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Business Information Systems in Hungary

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ABSTRACT

Nowadays the issue of information technology in business is moving into the centre of attention, which is also indicated by the fact that more and more companies, not accidentally, recognize its importance. Business information systems are not only fashionable – their application promotes more efficient operation of the company and also improves the supply of information to decision-makers; applying such systems can also play an important role in helping companies to put greater emphasis on information technology in order to gain a competitive advantage. My aim was to present the circumstances of the decisions made about the introduction of business information systems and problems emerging during the introduction as well as to analyze the usage habits of companies applying these systems, and to explore the relation between the application of business information systems and the operational effectiveness of the business.

1. Introduction

The role of information has become more and more substantial in the economy recently, and information is regarded as an important resource since it is more difficult for companies to improve their market positions in the long term without having the appropriate amount of available information. Globalization in the business world has brought about the possibility of getting a greater amount of information in much less time which means that companies are forced to spend more time and energy on handling the increased information load.

Business information systems are designed to provide effective help in this process as they are becoming increasingly popular among companies due to the robust technological development. This paper deals with the usage of business information systems among the Hungarian enterprises and analyzes the following three key questions: how the usage of business information systems influences a company's economic performance, how much is the expenditure for an individual company to develop its information technology infrastructure and finally, to what extent information technology is considered important as a functional area within the organization of a company.

The aim of the research presented in this paper was to explore the current situation of Hungarian enterprises in terms of using business information systems, gaining a more thorough insight into the background of the decisions made on introducing such information systems together with the possible problems related to their introduction and further usage.

2. The research method

The empirical survey was carried out using a written questionnaire. In the phase of compiling the individual questions of the survey, the main results of the previously conducted empirical surveys on the subject were also taken into account.

The questionnaire was divided into five major parts. The first part included some basic questions about the companies' background (such as their location, fields of operation, number of employees etc.), then questions related to the responding company's information technology infrastructure followed. In the third part of the questionnaire, the emphasis was put on questions enquiring about the Internet-using habits of the companies; the fourth group of questions was aimed at enquiring about the usage patterns of business information systems, making it the most detailed part of the questionnaire. The closing part contained questions about the IT-skilled human resources employed by the responding companies.

The questionnaire was sent out to several hundreds of companies, The Hungarian survey was conducted both in a paper-based format and online with the assistance of the software application called Evasys. For evaluating data and presenting the results of the survey, the statistical software packages Excel 2007 and SPSS 19.0 were applied.
The 21% of the Hungarian responder companies are micro-sized, 29% are small-sized, 29% are medium-sized enterprise and 21% are corporations.

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3. The usage patterns of business information systems

In connection to the IT infrastructure, the following two questions were to be answered: whether a server-based network operated at the company, and the total number of computers operating at the company site. Based on the received figures, it can be asserted that two-thirds of the respondents (69.1%) operate a server-based network. Considering the number of the computers at the company, correspondence with the size of the companies is natural. At corporations the average number of the computers was 549, at medium-sized enterprises there were 55, at small-sized companies there were 7, at microenterprises there were only 3 computers on average.

Perhaps it is not surprising in today's world that all of the respondent companies have Internet access. Among the objectives of using the Internet, there are a few remarkable differences by size categories. As Figure 1 shows, primarily corporations use the Internet for education purposes. Besides the use of tax advisory services and purchase of goods and services there are no big differences between the purpose of use according to size categories, however it can also be realized that in most categories the ratio of corporations are lower compared to other size categories.

In terms of “other” purposes of use, more responses were received that could not be classified into the optional categories, for example submission of tender applications, website updates, benchmarking, the use of a web-based trading system, access to the central database via company programmes, service providing via the Internet, connection to the external partners and companies through a part of the company’s network, development of new services, development of new services related to education, seeking long-term business partners.

