nevertheless, having shed light on the number of small enterprises and their characteristics – a dependence on external factors must be observed. That broadly understood group of actions and subjects influences the knowledge status of the functioning enterprises. In other words, the absence of those external factors in the economic reality makes it impossible for the small enterprises to get acquainted with the described here BITA model.

- **Establishment of a team of implementation of the alignment between IT and business**

While creating a team, it is good to delve into academic background and record. Ravichandran and Lertwongsatien (R&L) created a model of key competence which increases the market value of enterprises and the competitive advantage.

The establishment of a human team, which will meet the expectations of the R&L model, in that sequence obliges to highlight resources, which have an impact on the possibilities through providing for the enterprise ultimate key features.

3.2. Gathering information is essential for the implementation of the equilibrium model IT Business based on BSC cards

Gathering essential information for the implementation of the IT-Business equilibrium model is a toilsome task, in which the level of the organization's maturity has to be considered in relation to the application of this model. The IT BSC card, in accordance with the Model of Van Grembergen, indicates those pieces of information that accompany the following four outlooks:

Table 4. The cart of IT BSC

IT Balanced Scorecard	
Corporate contribution *What is the attitude of the executive board toward the IT department?*	Mission
	Goals
	Initiatives
	Measures
Operational perfection *How powerful and effective the IT processes are?*	Mission
	Goals
	Initiatives
	Measures
Future orientation *How well will IT meet future requirements?*	Mission
	Goals
	Initiatives
	Measures
Orientation of the user *How do the users perceive the IT department?*	Mission
	Goals
	Initiatives
	Measures

- **Construction of the IT BSC card destined for the organization**

Designing a balanced scorecard, it is good to follow recommendations based on the experience of practitioners, towards which the following approach should be adopted.

1. Start with smaller but essential objectives and measures.
2. Consider techniques of the balanced scorecards as a support mechanism for the IT and business balance, as well as for the IT management in the company.
3. Take into account the construction and implementation of the Balanced Scorecard as an evolutionary project.
4. Provide a formal organization of the project.
5. Adopt the best practices for the IT BSC support.
6. Review regularly the variables of measurement.
7. In the first place, focus on the establishment of proper goals and measures, and only then on the use of supporting tools.

- **Application and evolution of the equilibrium model between IT and business**

First level - Beginning
The company recognizes the need to implement a measurement system into the IT Department. Implemented measurements are applied *ad hoc*, focusing on the main IT processes, e.g. the creation of systems or their exploitation.
Second level - Reiteration
The Management Board of the company is aware of the possibility of the IT BSC and the employment of it in defining proper measures. Measures are defined and presented in the form of BSC cards. The bonds between the measurements of the results and the simulators of those results are generally defined, but still not precise enough. Not documented and not implemented in the strategy and execution plan. Other issues such as: reviews of BSC cards are not formalized.
Third level - Defining
Management is standardized and documented. In addition, they have been carried out formal training on the use of the IT BSC. The IT BSC process has been formally linked to the business cycle.
Despite the full compliance of the use of the IT BSC with the recommendations of the Executive Board in the process of ensuring balance between IT and business, the full cohesion is yet to be achieved. Ongoing efforts are carried out in order to unite the new work area with the company's business model.
Fourth level - Management
IT BSC is fully integrated into/coherent with the strategy, as well as with the operational activities of the company. The links between external measurements and the simulators are promoters fully implemented and reviewed. Employment of the IT BSC is respected by each employee involved in this area of the company.
The Optimal Level
In addition to the aforementioned level of management, the IT BSC framework not only stays in balance with the business strategy of the company, it also provides inspections and updates on a regular basis. That makes it possible to keep the optimal model of its application. The framework makes it possible to involve both the internal and external experts, who by analyzing the specifics of IT BSC, implement the desired changes.

4. The research on possibility of innovative technologies implementation

In April 2016, Local Development Agency from Sosnowiec and Organization of Software Engineers conducted another research on the possibility to implement BITA model in a company. 5 companies from Zagłębie Dąbrowskie region participated in the research. Their activity is focused on various sectors, partly connected with IT. The following table illustrates the specificity of different sectors and main products offered by surveyed companies.

Table 5. Companies that participated in the research - categorized by the size, sector and the main product

The size of companies	Sector	The main product
Micro-enterprise	Stationery and IT products	Consumables
Micro-enterprise	Production and sales of SAAS	CRM for SMEs
Micro-enterprise	Production and sales of baked goods	Baked goods
Small enterprise	Automated systems	Dust extraction devices
Medium enterprise	Interactive agency	Websites, e-marketing

Dependency between a sector and implementation of IT solutions

The findings proved that a sector in which a particular company runs business affects significantly implementation of IT solutions in it. Two companies that participated in the study develop their activity owing to innovations and unique IT solutions. These are the interactive agency and the enterprise which produces and sells software. A small enterprise which produces and sells automated systems uses standarded IT solutions for its basic needs. The remaining two companies support their business actively with IT by implementing dedicated solutions. The findings clearly indicate that companies that do not operate within IT sector, do not develop their business with innovative IT solutions.

