AWARENESS OF IT GOVERNANCE AND ITSM IN SMALL AND MEDIUM ENTERPRISES IN WESTERN AND CENTRAL EUROPE

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IT governance principles and ITSM methodologies are more and more often used by contemporary organisations. Big companies are usually aware of their advantages. But the question arises, if small and medium enterprises are also familiar with these philosophies and methods, since there is a considerable number of barriers hindering their implementation, e.g.: complexity of methodologies, overwork, lack of awareness, lack of knowledge of actual IT trends, lack of trainings offered to SMEs and natural reluctance to changes. In this paper the level of IT governance and ITSM awareness in SMEs operating on six regions in Western and Central Europe on the basis of a survey conducted within them is analysed. Four criteria have been taken under consideration: IT strategy, awareness of contemporary IT trends, implemented or planned projects and methods of investment in IT.

Keywords: business strategy, IT strategy, IT, IT governance, ITSM, SME

1. Introduction

IT governance and *Information Technology Service Management* (ITSM) are areas of IT concerning IT departments organization in enterprises. These related terms are, however, defined differently:
− ITSM is the area that focuses on defining, managing, and delivering IT services to support business goals and customer needs. ITSM is broad term, encompassing IT planning, delivery, support, and security. In contrast to the

traditional technology-oriented approaches to IT operations, ITSM is a discipline for customer-defined, process-oriented IT services [3],

− IT governance is defined as the organizational capacity exercised by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT [1].

The service philosophy is the greatest distinction between ITSM and classic IT management. ITSM tries to connect business processes with information technology by defining IT-based services that support the operational business processes. ITSM is more than just a management tool. In order to understand and use it correctly, it is important to comprehend ITSM as an all-inclusive concept, internalize and integrate it into everyday work. In practice, those responsible for IT frequently spend their time on maintenance and provisioning tasks. That ties up financial and personnel resources. The objective is to use ITSM to quickly attain small successes which together enable reliable, targeted and cost-effective provisioning of IT. Reserves that are freed up can be used for the development of innovations.

A critical factor for ITSM is that IT services (such as saving documents or creating invoices) are viewed as business process critical and thus require investment to provide optimal support to business processes without wasting resources (this is known as IT/business alignment). The challenge for each SME is to bring business processes and IT into alignment and to define IT services that reflect an optimum relationship between costs, benefits and risks. In ITSM, this is attained by user-oriented service definitions.

There are numerous frameworks available for effective and efficient ITSM/IT governance implementations. The most recognized are: Business Framework for the Governance and Management of Enterprise IT (COBIT) [2], IT Infrastructure Library (ITIL) [7], Microsoft Operational Framework (MOF) [8], HP IT Service Management [4], IBM Integrated Service Management [5], eTOM and Calder-Moir IT Governance Framework [6, 9]. They differ in the scope and extent and in many cases are in overlapping relationships.

The goal of the INNOvation TRAINing IT Central Europe (INNOTRAIN IT) project is to support small and medium enterprises (SMEs) in effective implementation of ITSM by spreading knowledge of its advantages, preparing them to employ appropriate solutions and organising free-of-charge trainings. The project is carried out by research institutions from six regions in Western and Central Europe: Poland (Malopolska), Austria, Czech Republic, Germany, Hungary and Slovakia. One of the first tasks project partners set themselves was to identify current situation as regards to knowledge and implementation of IT governance and ITSM in small and medium enterprises in all six regions. Selected results of this investigation are discussed in the paper.

2. Research data

Within the project the questionnaire was conducted among several hundred SMEs. It was expected to acquire knowledge of the degree of awareness of contemporary IT trends among SMEs. Two hundred fifteen companies responded to the questionnaire: 54 from Poland, 25 from Austria, 32 from Czech Republic, 54 from Germany, 33 from Hungary and 17 from Slovakia. Respondents were asked to answer general questions, concerning their organisations (e.g. employment, branches, turnover, number of employees in IT departments). Answers to these questions gave information about size of enterprises, regions they operate, kind of businesses they belong to and so on. The questionnaire contained also questions concerning IT departments organisation and IT awareness in enterprises.

