

Company Information Systems Used in Decision-Making Processes of Financial Managers

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Abstract: Economists and IT experts share the opinion that IS/IT in a company should be in accordance with the company objectives and management strategies; they cannot be viewed separately. As far as the economic aspect is concerned, there exist certain criteria that could be considered social criteria because information system effectiveness, as well as the company effectiveness, depend on human factor. Reference literature identifies the work with information as a strategic factor of company's prosperity and competitiveness.

An economic information system has recently been an inevitable prerequisite in a large or small enterprise. The requirements relating to such system can be characterized in the following way: competitive price, configurable and flexible system comprising all the basic and certain extra functions essential for information support to all the company operation. An integral part of the system is an information accounting system supporting financial accounting management.

Accounting is the method in which financial information is gathered, processed, and summarized into financial statements and reports. Accounting records are important because the resulting financial statements and reports help plan and make decisions. These records may be used by company management and by third parties (bankers, investors, creditors, etc.). The accounting information system has to support managerial decisions and it has to work with external accounting modules and external database modules. Changing accounting software is a big undertaking. It may, and should, have an impact on almost everyone in the organization, on customers as well. Accounting Information Systems were scanned in the empirical research and financial managers assessed the situation in their company and their satisfaction with these systems.

Key words: economic information system, accounting information system, financial management

1 Introduction

The system is generally characterized as an organized unit or a set of objects and their mutual relations that, as a complex, show certain behavior described by e.g. the system functions. Information systems are open, they can form a part of other system or they are surrounded by other systems where information exchange occurs. Each system presents a certain dynamism in terms of communication between the objects and systems, but also in terms of mutual influence of the system structure and its development. The notion of a system is therefore an abstraction that

reflects all the system features and the properties of reality.

The company and its information system present a real systems and its model – the more sophisticated the technology and knowledge, the better the relation between information system and the company itself.

According to Lewis and Schmidt [8], an information system is an information database used for everyday planning and quality achieving and checking. Information spheres should accentuate the client, the internal company relations, the company performance, costs and finance.

Pitra [12] describes information systems as sets of mutually connected technical means that

serve for gathering, processing, filing and presentation of information required for company executives' decision-making and business activities management. Economists and IT experts share the opinion that IS/IT in a company should conform to the company objectives and management strategies; they cannot be viewed separately. According to Gates, significance of information systems can be simply seen in a more effective utilization of employees' working time. He does not refuse large numbers of data; he considers them an asset, a constant resource of knowledge. Such opinion is rather controversial to the practitioners who criticize high overloading of managers with extensive data quantities.

Information systems are to assure enough information and transfer it according to a company's need, in relation to a company organizational structure. A number of studies and analyses on level company show that IT contributes substantially to company's productivity growth [13]. A company's information system results from an integration of many systems and subsystems. One portion supports day-to-day decision making; another part is used for tactical and strategic decision making. A well prepared and functional company information system enables shifting from the detailed data in its operating information system level, to their total evaluation. If there are a troublesome condition in certain system, demands much more time and attention on eliminating the unexpected condition [5].

To assess an information system, various criteria may be used [7]; however, economic and technical aspects should always be taken into account. In relation to the above mentioned, we have to underline the system integration and its notion. On the economic level, there exist certain criteria that can be understood as having social character, because an information system effectiveness, as well as a company effectiveness, depend on human factor. The use of all the information relates to human resources, to communication and communication structure.

2 Problem Formulation

2.1 System Integration

Technical and technological notion of system integration seen as hardware and software interconnection into a functioning information system has already been overcome. System integration is assessed on several levels, consisting especially of the following:

- Strategic level – interconnection of business plans with information strategies,
- Management level - solves the optimization of organization and information system components delivery from all suppliers and includes the client,
- Project level – represented by the formation of a consistent architecture and information system processes design,
- Technical and technology level – interconnection between hardware and software into a complex functioning unit.

Compared to the previous systems, the stress is again put on a complex solution. However, the technical and technological problems persist, that is the selection of a primary information system concept.

