The Influence of Information Strategy and Management on the Quality of the Information System

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Abstract
The article addresses the issue of managing the initial stages of the information system life cycle. The existence of the position of CEO and its inclusion in the organizational structure is important for the management of the entire information system. The article monitors the inclusion of the CEO in the organizational structure of non-agricultural and agricultural enterprises. Equally important for a quality information system is the existence of an information strategy. The correct classification of the CEO and the existence of an information strategy has a positive effect on increasing the competitiveness of the company.

Keywords: information strategy, organizational structure, information manager, information systems

JEL Classification: Q19, Q13, C83, I25

1. Introduction
Data and information enriched with knowledge are the driving force of today. In order to succeed in the competition, data and information must flow where they are needed during the decision-making process. The owner of the knowledge is usually someone who needs up-to-date data and information to use it. Information is a corporate resource with specific features. Unlike other commercial resources that are consumed in the recovery process, it is a renewable resource that even generates itself. It can therefore be said that those who do not have the necessary information at the required time and place lose their position. In this sense, we can talk about critical information needs that define the necessary requirements of the control body to ensure successful action. Those who own information resources on time often create the advantage of access to additional information and increase the quality of their position in the entire market environment. In today's overpressure of information, their quality and ability to communicate is fully dependent on the quality of the information system. Keřkovský (2003) states that without the information we provide, companies cannot further develop their business activities and increase their competitiveness.

Modern management concepts place great importance on business information and management. Information has become a strategic weapon for business, an important source of competitive advantage. Internal and external information is best obtained from an enterprise information system. The quality of a business information system is directly related to the ability to create an information strategy in the company and its quality. The information strategy fully supports the requirements of individual users of the company for information
support of their needs - the needs of the economic unit, sales department, production, human resources, management and more. Information strategy is becoming one of the most important documents in any business. The created information strategy is an important element of the information system life cycle and plays an important role in the quality of the implemented and operated system.

Information strategy is one of the most important documents in companies, as is corporate strategy. The process of creating an information strategy is influenced by a number of factors:

- the composition of the team involved in its creation - the team should be composed of employees of the company and employees of the external company. The employees of the company for which the information strategy is created should be represented by the company's management, including the ICT department manager, and user representatives from all departments of the company, who will regularly work with the system at the company's operating level. - the economic situation of the company

- the amount of financial resources that the company can invest in information systems and information and communication technologies. In the first years of the introduction of the new information system, investments often exceed the average annual amount invested in the field of informatics, which ranges from 6 to 10% of all company expenses. In the first year, the amount invested in building an information system is around 25% of all the company's annual expenses. The stated amount consists of expenditures on the creation of an information strategy, the creation of an information system architecture, the building of an information system and the implementation of the system, the training of employees during the commissioning of the system

- the existence or non-existence of documents necessary for the creation of information strategies - information strategies must be based on corporate standards and must support business processes. The quality of the information system and the quality of the information corporate documents used to create the strategy - such as corporate strategy, organizational rules, financial regulations, study and examination regulations and other documents according to business focus. Enterprise documents are used in the creation of information architecture to design functions, processes, access rights and more.

The quality of the entire information system is mainly affected by the initial stages of the information system life cycle - ie the creation of an information strategy, the creation of an information system architecture. There are many examples that are almost identical, and the problems with the initial stages after the implementation of the information system are the same. In many companies, when building information systems, a lot of informal information is spread, the quality of which is very diverse - from true to semi-true information. Managers must create a schedule for the timing of the solution, must not forget the correct composition of the team involved in the whole process and must inform in a timely manner about the training of all employees and the commissioning process. In recent years, the development of automated systems in agriculture gained increased interest, which led to that the research teams devoted to exploring the development of rational and adaptable.(Sørensen et al., 2010). Tvrdíková (2015) says that cloud solutions can be used, but the problem is that we take data out of business (or that we use applications stored outside the company) and the data travels through "space", so we do not have 100% control over them. "IS administration is a specific but still integral part of corporate governance today. Understanding information and communication technologies as a purely service activity brings a number of problems for the further development of the company and the same problems are brought about by the superiority of the IT department over all other departments. In large companies, the
information manager is perceived as the "second position" after the CEO. However, this situation is not ideal, because it may appear as a superior department to others, and therefore the position of IT in the company has a "more important function" - Cienciala (2011). He also deals with the issue of IT management in the companies Drucker (2002), Hennyeyová (2010), Sodomka (2006). Related studies Lawson et al. (2011) solves potential benefit for the introduction of agricultural information management systems.