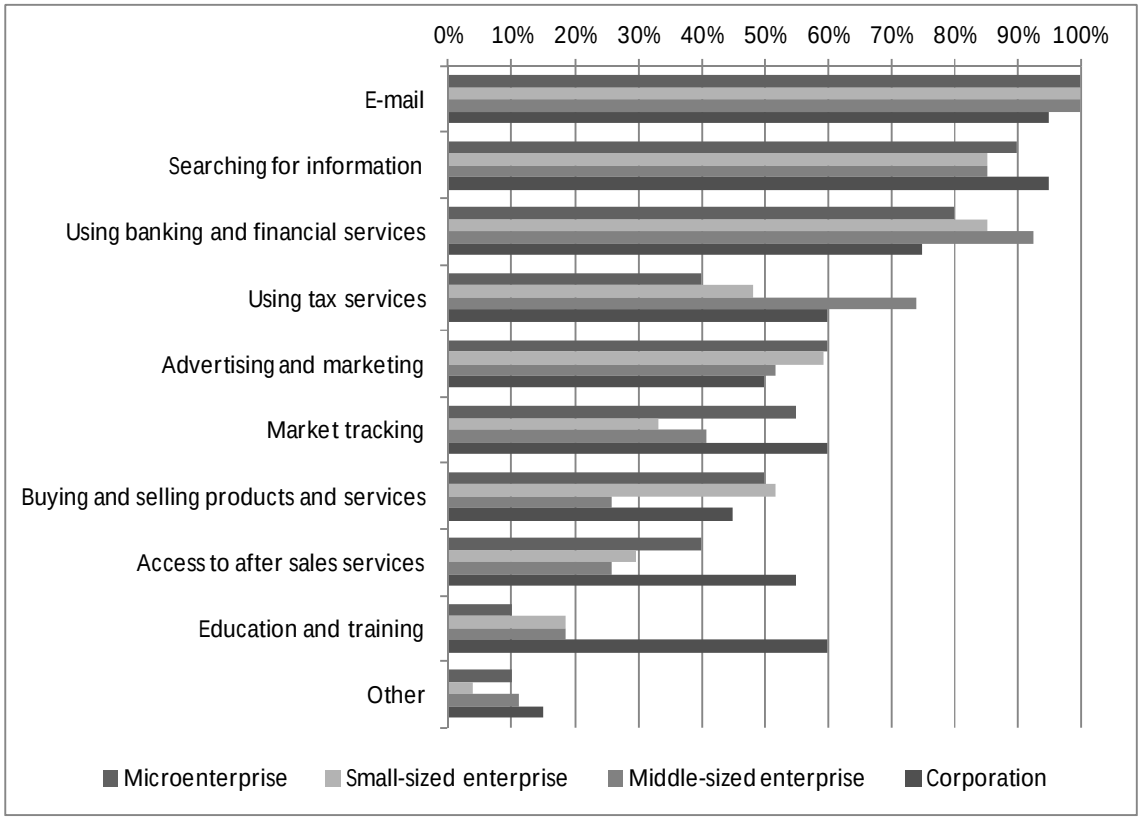

Figure 1. The purpose of use of Internet among the surveyed companies in 2010 by size category

Of the responding companies, 86.2% have a website. This figure also shows that nowadays a website is already a standard tool for the majority of the companies and a presence on the Internet is becoming more and more natural.

Every company website offers a wide range of information and services. Companies having a website provided the services listed in Figure 2. Not surprisingly, most of the information placed on their websites is connected to the companies and the products and services they offer. In terms of company size, mainly medium-sized companies and corporations use their websites for this purpose. In addition, the most common features are providing customer service such as e-mail or a forum for their products and services, sales of products and services, placing job advertisements, and receiving online orders. In order to carry out secure transactions or provide online digital services and online payment options, a much more complex website is required, whose maintenance and development needs major resources. This could explain the fact that these options are provided only by medium-sized companies and corporations.

