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THE DEVELOPMENT OPPORTUNITIES OF CORPORATE INFORMATION MANAGEMENT SYSTEMS

MOŻLIWOŚCI ROZWOJU SYSTEMU ZARZĄDZANIA INFORMACJĄ W PRZEDSIĘBIORSTWIE

Key words: information management, enterprise information system, agricultural informatics

Słowa kluczowe: zarządzanie informacją, system zarządzania informacją w firmie, informatyka w rolnictwie

Abstract. Nowadays, apart from the IT development, the information management is becoming increasingly significant as well, which opens new potentials for companies, as they can obtain competitive advantage using it. This wave of development can sharpen the competition further, which motivates the managements even more to use their resources available more efficiently, thus reaching better results. This phenomenon is increasingly present in the agriculture as well, as the intensifying demand caused by the expanding population makes it more and more necessary. But in this sector the use of the opportunities offered is lower than expected.

Introduction

Information functions as important asset these days and at the same time it also gives power. In any kind of businesses – let it be a sole enterprise or a multinational corporation – the efficient and exact handling of information is of primary importance. Large quantity, fast and frequently changing data sets must be managed properly so that their inherent value could be turned into profit. The goal of this paper is to draw attention to the potentials information technology may deliver and to the possibilities offered by integrated information systems which contain both external and internal information. Nowadays the integration of external information facilitates decision making for agricultural enterprises which they can obtain from accessible public data bases. Other than this they are hardly aware of the possibilities offered by integrated information systems which are successfully applied by businesses operating in other sectors to decrease decision making risks.

In every single institution and enterprise a sea of data is produced, and registering, processing, transmitting and handling the data “requires diverse and rather sophisticated tools” – as Bógel [2000] ascertained. Accordingly, modern organizations use the most fitting technology to store their data. These standard data models keep the data in determined structures, naturally both in an electronic and frequently in an integrated form. The concept of efficiency should have priority in terms of data management as well. Do we access data *when* it is necessary? Do we get the data, *which* is necessary for us? Can we interpret the obtained information? According to Véry [2005], the intellectual employees have an increasing role at companies, as they are the ones handling information, sharing it with users based on necessity. Knowledge is necessary for the execution of controlling tasks. But not only corporate processes must be controlled, but by “*knowledge controlling*” the information available as well. It is our view, the most important role of information is to serve as a basis for managing, planning, and controlling. When the data processing is done, results reach the leader in the form of information and they get evaluated supporting decision making. This can be identified based on Engler [1990] and Arnold and Turley [1996], who consider the specialization of accounting to management accounting as a precondition in order to establish the opportunity of information service supporting internal decision-making based on needs. The management accounting is denoted as information source, as leaders can make their decisions related to the resource allocation. If we think further, according to Atkinson et al. [2007] the information provided by management accounting play an important role in forecasting and planning processes. Apart from the factual data provided about the company’s current situation, the information is closely related to control reaching future goals and plans. Zárda [2009] promotes the systematic application of management accounting among agricultural companies as well. In her study

she found that with the parallel use of management accounting and Farm Accounting Data Network (FADN) the farms can become more effective and efficient compared to their competitors. Besides, the provided information has a role in decision-making and management support as well.

Nowadays, the corporate governance systems used for recording corporate data and information are important factors not only because by using them the necessary information can be provided to solve the given economic situation, but also because by their use decision making risks can be decreased. They provide the appropriate information at the appropriate time at the appropriate place. The integrated information systems support the acceleration of the information flow between the organizational units horizontally and between the different management levels vertically. Using them, the “software islands” – slowing down the speed of information transmission observed at companies – can be abolished. It can be rarely experienced that two different softwares – for instance an inventory record and an accountant programme – are in direct data relationship by single data recording. The integrated modular structure of information systems enables the company to choose the necessary module from the available module supply, which covers its own internal processes. Data related to transactions are recorded using software in all organizational units of the enterprise. As it is an integrated system, it is able to cover the corporate structure and to provide information to all users.

Penetration and awareness of integrated corporate information systems

The number and ratio of enterprises using corporate information systems is increasing considering their penetration and awareness. A rising number of companies realize that in order to sustain competitiveness, up-to-date information is needed. Evanescent ratio (1 to 8 percent of the respondents per system) of the examined, nearly 300 agricultural companies is aware of integrated corporate information systems. The respondent enterprises do not use an internal information integrating system, by which they could follow the operation and the internal processes of the company. It might be explained by the burden that the purchase of such systems imposes on companies in their financial situation. This could be partly the reason why the respondent farmers have little information about the opportunities offered by these systems, thus impeding the chance of their introduction and utilization of their advantages (Fig. 1).