We face a collision of two approaches – the one depending on an integrated solution, the other on a component solution. Despite it has always been a technical issue, the consequences of the selection are reflected in other aspects and also in the field of gathering, transfer and evaluation of information, which causes a rather extensive practical problems. Both approaches have certain advantages and drawbacks. The component approach is directed by the effort to interconnect the best components available on the market ("best-of-breed"). On the other hand, the fully integrated solutions by one producer or by a partner alliance enable the users certain degree of integration on the level of internal system meta-data. It is therefore interesting to use selective processes

outsourcing involving the system integration services.

2.2 Communication and Communication Structure in Relation to Information Systems

In relation to transfer and use of information, there exists an option to express communication as a way of information transfer. Such statement would, however, be a very simplified one.

Communication is a complex of all forms of behaviour by which a company communicates with its environment, involving also the internal environment – i.e. the employees, shareholders, company bodies, etc.

A unified company communication is an external manifestation of the company identity (corporate identity).

It is also a resource of the company image, that is influenced by its active communication with general public and by passive communication, such as its behaviour on the market, reactions to media, to public, etc. A unified company communication goes hand in hand with a so called corporate image that is codified and involves mainly the graphic style, the definition of corporate language, dress code, etc.

On the basis of these characteristics, one can determine communication within different notions and according to different aspects. Most frequent notions are the following:

- Technical – operations relating to gathering, transfer, processing of information by means of information systems serving for the provision of an effective feedback and controlling,
- Social – a so called social communication and human interaction. As a means of a human socialization it involves both the information exchange and activities interaction, which can be

interpreted as communication acts and processes.

Communication relations in terms of social aspect can be understood as the following corporate relations:

internal:

- entrepreneur, manager ↔ employees,
- employees ↔ z employees ,

external:

- company ↔ suppliers,
- company ↔ customers, clients,
- company ↔ competitors,
- company ↔ financial institutions,
- company ↔ state and local authorities,
- company ↔ social organizations, region,
- company ↔ environment

This aspect corresponds with the division of communication into internal and external communication that is pursued in specialized literature for the purpose of classification, among others:

- External communication – all the communication towards external subjects; generally representing both commercial communication involving the placement of commercial information in media for a consideration, and natural communication (in a close context. External communication is a complex of all forms of marketing communication, that is, involves both over-line and under-line communication.
- Internal communication within the company – mainly from the

management to the employees; a part of internal communication is also the communication towards selected target groups inside the company, in certain fields the internal communication tools border on HRM (Human Resources Management).

A special type of communication in terms of a long-term objective orientation is the corporate communication. This type of communication (usually external type) is oriented on the presentation of more general topics, such as publishing of significant information about the company that supports its reputation (corporate image) – e.g. profit and loss statement, company strategies, introduction of management, social programmes, responsibilities, etc.

Communication structure, sometimes labeled as communication network serves for the provision of information transfer required for controlling and coordination. The quality of this structure is assessed in view of the scope enabling a fast and quality transfer of non-deformed information. Communication relations are not of a two-directional character, they can be superior to each other or on the same level. Communication facilitates an effective feedback and checkup.

2.3 Human Resources and Use of Information

The level of technologies and the degree of information utilization are of a high importance for company effectiveness, however, the most decisive factor is their activation and cultivation. Any degree of a company technical development, new methods and management tools fail unless they are used and accepted by an erudite, capable and loyal staff.

We can state that people present the most significant resource of information. At the same time, they are information recipients. Orientation, knowledge, skills and experience of people including their ability

to positively communicate with other people influence the level and scope of relevant information required for a company success. This applies especially to managers – however, the recent managers' orientation is directed towards profit, while human resources are mainly measured by economic indicators (productivity of labour, profitability).

Specialized literature [1], [10], [14] underlines the preparedness of managers to lead people and to verify their abilities for the given position and their benefit for the company. Therefore the priorities are represented by social skills in link with the information relating to the attitude of managers to communication, cooperation, self-development and creativity. The trend to direct managerial competences towards technical skills prevails, and human resources are oriented on administrative approach to information, and then on gaining information exploitable in human potential development.

