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NEGATIVE EXPERIENCE OF SYSTEM DEVELOPMENT, FROM ONE CONTROLLER POINT OF VIEW

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ABSTRACT

In the Hungarian practice, mainly in the heads of the leaders and employees of "old" companies, a misconception still exists: that after an investment into it, the management information systems will solve all the problems of direction in a short time. The mistakes made in the past, when developing systems, can be arranged into two groups depending on which field of the company was concerned: controlling system and information system. In this article I collect the main mistakes made in the past when developing information systems.
Keywords: information, controlling, management, system

INTRODUCTION

As the companies continuously change their reactions to the effect of environment, they keep developing: the accounting system of the companies undergoes the same development process exposed to the surroundings. The development of information technology, its more widespread application in the economy, the theoretical development of management theory broadened the possibilities of accounting cost-calculation and gave impulse to its changes, to have it changed. At the beginning manual data recording, data analyzing was changed by automatic data recording, which made it possible that the management postulate greater requirements against the system, such requirements could be drawn that were "unimaginable earlier". To fulfil the growing information demands the basic accounting system had to be developed from financial one into management one, in which process of development the information technology has an important role (*Figure 1*).

THE PLACE OF INFORMATICS IN THE MANAGEMENT INFORMATION SYSTEMS

Historical survey

At the beginning accounting was limited to the financial documentation of business events with the aim of checking and was soon supplemented with the calculation, with cost and achievement counting; the way of changing in information technology was similar to it in the cases of companies. The adaptation of information technology began very early in the economic fields of western companies, already in the 50s.

The first engagements completed registration, administrative—financial and accounting—tasks.

From the view of the companies there are three periods in the evolution of information technology (*Figure 2*).

Figure 1

Development of accounting systems

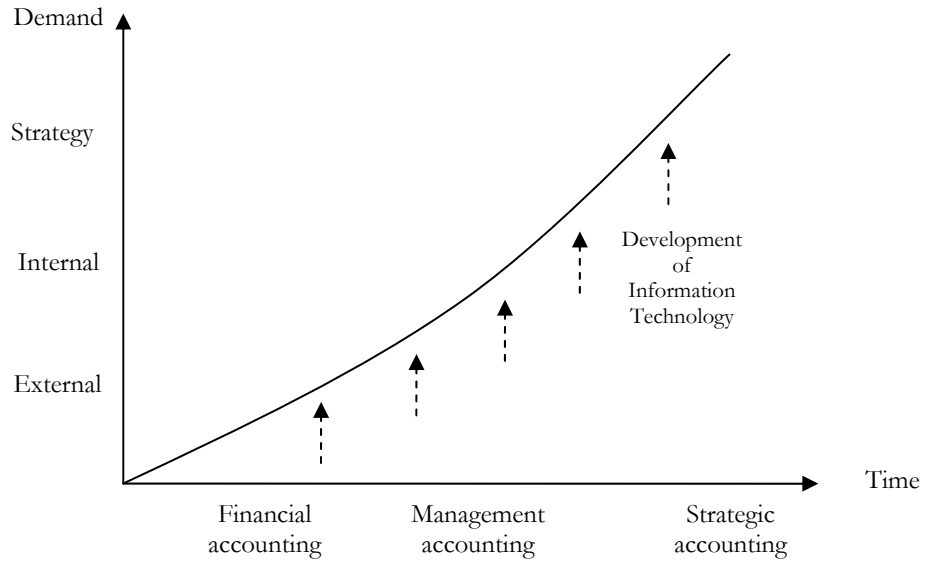
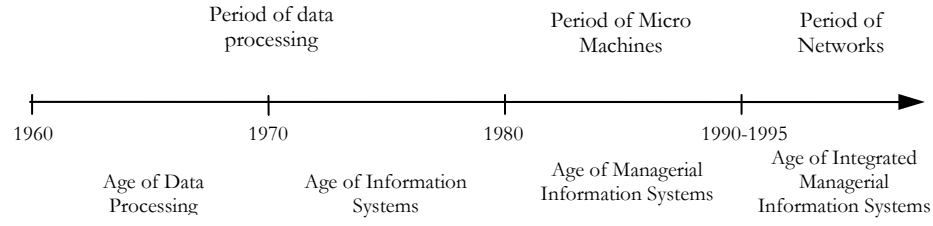