Among companies that responded to the questionnaire most were local firms operating only on local markets (Poland – 44, Austria – 20, Czech Republic – 20, Germany – 41, Hungary – 32, Slovakia – 10). The rest acted on a number of markets: in a few regions, in all European Union and even all over the world. In the paper the results concerning four issues are discussed:
- connections between business strategy, IT strategy and IT architecture and also impact of contemporary technological trends on IT strategies,
- knowledge of contemporary IT trends, including IT governance and ITSM methods,
- implemented and planned projects concerning various IT aspects, including IT governance and ITSM,
- methods of IT investment planning.

3. The questionnaire results

3.1. IT strategy

A few questions concerned relationships between business strategy, IT strategy, IT architecture and taking into account contemporary IT trends when planning and organising IT departments. A percentage results of answers to these questions are depicted in Table 1.

Answers show that most companies fit their IT strategies to business strategies and IT architectures to IT strategies. IT strategy depends on business strategy for 77.8% German companies, which is the best result among all regions. In this respect, the worst situation is in Hungary, where only 7 out of 25 firms (28.0%) answered positively. In the remaining regions IT strategy depends on business strategy in more than a half companies: 66.7% in Czech Republic, 66.7%

in Slovakia, 58.1% in Poland and 56.0% in Austria. Adjustment of IT architecture to IT strategy declare 85.0% Hungarian and 84.8% German companies. Such a big discrepancy between positive answers to the first and second questions in the case of Hungarian companies may indicate either misunderstanding of this issue or adjustment of IT architecture to existing IT strategy, although the last is elaborated, in most cases, without reference to business strategy. In remaining regions the situation is similar to each other. Adjustment of IT architecture to IT strategy declare 71.4% firms form Czech Republic, 70.5% from Poland, 69.2% from Slovakia and 68.2% from Austria. It should also be mentioned that, except for Hungary, the percentage of respondents who answered positively to the second question is higher than those who responded 'yes' to the first one. It means that, in most cases, IT architecture is better adjusted to IT strategy than IT strategy to business strategy.

Answers given to the question if technological trends are important in IT strategy planning show that IT trends are rather significant (see Table 1). They are not considered, which means that they are not much important or not important at all, by 5.8% respondents from Germany, 12.5% from Hungary, 14.3% from Czech Republic, 17.5% from Poland, 17.6% from Slovakia and 24.0% from Austria. On the other hand, they are important or very important for 78.8% companies in Germany, 77.5% in Poland, 60.0% in Austria, 58.3% in Hungary, 42.9% in Czech Republic and 41.2% in Slovakia.

Table 1. Connections between business strategy, IT strategy and IT architecture and impact of technological trends on IT strategy planning (in percentages)

Question ⟍ Region	IT strategy is the result of business strategy	IT architecture is adjusted to IT strategy	Technological trends are important or very important in IT strategy planning	Technological trends are not much important or not important in IT strategy planning
Poland	58.1	70.5	77.5	17.5
Austria	56.0	68.2	60.0	24.0
Czech Rep.	66.7	71.4	42.9	14.3
Germany	77.8	84.8	78.8	5.8
Hungary	28.0	85.0	58.3	12.5
Slovakia	66.7	69.2	41.2	17.6

Source: own preparation on the basis of a questionnaire conducted within the INNOTRAIN IT project

3.2. Knowledge of contemporary IT trends

The next group of questions related to contemporary trends in IT and, especially, ITSM: just ITSM but also virtualisation, security and compliance, cloud computing and energy efficiency. Firstly, respondents were asked to answer if they are familiar with these terms and then if in their companies projects concerning these issues had been implemented or at least planned.