Notwithstanding, a sort of progress can be observed among the agricultural companies in the use of geographic information system and remote sensing services provided by different computing applications and wireless technologies, but these so-called isolated solutions do not support approaching the integrated systems, which could provide an opportunity for modelling particular sectoral processes. As a result of his study, Hågen [2009] draws the attention that in order to sustain the efficient operation of enterprises, the adoption of new proceedings and methods is indispensable; one must be open for the new, innovative systems, and one must try to integrate them into the decision-making mechanism. For this, integrated management systems can be very helpful – as Herdon and Rózsa [2011] diagnosed as well.

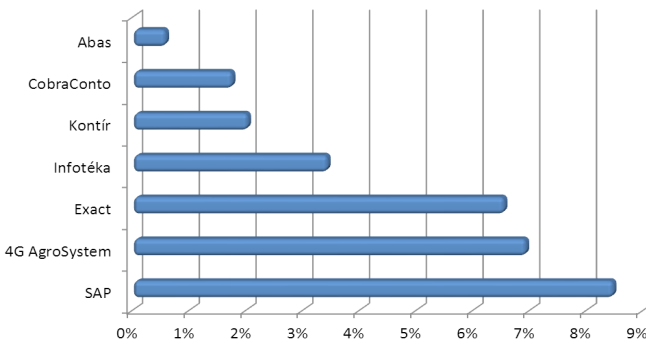


Figure 1. Awareness of integrated systems among agricultural enterprises

Rysunek 1. Świadomość zintegrowanych systemów wśród przedsiębiorców rolnych
Source/Zródło: Zörög, Csomós 2012

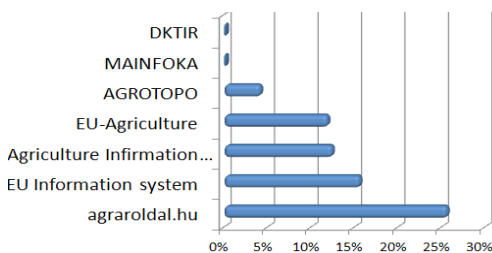


Figure 2. Awareness of agricultural information systems among agricultural enterprises

Rysunek 2. Świadomość zintegrowanych systemów wśród przedsiębiorców rolnych
Source/Zródło: Zörög, Csomós 2012

They emphasize that the systems provide a frame for collecting, processing and transmitting information, serving the tasks of production, service and management.

Among the agricultural companies, typically those information systems spread, which do not integrate the corporate internal information, but present the external information in the form of an internet site or a database (Fig. 2).

Due to the lack of experience, the decisions are made based on the indicated information sites, not knowing the advantages offered by the internal information integrating systems.

Overall, it is visible that in Hungary more and more enterprises consider important to store the available information in a structure meeting their needs and to make the information available for employees and managers at the time required using an integrated system. The agricultural enterprises do not have experience about the advantages offered by the integrated system, primarily they use the integration of external information in decision-making.

The effect of corporate information systems on the operation and reduction of decision making risks

Information was gathered by survey among enterprises applying integrated corporate governance systems. As a result, 181 questionnaires were filled, from which 155 in an electronic and 26 in a paper-based form. Fifty-eight percent of the filled surveys (105 pieces) can be considered as completely filled, in case of the rest the respondents did not fill out the last question group – which would mean complete filling –, but apart from this their responses got recorded. There is an overlap in case of 22 enterprises. The sectoral distribution of respondent companies applying integrated information systems is displayed in figure 3.

It is visible that the sample includes companies primarily engaged in commercial and manufacturing activities. These are the sectors, where the complexity of the internal economic and management processes and the necessity of meeting deadlines play an important role in sustaining competitiveness.

By the questionnaires, we examined on a scale of 1 to 5 to what extent the respondents consider the information having an influencing impact on the efficient operation of the company compared to other resources in the classic sense. Based on this we ascertain that the resource nature of the information was graded to 3.7 by the respondents, which means that the information has the lowest “grade” compared to the other resources: entrepreneurship (3.7), material, technical resources (3.8), financial resources (4.0), and human resources (4.0). This means that the companies, which consider important the availability of information by applying corporate governance systems, do not feel the effect on efficiency.

Based on this data we consider necessary to examine what kind of opinion the respondents have on the role of resources – especially the importance of information – in decreasing decision making risks. Whether there are differences about decreasing decision making risks between the responses of the groups created based on their opinions given about the importance of the information is presented by the data in Table 1.

As a result of the Kruskal – Wallis test, the effects can be proven in all three areas with a margin of error below 5 percent, i.e. on the one hand the existence of information is important to provide corporate efficiency, and on the other, respondents considered important the preparation of decision alternatives along with the continuous availability of information service.

Based on the study we ascertain that – as there is a relationship between assessing the usefulness of the information and the function of corporate governance systems supporting decision-making – the greater importance the respondents gave to the obtained information, the more positive opinion they had on the role of corporate governance system in decreasing decision making risks as well.