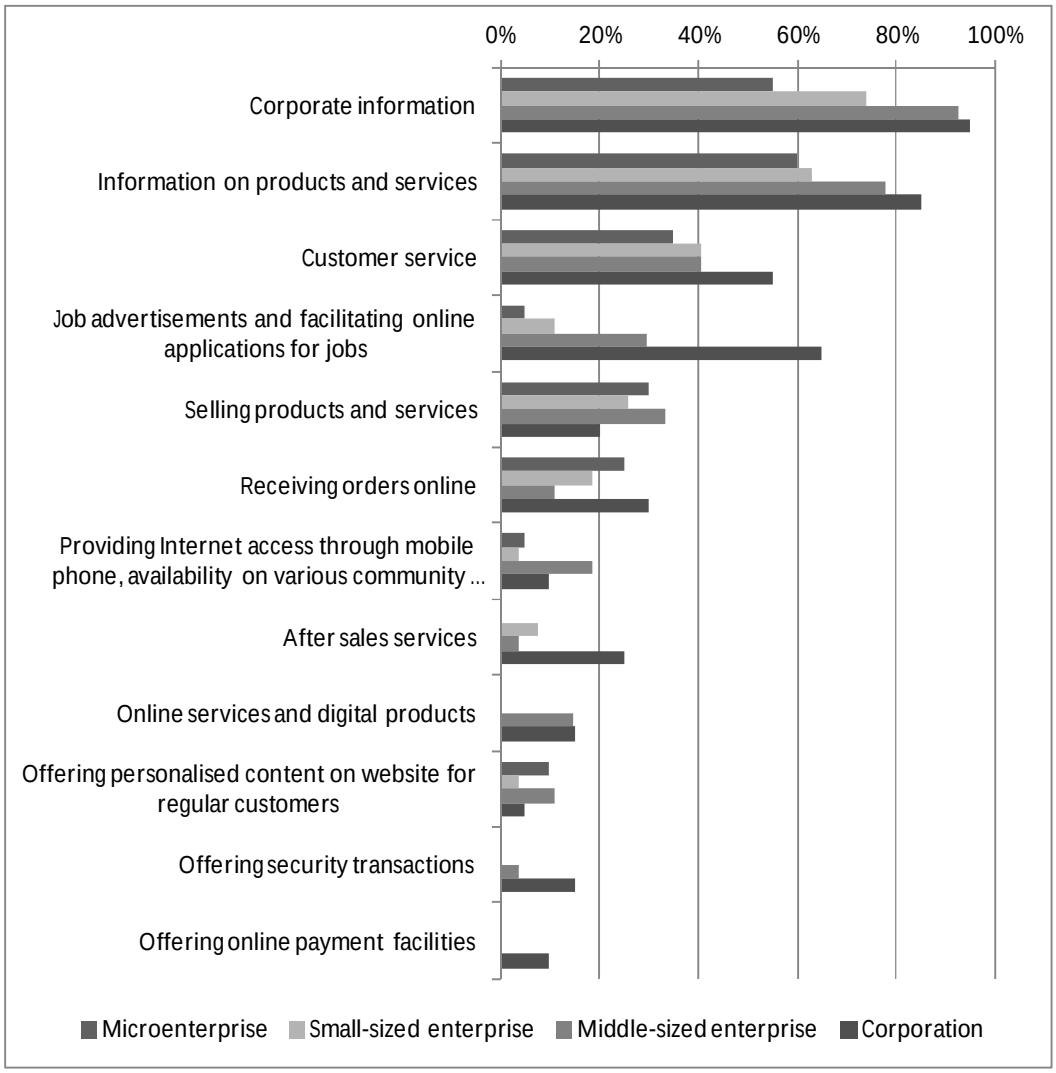

Figure 2. On-line services provided by companies based on their size

Business information systems were applied in different areas, representing a different development level listed in the questionnaire. The respondents had to declare if there was an operating business information system of the kind at their company; if the answer was no, they were asked whether they were planning to introduce such a system later.

Three-quarters of the corporations use transaction processing systems (TPS), and one-tenth of them are planning to introduce TPS in the future. More than half of the medium-sized companies and almost a third of small-sized enterprises also use such systems; however, the number of microenterprises is irrelevant in this regard.

Similar ratios could be detected in the case of office automation systems (OAS) and enterprise resource planning systems (ERP), with the only difference that the latter could not be found in microenterprises and only 10% of them were planning to start applying such systems.

Supplier relationship management systems (SRM) are used by nearly two-thirds of corporations, while the same rate among medium-sized enterprises is only 37%. The use of these systems by microenterprises was insignificant.

Supply chain management system (SCM) applications are used by 40% of corporations and the remaining ones do not plan their introduction. A fourth of medium-sized companies already use supply chain management systems and another fourth of them are planning their introduction. About one-tenth of small-sized businesses apply such systems and there is a very small proportion of microenterprises using them.

Half of the corporations and nearly half of the medium-sized companies have customer relationship management systems (CRM) in use. More than a third of microenterprises are planning to introduce CRM systems in the future but their scale still remains very small.

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Geographic information systems (GIS) are used primarily by corporations, with a relatively high proportion of 40%, but surprisingly, some microenterprises also operate geographic information systems and a further 15% of them are planning to apply GIS in the near future.

An Intranet operates at the vast majority (reaching 80%) of corporations, more than one-third of the medium-sized companies also have internal network, and in addition, at the small and micro-enterprises it is operated or it is planned to be implemented in a similar proportion.

The ready-to-buy, so-called „shelf" solutions are applied by medium-sized companies and corporations on a large scale, while more than 60 % of the microenterprises prefer to using own-developed systems. This can be explained by the fact that software companies offering ready-to-buy systems aspired to serve the needs of the larger companies, but in the recent times – due to the saturation of the market – targeting small companies has become a tendency.