The results of answers to questions concerning the awareness of contemporary IT trends clearly show better awareness of these issues in Western Europe then in post-socialist countries (see Table 2). In Germany and Austria more than 75% respondents (apart from one exception) are familiar with all investigated terms. In remaining countries the awareness is less common, the worst situation is in Hungary, where none term is familiar to at least half of respondents and in Czech Republic, where, except for security and compliance issue, the situation is similar. Both these countries occupy last two (fifth and sixth) places in every term rank (see Table 2). On the other hand, discussed terminology is well known in Slovakia and Poland, where only cloud computing is known by less than half of respondents. Besides, this issue is the worst known in five from six regions. Only in Germany the awareness of cloud computing is declared by more respondents than energy efficiency. The best situation is in the case of issues concerning security and compliance. In almost all regions surveyed this is the best known term apart from Germany, where it occupies second place (the first is virtualisation) and Hungary where it is a little less known than ITSM and the same as virtualisation.

Table 2. Number and percentage of respondents declaring knowledge
of contemporary IT trends

Term / Region	ITSM	Virtualisation	Security and compliance	Cloud computing	Energy efficiency
Poland	35 (64.8%)	36 (66.7%)	44 (81.5%)	26 (48.1%)	29 (53.7%)
Austria	19 (76.0%)	20 (80.0%)	23 (92.0%)	19 (76.0%)	20 (80.0%)
Czech Rep.	13 (40.6%)	13 (40.6%)	17 (53.1%)	5 (15.6%)	12 (37.5%)
Germany	45 (83.3%)	47 (87.0%)	45 (83.3%)	42 (77.8%)	40 (74.1%)
Hungary	13 (39.4%)	12 (36.4%)	12 (36.4%)	8 (24.2%)	14 (42.4%)
Slovakia	14 (82.4%)	13 (76.5%)	15 (88.2%)	6 (35.3%)	11 (64.7%)

Source: own preparation on the basis of a questionnaire conducted within the INNOTRAIN IT project

3.3. Implemented and planned IT projects

Similarly to the knowledge of analysed IT areas, also percentage of companies which implemented or planed to carry out projects in these areas is diverse. In a few cases the difference between the number of implemented or planned projects (see Table 3) and the knowledge of corresponding areas (see Table 2) is puzzling. For example, only 8 respondents from Hungary declared they were familiar with cloud computing, whereas 12 informed that a project on this area had been implemented in a company and next one that it was planned. Similar situation is in three other regions: in Czech Republic only 5 respondents declared familiarity with cloud computing, whereas 18 informed about implementation and one about planned project. In Austria 19 were familiar with cloud computing, whereas 15 implemented projects and 5 planed, in Slovakia it is respectively 6, 6 and 2.

Similar situation is also in other investigated issues. In Austria, 19 respondents were familiar with ITSM but as many as 23 informed about projects. In Czech Republic it was respectively 13 and 20, in Hungary 13 and 14. Similarly, more declared greater number of projects then knowledge of corresponding issue in virtualization (Austria, Czech Republic and Hungary), security and compliance (Czech Republic and Hungary) and energy efficiency (Czech Republic and Hungary). It means that employees know what is going on in their organisations and they are aware of implemented projects, improvements and modern solutions but they may have problems with understanding new implementations and may not know how to use them. This may lead to not efficient usage of existing potential offered by implemented solutions, because employees know they exist but they do not have adequate skills and knowledge to use them properly.

Analysing the state of implementations or projects planned in individual regions it has to be mentioned that the worst situation is in Hungary, which in the rank of percentage of enterprises which implemented or planed projects in every case occupies the last place. Also in Poland situation is not satisfactory, because in this ranking enterprises from Malopolska occupy second to last place. On the other hand, the best situation is in Austria (in every area the first place) and in Germany (in four cases second place, in energy efficiency projects third).

What is interesting, only in Poland and Germany in every analysed area (and in Slovakia in four out of five) having knowledge declare more respondents than implemented or planned projects. This means that in these regions projects are better planned and employees are acquainted with them and are able to use them efficiently.