A major part of the Hungarian agricultural enterprises are located next to small settlements or villages, thus for the latest technological developments in corporate information

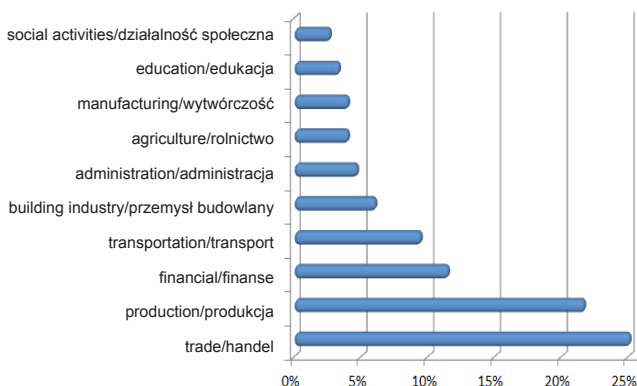


Figure 3. Sectoral distribution of companies using integrated information systems

Rysunek 3. Udział przedsiębiorstw z różnych branż agrobiznesu wykorzystujących zintegrowane systemy informatyczne

Source: own study

Zródło: opracowanie własne

Table 1. Examination of the efficiency of grading (test statistics ^{1,2})
Tabela 1. Ocena efektywności klasyfikacji (testy statystyczne ^{1,2})

Statistics/ <i>Statystyki</i>	The necessary information for decision-making is available on time decreasing uncertainty and thereby decision making risks/ <i>Niezbędne informacje do podejmowania decyzji są dostępne na czas, redukując niepewność, a tym samym ryzyko decyzyjne</i>	The time to prepare decision alternatives decreased significantly, thus the effect of the decision (positive or negative) can be felt faster as well/ <i>Czas do przygotowania alternatyw decyzyjnych ograniczony został znacząco zatem efekty decyzji (pozytywne lub negatywne) mogą być widoczne także szybciej</i>	Continuously enables the extensive comparison of the actual data plan (data of base and actual period), thus the haphazard inappropriate decision can be modified immediately/ <i>Ciągle zaawansowane porównywanie sytuacji obecnej z planami, co umożliwia natychmiastowe modyfikacje nieodpowiednich, przypadkowych decyzji</i>
Chi-Square	21.89	10.55	15.78
df	4.00	4.00	4.00
Asymp. sig.	0.001	0.032	0.003

¹Kruskal Wallis Test/test *Kruskala Wallisa*, ²grouping variable: information on resources, the situation of the enterprise, environment/*zmienna grupowania: informacje na temat zasobów, sytuacja przedsiębiorstwa, środowisko*

Source: own study

Źródło: opracowanie własne

systems it is harder to prevail due to the underdeveloped telecommunication networks. In some cases providing the conditions of basic internet services (email, browsing) is challenging, even where the service for residents is established, as the headquarters and premises of these companies are far from the service points. The situation is further complicated if these enterprises would like to enforce the expectations of the modern corporate governance systems: the stable, reliable and fast internet, as in the majority of cases creating network-based infocommunication channels between the premises is challenging even within the company itself due to the geographic distribution, because some of the examined companies had five to ten premises to coordinate.

After creating the technical conditions, the following problem to solve could be to select the appropriate specialists for the accurate and precise recording of the systems' basic data. Here the simplest solution could be to employ young, qualified professionals, which would not only establish the stable operation of the systems, but it would have a beneficial effect on the operation of enterprises and sectors due to using fresh, modern view and knowledge. This, coupled with the practical experiences, could cause a huge competitive advantage.

Conclusions

In our accelerated world, there has been some sort of information hunger formed by the rapid development of information technologies. The effect of globalization can be experienced in all walks of life, information management being no exception. To make a decision, information is needed in all sorts of forms, from all sorts of places. It must be understood that to manage the information available in electronic form, the help provided by the integrated information systems at the given technological level must be accepted. The advantages of their use are utilized in some economic sectors, but in case of agricultural enterprises the interest related to them is rather low. We ascertain that the use of information systems increased rapidly, thanks for the development of info-communication and internet. At agricultural companies, when there is a managerial decision-making the external information integrating sites and databases are used more often. But they consider little importance to use integrated corporate information systems, which keep the corporate internal information safely, follows the corporate processes and have been used in other sectors successfully. Even though for decision-making not only the external, but the internal information must be available on time, thus the risk of the decision could be minimized. It is our view – primarily in case of large and medium-sized agricultural enterprises – the problem of the physical distances due to the geographic distribution of companies must be solved in a reliable, stable way using high-level technologies. This would enable the use of an information system satisfying both the necessary internal and external information demand. The presence of the mainly young, professional workforce is also important, as these specialists are able to efficiently use and maybe develop the systems at the companies.

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Streszczenie

Podjęto próbę diagnozy zaawansowania technologicznego systemów informacji biznesowej stosowanych w przedsiębiorstwach sektora agrobiznesu. Stwierdzono, iż systemy takie są niezbędne szczególnie w dużych podmiotach, a ich rola także w mniejszych organizacjach wzrasta zarówno w odniesieniu do komunikacji, jak i podejmowania decyzji oraz zarządzania na poziomie strategicznym i operacyjnym

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