Strategic company management and long-term perception of IT application

All the companies participating in the study have company development strategy. The analysis of the survey demonstrate that two respondents have a strategy without IT solutions, whereas three other respondents have a strategy incorporating evolution of IT application. 4 companies out of 5 admitted that they would be ready to implement professional ways for IT strategy management if only they had such an opportunity. The only company that did not express interest in it was the enterprise that sells stationery and IT products

Possibility of BITA implementation in a company

The findings clearly indicate that 3 out of 5 surveyed companies would be ready to implement BITA model. According to what company representatives said, this system is highly useful and could have a good effect on managing, provided that people in charge would have necessary competences to use the model. It should be noted that 2 out of 3 of these companies operate in IT sector. The company that sells stationery and IT products described the system as needless, whereas the company that specializes in automated systems stated that it is indeed necessary, but hard to use in practice. It turned out that the basic problem with system implementation was adapting people and procedures to a perfect BITA model. In conclusion, the above analysis suggests that companies which support their business with IT solutions, as well as enterprises that develop using innovative and unique solutions, are ready to introduce BITA model, therefore their awareness is higher in this case and they understand benefits coming from new system implementation. Unfortunately, enterprises that are not IT-oriented, do not express readiness to implement this model or described it as hard to use in practice. The conclusion is that these companies are less aware and consequently less oriented towards company development and, among others in the context of incorporating innovative solutions.
The surveyed companies that do not specialize in innovative technologies have unanimously stated that they encountered difficulties in implementing BITA model. Only the interactive agency and the company selling software stated that they had no problems with applying this model due to the fact that “improvements and innovations are welcome on a management level”.

4 out of 5 surveyed companies indicated that forming implementation team would be necessary if the company was to apply BITA model. They also stated that it would be recommended to collect necessary information concerning the company itself and its strategy in order to “define needs and objectives for IT implementation”. Moreover, they indicated that it would be necessary to obtain data involving IT metrics that enable performance measurement in order to implement the model. According to the company that implements innovative technologies, this process is essential since it enables “identification of immeasurable, virtual processes and defining its performance”. The above respondents (4 out of 5) highlighted that it would also be necessary to build BITA system adjusted to their activity, first and foremost due to the specificity of their sector and adapting IT to their activity and market needs.

The surveyed enterprises are on different levels of application of balance model for IT and business. Two micro-enterprises which work with innovations described their level as initial. Within thin context, these enterprises certainly recognize the need for implementation of measurements system, however the study is carried out ad hoc. One micro- and one small enterprise indicated that their company is aware of opportunities offered by IT and that measures are defined and presented, nevertheless they lack accuracy and, what is more, they

are not documented and not introduced into the strategy and implementation plan. None of the surveyed companies have qualified its activity on level 3 – defined, in which management is standardized and documented and IT BSC process has been formally incorporated to business activity cycle. One of the surveyed enterprises estimated its activity on level 4, i.e. managed, in which IT BSC is fully integrated/consistent with its strategy and activity, and measurement tools are fully implemented and scanned. This model is also recognized by company employees. None of the surveyed enterprises indicated an optimal level of model application, in which IT BSC framework is consistent with business strategy, but there are also frequent updates, which enables maintaining optimal model of its application with support of extra in-house specialists and external experts who analyse IT BSC specificity and implement expected changes. The following chart demonstrates dependency of sector, size and level of BITA model implementation.

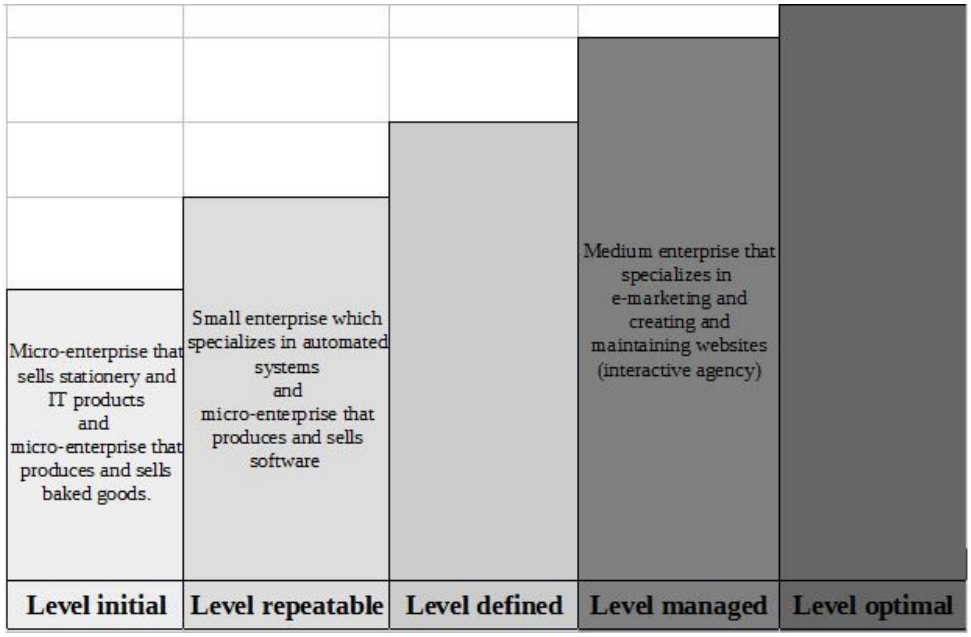


Fig. 1. Levels of application and development of IT balance model in surveyed companies including size and sector (own work)

The findings clearly indicate the following dependency: the bigger the enterprise, more chances there are to apply higher level of balance model between IT and business (two micro-enterprises described their level as initial, one small enterprise stated it was repeatable and one medium enterprise pointed out to managed model).