2. Data and Methods

2.1. Data

Information systems and information and communication technologies are one of the most important sources of a company's competitiveness. The quality of each information system and the method of obtaining information is determined by a number of factors that can be assessed according to measurable and non-measurable benefits. One of the immeasurable advantages is the quality of information and managerial knowledge. This indicator is based on the ability of users to define requirements for their needs and on the ability to further use and work with information. The quality of the entire information system is fully dependent on the ability to manage the information technology department, to manage the creation of the information strategy, the creation of the information systems architecture and the entire life cycle of the information system. The aim of the article is to define the requirements for the organizational structure of the company in relation to the integration of the IT department manager, the ability to develop an information strategy, its existence, or the reason for lack of information and the ability to obtain information. Requirements for the integration of an IT employee into the organizational structure, methods of obtaining information, the existence of an information strategy in the company will be presented in a survey conducted on a selected sample of companies.

The ever-increasing amount of information, both external and, of course, internal, creates requirements to ensure its quality. This requires efficient setting up of in-house information channels, appropriate data aggregation and determination of characteristic values. In order to optimize and exchange data, information and knowledge between business units, business processes are supported by various information system modules and related organizational processes. The quality of the whole process is directly dependent on how the company's management manages the development and operation of information systems and information and communication technologies.

The aim of the article is to confirm or refute the established research questions:

research question 1 - in the non-agricultural sector, there is an increase in the existence of information strategies in companies. In the monitored sample of companies, 65% of the monitored companies have an information strategy. In agricultural enterprises, an information strategy is created for 1% of enterprises.

research question 2 - assumes that in the organizational structure, the employee of IT management in non-agricultural companies is included in the top management in 46% of enterprises, in agricultural enterprises in 5% of the monitored enterprises.

2.2. Methods

The article was prepared on the basis of scientific methods - using holistic methodology, analysis and deduction. The theoretical part was prepared on the basis of the study of scientific and professional articles, the study of secondary literary sources. Based on the established
hypotheses, a questionnaire was compiled consisting of 10 questions - 7 questions were closed and 3 were open. A total of 148 enterprises were contacted, of which 65 agricultural enterprises - the return rate of the questionnaires was 75.6% (a total of 112 enterprises responded, of which 48 agricultural enterprises). Based on the results of the questionnaire survey, direct surveys were conducted in 76 enterprises, of which 32 were agricultural enterprises. The ratio of enterprises to non-agricultural enterprises was chosen in the same proportion as the enterprises which responded to the questionnaire survey with the closed questions. The companies of the direct survey were selected on the basis of the results of the questionnaire survey. The questions for direct questioning were given to the respondents on the basis of long-term experience of the authors of the article (cooperation with practice) with the issue of business management of information systems. The results of the questionnaire survey were used to draw conclusions from established hypotheses and proposals for optimal solutions supporting the development of companies.

3. Results and Discussion

What is the position of the IT department in the company? Historically, the main task of the data processing department was to ensure the timely processing of accounting, payroll, warehousing and similar agendas, depending on the company's focus. During this data processing period, it was necessary for the data processing unit to be directly subordinate to the economic unit. Most of the processed data "came" from the economic unit. At that time, the data processing department usually had the name of the information system unit and provided the data to the user in a certain time interval (this processing was called batch processing). The length of the time interval was directly dependent on the focus of the company - in the economic section, the most common processing interval was a decade or one month. The development of information and communication technologies has shown that the potential of data processing is completely different - the amount of data stored in the company has increased and it was possible to use this data very well to process analyzes, forecasts, use for decision-making. Many companies have responded to this situation by keeping the IT department in the hands of the economic unit to which it has historically belonged. The situation was handled differently in the companies, mostly the IT department remained part of the department that managed it, or in the area that used the most information technology. It also means the organizational integration of the IT department

• the IT department remained in the economic unit,

• the IT department was included in the company under another department - sales, technology, production,

• the IT department has become an independent unit with a manager directly in the company's top management.