Figure 2

The Evolution of Information Technology



The first stage (1960-1980) is the period of data processing, when in the centre of technology adaptation was the automation of the hand-made, paper-based business transaction processing. In this phase the technology adaptation was used for substitution of human manpower in the economic fields, for raising the effectiveness of the activity, for automation of administrative tasks, for creating

data processing systems. At the beginning the technology was too expensive, so the mainly mechanic bookkeeping machines, later the computers were used by big companies. This simply meant the automation of routine bookkeeping job. In this phase, the information technology did not affect the operation and structure of the organizations. Some changes happened in the '70s, the softwares were impregnated into the computer adaptations and these adaptations became preconditions from the respect of business management. These softwares were partly developed independently, but their major part was development of external firms.

On the grounds of these happenings the age of data processing, on the basis of development of information technology and information systems in the organization, can be divided into two phases: the first is the period of data processing and the second—from the 70s—is the development of information systems.

In the second period, which is called the period of micro machines (1980-1995), the number of users of the technology was raised thanks to the easy access of computers, the usage of computers became general in the different fields (finance and accounting, pay-roll calculation; stock control, planning and checking, commerce). In this phase the technology was not only the tool of administration, but it also offered strategic possibilities. The peculiar adaptation sections of technology were supplemented—besides the automation—with flexible data processing and decision making support, with information query as well as management information system. This period brought the real breakthrough in the economic adaptation of information technology. At the beginning of 80's the small computers and the mass published softwares made possible the birth of the so-called end-user computer studies. In this era basic changes happened in connection with the role of computer studies in the organization. So far the role of computer studies in the company was identified exclusively with the data processing, but now it was substituted with information processing; economic informatics did not serve the activities of organizations as a background activity, but became an organic part of the whole function. Information technology was started to use in a way that fundamentally changed the character of business, the style of connections towards the competitors, customers and contractors. Those kinds of employments appeared that provided essential information for the managers. The gratification of higher levelled information claims became possible with processing capacities widened both by the side of hardware and software. From the point of view of the examined company this happened in the middle of '90s.

The third phase (from the beginning of 1990s) is the phase of networks, whose integration between companies could become real by means of technology and new company structures could evolve. In this period the adaptation field of technology was supplemented with strategic information systems, whose engagement of information technology became a strategic question in the lives of companies.

In *Table 1* I summarize the main features of the three periods of information technology.

Table 1

The three periods of development of information technology

	Period of Data Processing	**Period of Micro Machines**	**Period of Networks**
Time	1960-1980	1980-1995	1990-
Information technology	Data Processing Systems Information Systems	Corporate Information Systems Local Data Warehouses	Integrated Corporate Information Systems Data Warehouses
Effect on organization	Low	Affects organizational structure	Strategic role

Integrated company guidance systems

After the transition, a large-scale change happened on the Hungarian information technology market, which influenced all of the fields of information technology, changing the days of the companies:

- More secure and more heavy-duty computers became available.
- Faster and more reliable local network and data transmission became available and usable.
- Great development happened in the last years as far as operation systems, data base handling systems, programme development, programme planning methodology and tools are concerned.

For almost every economic company the most significant change was meant by the availability and permeation of integrated management information systems. The usage of these high-levelled integrated management information and decision making systems bears a wide range of functionality and they mean the height of information technology at the company, the effect of these systems on the organization is revolutionary (*Table 2*).

The choice of integrated management information systems on the market is very wide and offers indispensable solutions for companies of different sizes and pursuing different activities. Today these systems are significant parts of the efficient controlling system of the companies.

The integrated management information systems are suitable for recording the transactions appearing at the company. The systems are standardized, data storing and processing system frames, which can supply the different managerial levels with the information, are necessary for the decisions. In accordance with this, the management information system settles two main tasks—from the controlling point of view:

- *On-line Transaction Processing* (*OLTP*): fast and efficient processing of numerous business transactions appearing at the company (Financial Accounting).
- *On-line Analytical Processing* (*OLAP*): Function of management information and decision making support. The managers of different levels at the company are supplied with the necessary information when making their decisions (Management accounting).