The parallel application of own-developed and purchased system occurs only in the case of the medium-sized companies and corporations, almost two-third of the latter use both system types.

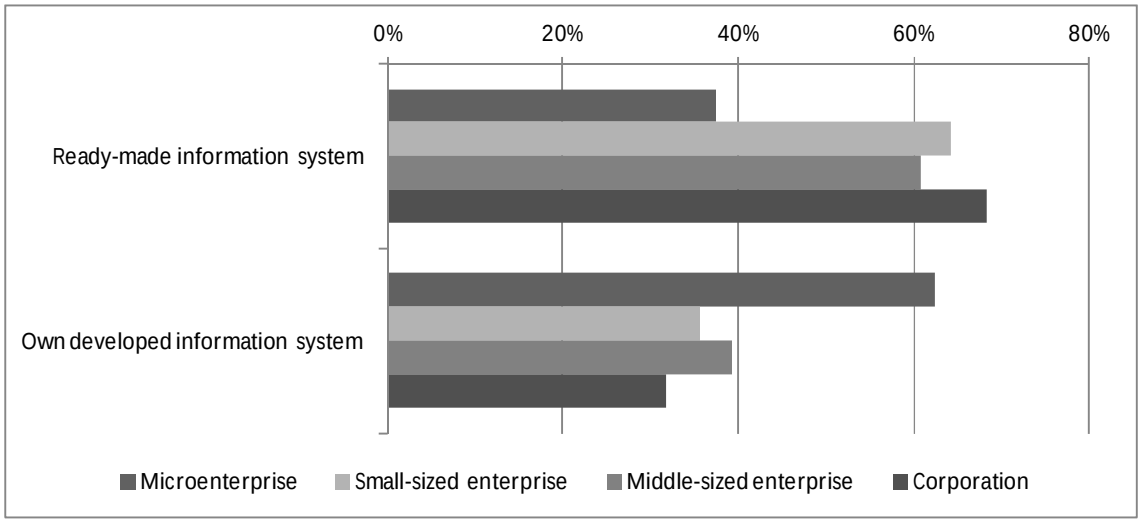

Figure 3. Types of the applied information system by size category

In my questionnaire I also sought answer for the question that in what fields of company operations business information systems are applied most intensively. If we look at it from the perspective of company sizes, it can be seen that corporations use business information systems in the field of payroll, purchasing, finance, accounting, book-keeping as well as in sales and invoicing. Applying business information systems were insignificant in the fields of quality assurance, project management and environmental management.

It was also investigated whether there was a relationship between company size and the use of information systems in different operational areas of the company. It was proved by the help of a cross-analysis that there was a significant relationship between fifteen operational areas and company size.

As can be seen in Table 1, there is a moderate relationship in the fields of salary and wage administration, accounting, finance, controlling, planning, tangible asset management, sales and invoicing, while a weaker-than-moderate relationship can be observed in the fields of human resources, maintenance, purchasing, stockpile management, administration, production, service and management support. A weak relationship was detected in the fields of marketing and quality assurance.

Table 1. Use of information systems according to the operational areas of enterprises (Phi, Cramer's V and Contingency Coefficient values)

Operation of information systems due to company function	Relation-ship	Phi		Cramer's V		Contingency Coefficient	
		Value	Appro-ximate Signi-ficance	Value	Appro-ximate Signi-ficance	Value	Appro-ximate Signi-ficance
Accounting	moderate	0.540	0.000	0.540	0.000	0.475	0.000
Finance	moderate	0.565	0.000	0.565	0.000	0.492	0.000
Salary and wage administration	moderate	0.648	0.000	0.648	0.000	0.544	0.000
Human resource management	weaker than moderate	0.413	0.000	0.413	0.000	0.382	0.000
Senior management decision support	-	0.350	0.009	0.350	0.009	0.330	0.009
Controlling, planning	moderate	0.547	0.000	0.547	0.000	0.480	0.000
Purchasing	weaker than moderate	0.458	0.000	0.458	0.000	0.417	0.000
Stockpile management	weaker than moderate	0.492	0.000	0.492	0.000	0.441	0.000
Asset management	moderate	0.514	0.000	0.514	0.000	0.476	0.000
Maintenance	weaker than moderate	0.483	0.000	0.483	0.000	0.435	0.000
Production/ services	-	0.365	0.006	0.365	0.006	0.343	0.006
Sales, invoicing	moderate	0.525	0.000	0.525	0.000	0.465	0.000
Environmental management	-	0.220	0.208	0.220	0.208	0.215	0.208
Customer service	-	0.291	0.047	0.291	0.047	0.279	0.047
Marketing	weak	0.367	0.005	0.367	0.005	0.345	0.005
Administration	-	0.341	0.012	0.341	0.012	0.322	0.012
Quality control	weak	0.389	0.003	0.389	0.003	0.363	0.003
Project management	-	0.087	0.869	0.087	0.869	0.087	0.869