Information required for human resources evaluation and its further use and development refer to quantitative and qualitative indicators, they interlink with the management, sociology, information technology, TQM, any many others. The relation of human resources management to the quality is obvious: it is the effective management that plays an important role in TQM philosophy, involving all the employees, their abilities and management style.

The requirements for information and information resources in relation with human resources are oriented towards personnel management with the view to social and economic elements differentiation. They are complemented by the quantity aspect oriented on psychology and social area. Causality of human resources use and company results, as well as the information complexity trend, are usually depicted by means of performance criteria. It is a problem to monitor the information about human factor in

accounting, controlling or reporting, because the option to record intangible assets is missing, since they are represented by a company intellectual potential. This type of information has been related mainly to the quantity indicators. The quality of the work with information in specialized literature is indicated as a strategic factor of company prosperity and competitiveness. This opinion is expressed by Pitra [12], who asserts that the competitiveness of today's companies is based on the development of inter-personal and electronic links as the vehicles of work relations, information and decision-making powers and the relevant personal responsibilities of the employees. The work with information is among the factors that decide about the quality of business activities – therefore it is the resource of inimitable competitive advantages.

Drucker (1994) states that it is knowledge that decides about the productivity of an individual, a company and an economic unit. He also stresses that information and knowledge are the main producer of wealth, being a meaningful resource that has moved traditional production factors to the second position.

Bill Gates [4], Microsoft founder, expresses his clear view of information in the book *Business, the speed of Thought: your ability to gather, to process and to use information decides whether you win or lose.*

As Gates [4] asserts, fast flow of information results in the acceleration of processes and the increase of the whole business system quality. He does not reject the necessity of a good strategy and managerial work, but he accentuates the speed of gaining and transferring information.

2.4 Economic Information System

An economic information system is, nowadays, a necessity in every small or large size company. The requirements related to this

system may be characterized as follows. The system has to be affordable, configurable and flexible, and containing all basic functions, if possible also certain extra functions necessary for information support for the entire company. Further the data should be easily accessible for managerial financial reporting, simple, even intuitive, control and system stability is required.

The most important requirements the company information system should meet in terms of technical aspects are:

- high system accessibility
- system support
- minimum and predictable operating costs
- can be transferred easily to new system versions
- user support
- support for local users workstations

The accounting system is part of the economic information system. In the event the company uses only the accounting system or ERP systems, the office system and e-mail with intranet, such a condition may suit, and these systems may be administered by a limited number of staff dealing exclusively with information systems. It is, however, only a temporary condition; it has become evident a number of companies will be updating their information systems significantly [10], [15].

2.5 Accounting Information System – Part of Economic Information System

The aim of accounting is to provide a true and clear overview of the accounting unit, provide complex information on the financial situation of the company. The accounting part of the information system helps makes financial accounting records be in compliance with valid legislature. It's composed of the records of a general ledger in CZK and other currencies, foreign and domestic purchase or sales ledger, records of business cases in CZK and other currencies, and end records of VAT. The cash and bank records are in separate files with direct relation to the purchase or sales ledger, together with the information about continuous records of particular accounts. Accounting cooperates with the sales part of the programme, in received and issued invoices, and stock records. The accounting software usually enables financial analysis, drawing

upon the results calculated in the accounting. The accounting data is classified into statements (the final accounts), and it is necessary to compare it with the budgetary data [11].

Opting for a particular accounting information system has to reflect that the chosen system is only a part of the company's information system. In the market there are a number of standard products that may be in use, in the event of under-evaluating the accounting relations to all-company information system, this can cause serious problems.

2.6 Supply of Economic Information Systems for Small and Middle-Sized Companies

Nowadays there are 97 systems in the market labeled as Economic Information Systems for Small and Middle-Sized Companies, enabling financial accounting. Generally it can be argued: The managers' or customers' requirements representing their specific needs are, however, met differently. [2].