Table 2

Features of integrated and traditional management information systems

Traditional management information system	Integrated management information system
- Isolated "island" systems that work on their own, realizing part functions and are not in close connection with each other	- Sub-systems work closely together, built on each other
- Several databases exist	- Standard database arises
- Data duplication, inconsistency can happen	- No data duplication
- Information system makes necessary the later connection of isolated systems (Data Warehouse)	- Considered, systematically viewed

Using the integrated management information systems can bring advantages for the organizations when compared with the non-integrated systems, solutions but the capital needs of the installation of the system are much higher than the cost of the already existing, isolated, data warehouse up-buildings. The companies not well provided with capital when adapting the date warehouse integration can enjoy advantages, but we must not forget that it is just technique; the efficiency of controlling systems depends on the systems built by basic data planned according to demands and particular features.

The technology itself or the new organizational structure is not enough for reforming the companies. For the changes to be efficient and stable, the enterprises to be suitable in the new business environment, changes have to be done in the organizational structure, and the incapability of the organization should be defeated. There is incapacity because of four reasons (*Nolan and Croson*, 1995):

- Usual business routine.
- The existing information technology structure: introducing the new technology, re-organizing the old one (re-engineering) is time and cost consuming, the physical solution cannot be foreseen or it is very difficult to turn into numbers.
- There is lack of willingness of co-operation in elderly leaders when receiving new technologies, when changing the organizational structure or the need of changes is not seen.
- Solidarity of employees, resistance: at a modern firm which uses information technology the same task can be done by 30-50% less manpower. That is why the co-operation, devotion towards the new technology is very difficult to achieve.

With the development of information technology larger quantity of information is available, but the wanted aim is not always ensured by it. The reason for it can be that the pieces of information are available not at the right place, not in the necessary quantity and quality.

Mistakes made during system development

Among the factors that affect the efficiency of controlling activity of the company—besides accounting system—the other determining element is the information technology.

In the changing economic environment the companies had to re-examine the present accounting and financial information systems. The appearance of update management information systems, the changes of the content of duties of management made it necessary to transform the accounting and financial systems. The aim of the transformations is to secure the up-to-date pieces of information supporting the management decisions, while keeping the functions of the traditional data services.

In the Hungarian practice, mainly in the heads of the leaders and employees of "old" companies, a misconception still exists: that after an investment into it, the management information systems will solve all the problems of direction in a short time. The mistakes made in the past when developing systems can be arranged into two groups depending on which field of the company was concerned.

I have experienced the following mistakes made during the set-up of the controlling system: the already existing planning, statistical department was named a controlling group after turning to market economy with the already existing human resource, the systems in use and the cost and achievements calculation systems, which could not serve the preparation of managerial decision-making were left untouched. The change of the name was not followed by in-service training, actually only the change of the name was discerned, and the professional work remained in the framework of old skills. We can mention only one change, the appearance of computers and local, implemented softwares which can automate only one function. The in-service training of the field was limited only to the computing education.

After the transition, according to the accounting laws of that time, the controlling did not participate in creating the worked-out accounting system. The reason for this was the fact that in the company hierarchy the place and connection of controlling and accounting was not cleared compared to the previous era; the role of accounting and controlling was not defined in the management of the company. The department of accounting created its accounting system on its own (structure of chart of accounts, regulation of self-cost calculation; cost-centres; financing) but with this act it does limit the activity of real controlling for a long time. The consequence of this is that harmonized co-operation still does not exist with the field of accounting. In spite of the fact that the management is aware of the role and advantages of accounting and controlling in the company management, it is not willing to turn upside down the accounting of the firm before changes, that is why it bides its time and tries to strengthen the decision making function of the controlling with the already existing possibilities. The Organizational and Operating Regulations that were rewritten not a long time ago state that one of the tasks of controlling is to contribute to forming the accounting system, and thus ceased the sharp circumscription of the accounting and controlling. Notwithstanding the

previously mentioned "waiting" was the cause that it could not make big changes, the managerial commitment was missing to reform the system.

- Forming the responsibility and settlement units was not thought over. During long period the achievements of ship factory and repairing were measured separately, which gave 90% of its capacity to the water-borne goods transport division and loaded further the majority of its costs. A branch which can load further its costs (directly or in ratio with working hours) to the one which makes use of its services, cannot be made interested in more cost-efficient operations and can cause loss of achievement at all-company levels.
- The "buds" of management information systems—if one can speak about this at all—were built on the basis of classical cost and achievement calculation; but they are not enough for judgement of real achievements of self-settlement units and homogenised activities.
- Several efforts were made at the company to spread the view of controlling at the firm by professional training of a middle manager and a person appointed to be controller. This fact—in my opinion—was the over-valuing of professional training, after a year of controlling training without any other knowledge (accounting, finance, etc.) no one can be a controller.
- Introducing controlling can be described with words such as "pressing", "thinking in part systems" and "waiting out". From the appearance function of controlling island-like problem solving is still a feature which concentrates only on one functional field. The result of this is that different fields of the firm and the partial systems introduced by the information group cannot be integrated into a database system, into an integrated management information system. In the last years the efforts to solve the mistakes of developments were cancelled citing the changes in front of the company.