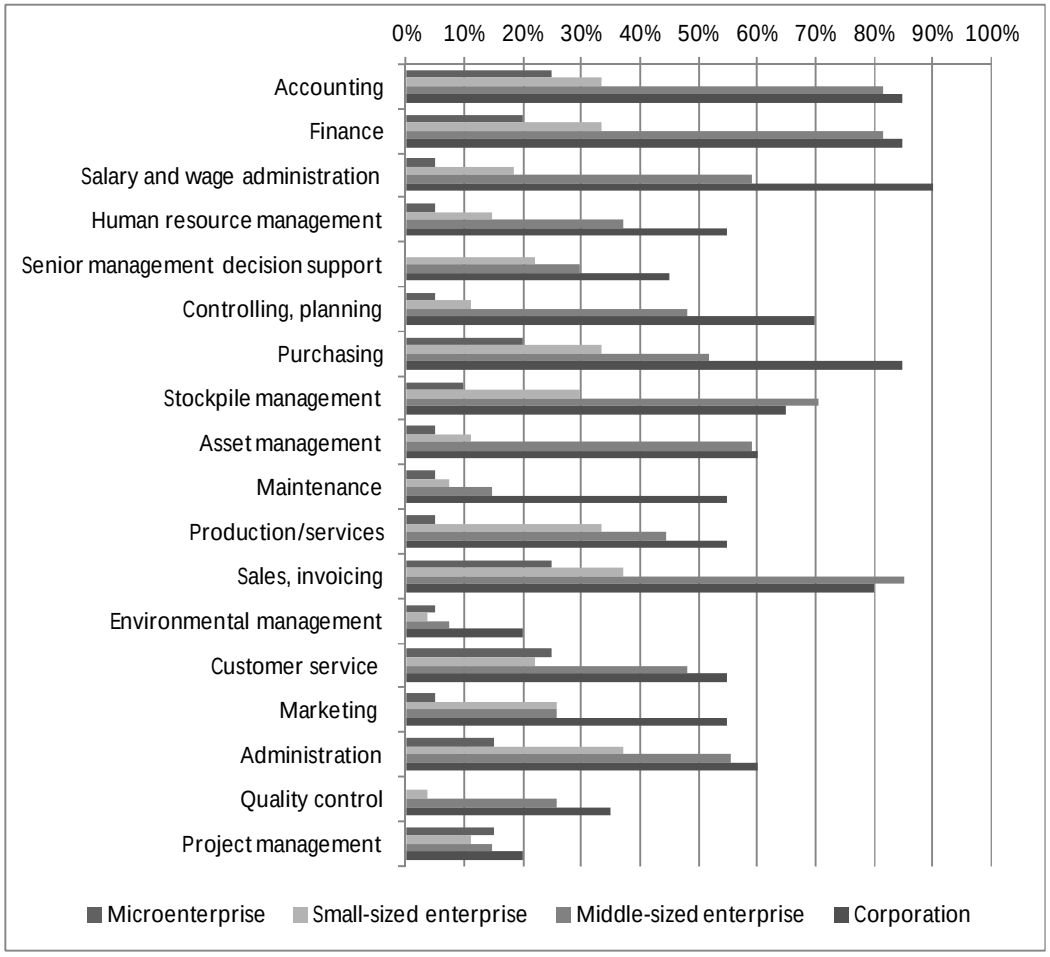

Figure 4. Types of the applied information system by size category

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4. Conclusion

Not surprisingly, most of the information placed on their websites is connected to the companies and the products and services they offer. In addition, the most common features are providing customer service such as e-mail or a forum for their products and services, sales of products and services, placing job advertisements, and receiving online orders. The primary focus of the analysis was to explore the differences and similarities of the usage habits of business information system by size categories. Thus, the micro-, small and medium-sized enterprises as well as corporations were also presented in the sample.
According to my observation, the correlation between the given factors could even be further strengthened by the application of complex statistical methods and by performing additional correlation assessments where the comparison should be carried out based on the main activity of the company rather than the size of the company, as I assume that the business scope of a company also determines the range of business information systems in use.

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