Table 3. Number and percentage of companies currying out or planning implementation of projects in five analysed areas

Term \\ Region	Projects	ITSM	Virtualisa-tion	Security and compliance	Cloud computing	Energy efficiency
Poland	implemented	15 (27.8%)	14 (25.9%)	10 (18.5%)	20 (37.0%)	21 (38.9%)
	planned	12 (22.2%)	16 (29.6%)	22 (40.7%)	2 (3.7%)	4 (7.4%)
	total	27 (50.0%)	30 (55.6%)	32 (59.3%)	22 (40.7%)	25 (46.3%)
Austria	implemented	13 (52.0%)	8 (32.0%)	5 (20.0%)	15 (60.0%)	12 (48.0%)
	planned	10 (40%)	14 (56.0%)	18 (72.0%)	5 (20.0%)	6 (24.0%)
	total	23 (92.0%)	22 (88.0%)	23 (92.0%)	20 (80.0%)	18 (72.0%)
Czech Rep.	implemented	12 (37.5%)	13 (40.6%)	7 (21.9%)	18 (56.3%)	15 (46.9%)
	planned	8 (25.0%)	10 (31.3%)	15 (46.9%)	1 (3.1%)	5 (15.6%)
	total	20 (62.5%)	23 (71.9%)	22 (68.8%)	19 (59.4%)	20 (62.5%)
Germany	implemented	15 (27.8%)	12 (22.2%)	13 (24.1%)	19 (35.2%)	18 (33.3%)
	planned	28 (51.9%)	30 (55.6%)	29 (53.7%)	18 (33.3%)	12 (22.2%)
	total	43 (79.6%)	42 (77.8%)	42 (77.8%)	37 (68.5%)	30 (55.6%)
Hungary	implemented	7 (21.2%)	10 (30.3%)	8 (24.2%)	12 (36.4%)	11 (33.3%)
	planned	7 (21.2%)	3 (9.1%)	9 (27.3%)	1 (3.0%)	4 (12.1%)
	total	14 (42.4%)	13 (39.4%)	17 (51.5%)	13 (39.4%)	15 (45.5%)
Slovakia	implemented	2 (11.8%)	2 (11.8%)	2 (11.8%)	6 (35.3%)	5 (29.4%)
	planned	10 (58.8%)	8 (47.1%)	9 (52.9%)	2 (11.8%)	3 (17.6%)
	total	12 (70.6%)	10 (58.8%)	11 (64.7%)	8 (47.1%)	8 (47.1%)

Source: own preparation on the basis of a questionnaire conducted within the INNOTRAIN IT project

3.4. Investment plans in IT

The next group of questions related to investment plans in IT and, especially, factors that most influence them. Respondents might have indicated more than one factor which could have been: corporate strategy, employee requirements, client expectations or complains, reaction to immediate necessities or noted IT insufficiencies and others. Results of this part of the questionnaire are depicted in Table 4.

Table 4. Impact of chosen factors on investment plans in IT

Term \ Region	Corporate strategy	Employees requirements	Clients complains/ expectations	Immediate necessities (IT insufficiency)	Others
Poland	28 (51.9%)	43 (79.6%)	9 (16.7%)	20 (37.0%) / 1 (1.9%)	1
Austria	14 (56.0%)	16 (64.0%)	14 (56.0%)	16 (64.0%) / 1 (4.0%)	1
Czech Rep.	16 (50.0%)	16 (50.0%)	5 (15.6%)	15 (46.9%) / 5 (15.6%)	0
Germany	27 (50.0%)	40 (74.1%)	34 (63.0%)	35 (64.8%) / 3 (5.6%)	1
Hungary	10 (30.3%)	20 (60.6%)	3 (9.1%)	13 (39.4%) / 7 (21.2%)	0
Slovakia	11 (64.7%)	10 (58.8%)	7 (41.2%)	7 (41.2%) / 1 (5.9%)	0

Source: own preparation on the basis of a questionnaire conducted within the INNOTRAIN IT project

The aim of this group of questions was to investigate, if investments in IT are planned in advance, if they arise as the result of changes in organisations and their environment or as a reaction to sudden problems and noted IT insufficiencies. If investment plans in IT depend on corporate strategy it usually means that changes are well prepared, implemented strategically and that it is a thought-out, long-term process. But changes may be introduced also in response to reports made by own employee or client expectations or even their complains. This strategy also may produce good results, as far as necessary changes are made quickly and properly, and client and employee remarks and comments are monitored constantly. If investments are made as a result of immediate necessities, IT insufficiencies or sudden problems, it usually means that there are no planned actions in this area and that changes are made accidentally, mainly to eliminate various mistakes or irregularities. This may lead to losing control of possessed resources and also to arising confusion and difficulties in understanding IT mission and possessed resources.