Providing the basic software modules is convenient for common company practices, the following criteria were chosen for the economic system selection:

- financial accounting
- cost accounting
- financial planning, financial analysis
- production
- statements generator, option for adapting forms
- supplied standard forms (examples)
- link with MS Office [9]
- link with e-commerce
- bar code processing
- relation to home banking, e-banking
- discretionary fiscal year
- cash flow management (incl. reporting)
- receivable accounts management
- CRM – Customer Relationship Management
- financial reporting according to IAS/IFRS a GAAP

The above stated criteria were met by only 9 products:

- abas Business Software (producer: ABAS AG)

- AXA ERP (producer: AXA spol. s r. o.)
- Dialog 3000S ERP (producer: Control spol. s r. o.)
- i/2 (producer: Polynom Software AG)
- IS COMPEKON (producer: COMPEKON s. r. o.)
- mySAP All-in-One (producer: SAP ČR, spol. s r. o.)
- SAP Business One (producer: SAP ČR, spol. s r. o.)
- SoftM Suite (producer: SoftM AG)
- SPIN (producer: Datalock a. s.)

When choosing economic software it is necessary to reflect function requirements, the acquisition costs, and necessary technical assurance of the operating system [3]. Prices for the above listed products cannot be quoted precisely; they vary from tens to hundreds of thousands CZK, and depend on the number of modules and users.

Derived from the stated findings, there is a hypothesis claiming that the accounting systems currently in practice are not fully convenient. That is why there was an empirical research carried in the Pardubice region dealing with the satisfaction with accounting information systems of financial managers.

3 Problem Solution

3.1 Accounting Information System Requirements of Financial Managers' - Empirical Research

The base group was defined by the following criteria, holding true for all its units: companies seated in the Pardubice region, operating in the manufacturing industry, with more than 100 staff.

The size of the sample was defined by statistical methods, by using a clear random sample of respondents from the base group. Research used simple sampling, estimation reliability $(1 - \alpha)$ was 0,9; admissible relative error δ was limited to 0,1.

The satisfactory estimate accuracy equals values up to 0,10. Variation coefficient V was chosen in the interval 0,2 - 1.

In relation to the concept of the research, sociological procedures were used. To get empirical data questionnaire techniques were

used; completing questionnaires and a standardized interview employed primarily to get the sufficient feedback from the respondents.

54 managers (according to the CSU information they represent 132 economic entities) of a base group were addressed to respond to questionnaires.

Responses were obtained only from 30 companies; however, the sample of 30 companies is sufficiently representative.

The research focused on accounting systems used in selected companies, and was evaluated in relation to a financial manager's needs within a current organizational structure and in a particular company environment.

The questionnaire involved two types of questions:

- closed questions, using primarily an evaluation scale
- open-ended questions, primarily partly structured with an option to complete a response, if the provided answers were not fully convenient or incomplete

Scales to assess the phenomena of a quality character were used. Scaling helps identify quantitative determinants which are often not well visible.

Selected findings from the empirical research.

In the question related to a structure of usual modules of an accounting system, the respondents chose these modules from the supplied information and they simultaneously evaluated their quality in a scale as follows:

- 1– fully convenient,
- 2 – fairly convenient,
- 3 – rather inconvenient,
- 4 – inconvenient.

For the results expressed by the characteristics of a median see Table 1.

Table 1: Basic Modules of Accounting Systems and Their Evaluation

Relative frequency of a module [%]	Module	Evaluation
100	Financial Accounting	2
100	Cost Accounting	2
100	Accounts Payable, Outstanding	1
100	Cash	2
100	Bank	1
100	Purchase - Sales	3
100	Assets	2
100	Personnel and Pay Roll	3
100	Accounting and Tax Statements	2
87	Financial Analysis	3
80	Financial Planning	3
74	Stock Inventory	2
60	Freight	4
80	Production	2

Source: Author's research

The responses state that the structure of modules and the scope of their use may be considered standard in companies. Most of them are meant for standard accounting and for compiling final accounts in compliance to the valid legislature. Certain entities do not organise freight in relation to the accounting system, financial planning is missing and though there is a possibility to carry a financial analysis, its scope is not sufficient. The respondents express their overall satisfaction with commonly used modules (shadowed grey in Tab.1) as "fairly convenient" (median equals 2, arithmetic average equals 2).

To evaluate other stated modules a weighted average of 2, 75 was used in relation to their varied frequency, so it may be implied that the respondents are rather dissatisfied with them (which corresponds to the median, equalling to 3).