Welch and Welch (2007) state that the management of the entire company significantly affects the proper integration of the IT department into the organizational structure of the company and the existence of an information strategy according to which the entire IT is managed in the company.

In the company's organizational structure, the IT department should be directly part of the top management, but should not be superior to the other departments (as already mentioned), ie directly to the company's "CEO" (who represents the company and is responsible). When the IT department is directly subordinate to the CEO, there are often situations where other departments (eg economic, personnel, production, sales, etc., depending on the company's
focus) are subject to proposals for information systems and the use of information and communication technologies. Due to the requirement for quality information for individual departments of the company, it is desirable that the ICT department supports other departments of the company and does not impose "blind" requirements on employees "artificially created by ICT employees. The whole area of informatics is only a supporting activity in the company. It must meet the requirements of the company's employees for data and information, it cannot happen that the company's employees are subject to the processes set in the information system, go through the "dating" phase and try to make the most of the system's functionality. In this case, business processes are often adapted to the processes set up in information systems.

The management of the IT department in the company is very demanding. In many cases where problems with information systems occur, full responsibility is transferred to the information manager. Unfortunately, most of the problems can often be wrong assignments, poor definition of requirements, problems in determining business processes, inconsistencies in the terminology used, neglect of the original user in the team and others depending on the situation in each company. For these reasons, it is very important to pay close attention to the entire information system lifecycle management process. "Informatics" must be carefully devoted to the entire top management of the company, which is responsible for the quality of the information system, there must be cooperation of individual departments according to the management structure - strategic, tactical, operational. A climate must be created in the company that supports the development, operation and quality of the entire information system. The organizational structure in companies is characterized by the following data. It can be seen that the management of the IT department is very different in companies. In large companies, the IT department is most often a separate unit, whose manager is directly in top management – 33,78%. Historically, one of the highest representations of the IT department is still part of the economic unit, where it is incorporated – 22,97%. There is also a high percentage of crowding out IT management from the company (prefers 12,16% of companies) and there is no need to manage IT in the company. Such companies only control the relationship with suppliers. Further integration of the IT department into the company's organizational structure is completely random, depending on how the company has developed, who has worked in the IT business, and of course the business owners also manage the IT department themselves. The situation is very different on farms. The position of IT manager is only in 7% of companies surveyed and is included in the economics department. The individual position of the information manager is not at all in the top line of the monitored companies. All managers require quality information for their decisions, which should be as sensitive and relevant as possible to the problem. Non-context information has little value. The context is determined by the specific content or issue that requires an active solution.

One of the main reasons for the failure of the implementation of information systems is the absence or imperfect strategic management of IS / ICT. Most authorities agree on this diagnosis - see. for example Cash, McFarlan, McKeney, Donovan, Earl, Ward. Unfortunately, "strategic IS / ICT management" often still remains on the fringes of management interest - this is also influenced by inappropriate placement in the organizational structure. An information strategy is a process that helps ensure the optimization of the management process of building, implementing and operating an information system. The architectural design of the information system is an information strategy - defining the requirements for the information system so that it supports the company's business strategy, ongoing business processes and the performance of individual employees as much as possible. It is verified that the costs of the information strategy range between 5 and 10% of the price of the information system. The
costs of the system, built according to the determined strategy, then move with a tolerance of 10% to the estimated price. On the other hand, the costs of an information system built without an established information strategy tend to be several times higher than originally expected. Therefore, many projects are never successfully completed in this way due to the lack of an information strategy.

The results of the survey conducted in 2021 reflect the situation in non-agricultural and agricultural enterprises. It is clear from Graph 1 that the information strategy in the non-agricultural sector is created in 57% of the surveyed enterprises. Multinational enterprises and large enterprises (measured by number of employees and company turnover) and enterprises where they actively work with data, information and knowledge have the most developed information strategy in the non-agricultural sector. The situation is very different for farms. Enterprises with a size of over 2000 ha have an information strategy in place for 24% of enterprises, enterprises with a size of 1000-1999 in 12% and enterprises up to 1000 ha in 1.2%.