Analysing the questionnaire results (see Table 4) it should be noted that most companies in all regions investing in IT have well thought-out scheme. Although investments are the result of corporate strategy for 50–60% (apart from Hungary, where this is only 30.3%), but many companies investing in IT take under consideration employee requirements and client expectations. Furthermore, only for small number of those who, as important criteria, indicated immediate necessities or IT insufficiencies, this criteria was the only one. In all regions, the

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biggest or almost the biggest impact employee requirements have, whereas significantly less pay attention to client expectations or complains.

It should be noted that the corporate strategy has the smallest impact on IT investment plans in German companies, which, on the other hand, have the biggest awareness as far as IT, IT strategy and new trends are concerned. For German companies the biggest importance are own employee requirements, then client expectations and complains and IT insufficiencies. The last place occupy corporate strategy. It also should be noted that in German and Austrian companies all three factors (corporate strategy, employee requirements and client expectations) have similar impact on IT investment plans. In remaining regions (apart from Slovakia where this value is comparable to German and Austrian companies) significantly less attention is paid to client expectations and complains.

Data depicted in Table 4 show that the worst situation is in Hungarian companies. In this region the least attention is paid to strategic planning in IT, the least impact client expectations and complains have, relatively many companies (39.4%) declare introducing changes as a reaction to IT insufficiencies, what is more, for as many as 21.2% this is the only criteria.

4. Comparative analysis of investigated regions

To compare investigated regions, all four studied areas were taken under consideration. Only these indicators were selected which could be classified as stimulants. In strategy IT area three were chosen: connection between business strategy and IT strategy, connection between architecture IT and IT strategy and importance of technological trends in IT strategy planning (second, third and fourth columns in Table 1). It was assumed, that insignificance of technological trends in IT strategy planning is destimulant. In acquaintance with contemporary IT trends area (see Table 2) and projects implemented or planned (see Table 3) all indicators are stimulants. In methods of investment planning in IT area first three were selected (see Table 4). It was assumed that a company should plan its investments on the basis of corporate strategy, but also it should take into consideration employee requirements and client expectations and complains. The indicator informing that investment plans in IT depend on immediate necessities or IT insufficiencies was classified as nominant, because it is difficult to unambiguously declare it as a positive or negative phenomenon. On the one hand, investments in IT if it is such a necessity may be positive because it decreases the risk of overinvestment, on the other hand, especially if it is the only criteria, it is negative, because it indicates that company has no long-term plans, which may lead to accidental and chaotic decisions.

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Table 5. Average values and ranks of regions in all analysed research areas

Criteria / Region	IT strategy (C1)		IT trends knowledge (C2)		Projects (C3)		Investments plans (C4)	
	Factor average	Rank	Factor average	Rank	Factor average	Rank	Factor average	Rank
Poland	68.7	2	63.0	4	50.4	5	49.4	4
Austria	61.4	3	80.8	2	84.8	1	58.7	2
Czech Rep.	60.3	4	37.5	5	65.0	3	38.5	5
Germany	80.5	1	81.1	1	71.9	2	62.4	1
Hungary	57.1	6	35.8	6	43.6	6	33.3	6
Slovakia	59.0	5	69.4	3	57.7	4	54.9	3

Source: own preparation on the basis of data depicted in Tables 1, 2, 3 and 4

To ensure identical impact of all four categories on synthetic value, in all four cases an average from all selected indicators was calculated. Next, on the basis of these averages, regions were ranked. Then, two synthetic values were calculated. First as a sum of averages, so the impact of individual average on synthetic value was significant (e.g. if one average was substantially less or higher than others, it was reflected in synthetic value). Second was a sum of ranks, which ignored impact of values on synthetic indicator. In Table 5 averages and ranks for all four categories separately are depicted, in Table 6 synthetic values calculated for all categories jointly are shown.