Mistakes made during the system developments in the past can be summarized according to the followings:

- The first developments were to substitute the manual work; the installation of the information technology was not preceded by the reconsidering of processes. The application of information technology at the company was not preceded by forming the management oriented accounting system.
- The data recording local applications in use—mainly own, inner developed softwares—were based on the already existing data structure, because the question "What kind of data is going to be recorded and why?" was not put up. The developments were not preceded by information demand (e.g. UTK[1], GTK[2], OLAP-VIR development[3]). The contents and structures and the results of developments of the automatically available natural indices do not support the analyzing of real achievements.

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1 UTK: Program processing the achievement of barges/dump barges

2 GTK: Program processing the achievement of vessels

3 OLAP-VIR System: Result of a new development, a data mining program, which is based on the unchanged structure data base of UTK, GTK, commerce-administrative and LIBRA-programs –and was never used.

- A huge part of the system developments were initiated and directed by the information technology (IT) department, often rendering much significance simply to the information technology. This is the reason of the fact that the introduced softwares were based on the existing financial-accounting structure.
- The external survey preceding all of the system developments—with direction of system selling experts with informatics and mechanics knowledge—were limited strictly to the examination and renewal of processes, and did not mine down to the level of base systems at the bottom of the "pyramid"; did not go down to the level of accounting and other administrative, technological processes.
- Only if the development was preceded by the survey of demands and started from the demands of the field in words, but connecting the other fields concerned (controlling, management, directory) was missing, and the survey of their demands were not taken into consideration.
- All of the system developments can be featured with hurrying. The barrier of a really successful system development can be the overburdening of the employees, the supply with not suitable information technology—the results of previous, unsuccessful system developments. The employees using a non-modern system and the management lacking relevant information that helps decision making find the developments necessary, but cannot participate actively in creation of a system—because of their operative tasks which could be reduced with a modern system—the daily tasks are overvalued when compared to the quality change.

With the words of *Horváth* (1990), the management accounting is the most important tool of the controller and "*shows similarity with a well-tuned piano, which can also be useless if*

- *Bad pianist (controller) plays it,*
- *It gives such music (information) that nobody (management) wants to listen to,*
- *Does not fit the orchestra ideally and is not in harmony with the other musical instruments (planning and checking).*"

The demand of improving the financial accounting into management accounting system does not derive from professional fields. With the help of constant pressure from the side of controlling department, being aware of information demands, the former system can be developed. The speed of transformation-process depends on the organizational resistance and on the role of management handling the conflicts emerged.

The results of developments directed only by the IT achieved below the expectations. Informatics should fulfil the raised demands, and demands should not be limited to the determined possibilities by installed information technology.

"We are not looking for the coat that matches with the buttons, but vice versa." At most of the companies—maybe because of the mystification of the field—bigger rule is attributed to the field than it would really deserve. I do not debate the importance of the field. In the world of information technology, the stoppage of information system can or could result in the stoppage of almost working of the

whole company. But with the reverse of the relationship of piano (management accounting) and pianist (controller) in the citation earlier from *Péter Horváth* (1990):

"The pianist (controller) can be educated, talented in vain if the piano is not good or is not tuned well (information system)."

An information system that is calibrated wrongly, not according to the demands and is not adjusted to the appropriate basics can be an obstacle of the controlling activity in the long run. That is why the system formulating function that generates, or is aware of the demands of the systems—both accounting and information—has to be emphasized during the development.

In the transition countries controlling experts do really need knowledge on informatics and database handling when facing the difficulties caused by non-demand oriented information system. The role of the experts who have financial accounting and informatics knowledge is constantly highly valued.

Cleaning the stock databases, getting acquainted with the data structures of financial–accounting administrative tasks, getting acquainted with and creating the connection between local systems the creation of datawarehause became part of the job of controlling during the years. In the controller job advertisements more and more often seek professionals not only with financial knowledge, but programming skills (Visual Basic, SQL, Oracle) are also expected to be among the features of the applicants.

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