In agricultural enterprises, an information strategy is developed in enterprises that work better with data, actively use it for management and have more extensive information systems that they use in a wide range of departments - economic, personnel, crop production, animal production, trade. For small farms, the use of business data is minimal. Information systems are used only for registration purposes. For non-agricultural and agricultural enterprises that do not have an elaborated information strategy, a direct survey was conducted. The questions focused on the way of IT management in the company, processing and use of data and information and the development of information and communication technologies. Based on the survey, it can be stated that the situation is very similar in agricultural and non-agricultural enterprises. The management of these companies (companies that do not have an information strategy) is 75% subordinate to the economist, the remaining 25% of companies manage IT randomly, according to current needs - eg the need to change software based on legislative requirements, inadequate hardware (eg insufficient memory capacity or inability to communicate with the external environment). Companies without developed information strategies do not place much emphasis on further processing and use of data and management information. Based on the survey, it is possible to state the research question 1 - it was confirmed only in the part set for the existence of an information strategy for agricultural holdings. In the research question, it was stated that 1% of agricultural holdings have developed an information strategy. The survey showed that the information strategy is developed in 1.2% of the monitored farms. Of the monitored non-agricultural enterprises, it was found that 57% of enterprises had an information strategy. The research question was assumed by 65% of companies. The research question was confirmed only on agricultural holdings.

For research question 2, which assumed the inclusion of an IT department employee in top management in non-agricultural enterprises in 46% and in 5% in agricultural enterprises. The assumed hypothesis was not fulfilled - in non-agricultural enterprises it is only in 33.78% of enterprises and in agricultural enterprises it is not included in the leading role of informatics at all. In the monitored sample of agricultural enterprises, it is directly subordinated to the economist of 7% of enterprises, in other enterprises the management is very random (mostly an employee interested in information and communication technologies).

Information needs in companies and institutions are directly dependent on their focus and on the skills of those who use information resources as a management and planning tool. The focus of the activities of companies and institutions has long been determined by the corporate strategy, mission and goal of each entity. This is where the information strategy development process comes from. The goal of the IT department is to provide the right information at the right time. If the IT department is integrated into the organizational structure at the right level
of management, then the information and knowledge will be delivered in time for the right user. The way the IT department is managed is also reflected in the financial demands of the department, in the complexity of the user's knowledge and skills. The quality of the information system of the provided information is fully dependent on the method and quality of ICT management. Companies need to build a system that allows managers to develop their queries based on a specific situation: - contextual information - managers should be provided with information on the situation being created to be effective, - individually generated alerts - each manager must have a specifically addressed alert in order to be able to act on the situation, - development of rules and procedures based on experience. To create a corporate value paradigm, it is necessary to create an information infrastructure that respects the central role of managers. Managers should be able to personally choose the way they want to participate in co-creating this corporate value. Access to information systems is currently focused on the implementation of portal solutions that enable web access to information and applications with the possibility of efficient administration and administration. There are groups of users with relatively specific information needs, for which a specialized portal is very suitable. It offers "everything in one place" practically all the services and information they need for their activities - they do not have to waste time looking for this information and services elsewhere and can devote more time to their own activities. Information systems strategy is an important part of the information system life cycle. The quality of the entire system is also significantly affected by the monitoring of individual steps of the life cycle methodology. In companies where no emphasis is placed on the creation of information strategies and IS / ICT architecture, support for all business processes is also lower and vice versa. From a quote by M. Dell: "When you do a bad business and make it online, it's a bad business online." Therefore, any change in the corporate information system must be based on the corporate strategy and must be embedded in the information strategy. Otherwise, even in a well-functioning company, problems can gradually arise. The role of each module of the information system is significantly increased with the use of information and knowledge that the system provides for management. According to Vymětala (2006), a proper organizational structure is necessary for the proper management of the IT department, where the information manager should ideally be placed directly in the top management.

4. Conclusion

Agriculture is gradually becoming a knowledge sector, where what employees know (what data and information they obtain) is a key factor in profitability. In particular, managers require up-to-date data and information for their decisions. The same situation is in non-agricultural enterprises. The quality of the obtained data and information depends on the quality of the information system and depends on the quality of proper IT management and the existence of an information strategy. The survey concluded that the quality of management of the initial stages of the information system life cycle significantly affects the quality of the information system, ie the existence of an information strategy and the correct inclusion of the information manager in the organizational structure. The identified status of the monitored issues does not support the quality development and use of information systems. The results of the survey should be repeated and combined with the findings of the use of reports from information systems for management and their impact on the competitiveness of companies.
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References