There is an additional dependency proving that the more innovative technologies applied in a company, more chances for BITA model implementation (one company that sells software described their level as repeatable and another company – interactive agency pointed out to managed level).

5. Conclusions

The fact is that the enterprises' investments in the IT are indispensable. The macroeconomic requirements magnify that need. However, the economic practice shows entirely different problems, which appear to form the foundation of the success of these investments. The article approaches the questions of the size of enterprises, the delegation of responsibilities, and further implications for the ability of the enterprises to explore the knowledge; in this case, of the BITA models which make possible efficient investments in the IT.

In view of the aforementioned conclusions the article asks the question: Who are the IT solutions for? Whether – in the course of further evolution - would it be a solution only for the large concerns? What about SMEs sector? In fact, in the economic reality smaller subjects will not deliver results in this area and, consequently, will not be able to adopt indispensable IT solutions. Whether is it the way everything goes, that we are witnessing the creation of another distance being formed between companies – dictated by the economically justified use of IT solutions?

In the light of the conclusions one can expect that small businesses will not be able to function independently and grow based on its own IT solutions. These solutions on which depends the future of their business. Because of the incompetence of the strategic use of information technology in business.

References

1. Barriers to development of enterprises - what hinders growth of Polish companies the most? Report concerning results of the survey conducted during the Second Forum of Entrepreneurs of Grant Thornton, December 2013
2. Bon, J., Verheijen, T.: Frameworks for IT Management, Van Haren Publishing, Zaltbommel, 2006
3. Campbell, K.: A Core Competency Model for Aligning Information Technology with Business Objectives, California Institute of Technology, 2000
4. Chop, K., Małyszek, E.: Use of best practices for the business environment to support innovation in small and medium-sized enterprises. [in:]J. Otto, R. Stanislavsky, A. Maciaszczyk: Innovation as a factor for raising the competitiveness of enterprises and regions on the European single market. Technical University of Lodz, Łódź 2007
5. Elmorshidy, A.: Aligning IT With Business Objectives: A Critical Survival And Success Factor In Today's Business, The Journal of Applied Business Research , 2013
6. Gęca, B.: Different forms of support of business environment institutions used by small and medium-sized enterprises in the region of Lublin, Lublin University of Technology
7. Information Sheets SBA - Annual Report on European SMEs 2013/2014, European Commission, Brussels 2014 Eurostat data
8. Laboratory Research & Consultancy "Re-Source" Korczyński Sarapata Sp. j., Analysis of the concept of a demand system of SMEs and employees support in the Silesian voivodeship within ROP 2014-2020, Katowice, in October 2015
9. Mekawy, M., Rusu, L., Ahmed, N.: Business and IT Alignment: An Evaluation of Strategic Alignment Models, Stockholm University, 2009
10. Research and development in Polish enterprises, Perspective 2020, editorial collective, KGMPG, Warsaw 2013
11. Study of enterprises and business environment institutions, Inkor, editorial collective, Accreo Business Consulting Sp.z o.o., Torun 2012
12. Szczepaniak, I.:Factors and conditions of development of small and medium-sized enterprises in the knowledge-based economy, Institute of Agricultural and Food Economics National Research Institute in Warsaw, http://www.ur.edu.pl/ pliki/ Zeszyt10/40. Pdf
13. Tarnawa A.: Chapter 1 Macroeconomic conditions for the development of enterprises in Poland in 2014, Report on the situation of small and medium enterprises in Poland in 2013-2014, PARP, Warsaw 2015
14. Kowalski, G., Młodożenie M., Jablonski, R.:The needs for training services of small and medium-sized enterprises; final report on quantitative study prepared for the Polish Agency for Enterprise Development, Elaboration, Warsaw, July 2006
15. Łapiński, J., Nieć, M., Butcher, G., Węcławska, D.: Chapter 2 Entrepreneurship and prospects for development of the SME sector in Poland, [in] Report on the situation of small and medium enterprises in Poland in 2013-2014
16. Ziemba, M., Świeszczak, K.: Barriers to development of SMEs - with particular

emphasis on the possibility of obtaining foreign capital, Scientific Papers University of Szczecin No 786 Finance, Financial Markets, Insurance No. 64/1 (2013)
17. Żuk, A.: Building Strategies in small businesses, http://www.lbs.pl/projekt/dobrepraktyki/files/artykuly/AZuk.pdf