Table 6. Comprehensive indicator of awareness and usage of IT in analysed regions

Indicator / Region	Values		Ranks	
	Sum of averages	Rank	Sum of ranks	Rank
Poland	231.4	4	15	3
Austria	285.7	2	8	2
Czech Republic	201.4	5	17	5
Germany	295.8	1	5	1
Hungary	169.8	6	24	6
Slovakia	241.0	3	15	3

Source: own preparation on the basis of data depicted in Table 5

As far as awareness and usage of IT in SMEs are concerned, both calculated synthetic indicators show that the best developed are German and Austrian regions (see Table 6). Moreover, synthetic indicator calculated as a sum of averages shows that the difference between these regions and next Slovakia is significant (the value of this indicator is: for Germany 295.8, Austria 285.7 and third Slovakia 241.0). The second group form Slovakian and Polish regions – synthetic value calculated as a sum of ranks shows that these regions are developed identically, whereas indicator calculated as a sum of averages shows slight better situation in Slovakia. Fifth place occupies Czech Republic, having significantly worse value of synthetic indicator than fourth Poland (for Poland it is 231.4, for Czech Republic 201.4). At the end is Hungarian region – the value of this indicator is significantly worse than in Czech Republic (169.8). On the basis of these analyses, a conclusion may be made that there is a significant discrepancy in individual regions development.

5. Conclusion

The results of the questionnaire conducted among employees in small and medium enterprises, concerning awareness and usage of various IT tools and ITSM methodologies in their organisations enable to draw the following conclusions:
− in most cases (over 50%) enterprises adjust their IT strategies to business strategies (apart from Hungarian region) and IT architectures to IT strategies,
− enterprises pay attention to employing actual technological trends in IT strategies planning (less than a half companies do it only in Slovakia and Czech Republic),
− in almost all regions (apart from Poland) the highest attention is paid to adjusting IT architectures to IT strategies, lesser to planning IT strategies on the basis of business strategies, architectures IT on the basis of IT strategies and to use of technological trends while planning IT strategies,
− significantly better awareness of contemporary IT trends is in Western Europe (Germany, Austria) than in post-socialist regions; the worst situation is in Hungary and Czech Republic where these issues are known by less than a half respondents (apart from security and compliance in Czech Republic),
− among all investigated terms in all regions the worst known is cloud computing (apart from Germany where more respondents are acquainted with this term than with energy efficiency),
− in many cases enterprises declare more implemented or planned projects in individual branches than acquaintance with the branch, which may lead to conclusion that employees have not enough and adequate skills and knowledge to effectively use solutions implemented in their companies,

- only in Poland and Germany the number of respondents declaring knowledge of individual area is higher than the number of planned or implemented projects, which may lead to the conclusion that in these regions projects are well planned and employees are acquainted with them,
- almost in all regions the biggest impact on investment plans in IT own employee requirements have (apart from Slovakia where the biggest impact corporate strategy has),
- as far as synthetic view on knowledge and usage of IT governance and ITSM methods is concerned, the best developed are German and Austrian regions, next group constitute Slovakia and Poland, then Czech Republic and the worst situation is in Hungary.

The results of the questionnaire show rather good knowledge of issues connected with IT governance and ITSM in most analysed regions. One of the reasons may be the fact that, although the survey was conducted among companies operating on various business areas, the answers were given mainly by IT department employees, because the questionnaire was related to issues connected with IT.

The survey shows also significant difference between individual regions as far as analysed issues are concerned. So, one of the main goals of the INNOTRAIN IT project is to contribute to decreasing differences between these regions by organising free-of-charge trainings and stimulating enterprises to cooperate in innovative undertakings with organisations operating in different regions.

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