The research brought about interesting findings to the question: What else do you require from the accounting information system? The respondents picked what requirements are met

by the current information system and to what degree. If they picked a requirement without evaluating it on the scale, they expressed the information system did not meet it (i.e. the information system does not involve this module).

The scale was identical to the previous question; evaluation of the scale for each of the factors in Table 2 was carried by median.

Table 2: Managers' Requirements in Terms of Extra Modules and Their Evaluation

Relat. requirement frequency [%]	Relat. module frequency [%]	Module	Used modules evaluation
83	63	Accounting in Foreign Currencies and Exchange Rate Differences	2
77	68	Statements Generator, Option for Adapting Forms	3
94	70	Link with the Records of Vehicles (Vehicle Log Book, GPS)	4
98	82	Link to MS Office	2
45	38	Link to E-commerce	2
68	40	Bar Code Processing	3
40	40	Link to Banking (e.g. e-banking)	2
65	65	Discretionary Fiscal Year	1
50	65	Active Tax Calendar	1
92	88	Cash Flow Management (including reporting)	3
65	52	Link to Document Management Systems, Drafting Directives	3
30	30	Data Replication Head Office - Branches	2
45	50	Intrastat	2
15	12	Customer Relationship Management	3
28	28	Financial Reporting IAS/ IFRS, GAAP	2

Source: Author's research

The complex satisfaction with the used modules may be expressed by the weighted average of 2, 34.

3.2 Result of Respondents' Subjective Analysis of Accounting Information Systems

The scope of the questionnaire and the order of the questions were designed for the respondents to be able to analyze particular questions/responses and finally synthesize an

opinion on how convenient the accounting information system of the company is. For the results see Table.3.

Table 3: Financial Managers' Satisfaction with Accounting Information System

	Number of answers	Frequency of answers	Relative frequency [%]	
Fully convenient	3	0,1	10	$\Sigma p = 27$ [%]
Fairly convenient	5	0,17	17	
Rather inconvenient	18	0,6	60	$\Sigma p = 73$ [%]
Inconvenient	4	0,13	13	

Source: Author's research [10]

The responses show the accounting system usually does not satisfactorily meet managers' financial requirements which, with respect to the business environment development, tend to rise. (Note to evaluation: median equals 3, average deviation equals 0,61.)

Since the results of the selection procedure may execute an error (as a result of the difference between characteristics of a selective and a base group), a stated hypothesis was tested on a basis of a zero and alternative hypothesis.

Zero hypothesis is set as:

$$H_0: \pi \leq 50 \%$$

Alternative hypothesis is set as:

$$H_1: \pi > 50 \%$$

The alternative hypothesis was expressed verbally as: there are more than 50% of inconvenient accounting systems.

The probability of an error of the 1st type was specified to the maximum of allowed error probability and chosen as $\alpha = 0,01$. The critical value Z , for the chosen α defining the zone of rejection by standard deviation according to the normal distribution table, amounts to $Z_{\alpha} = 2,33$ for normal distribution.

It was validated that the zero hypothesis (H_0) may be reliably (99 %) rejected by calculating Z for the real result of the selection procedure, as $Z > Z_{\alpha}$.

The selection procedure proved the ratio of inconvenient information systems is higher than 50 %.

4 Conclusion

The significance of optimal quantity and quality of information is stressed and confirmed by experts in theoretical and practical fields of interest; however, a more detailed specification for information or information resources in view of managers' needs taking in consideration information technology is often neglected in specialized literature.

Sometimes it only focuses on highly specific problems (usually of an economic or technical character). A complex solution or a complex view does not exist.

Individual information systems are frequently assessed only by closely determined criteria and often technical parameters and price are decisive, regardless the question whether the system is sufficient in terms of the company management. The same applies to economic information systems and their sub-systems.

The empiric research carried out focuses on accounting information systems and their parameters according to the criteria determined by financial managers.

Using programmes for accounting is, nowadays, a common matter, and in respect to the accounting information importance, its technical processing may be set as an inevitable precondition for its timely assurance.

Accounting Information System is a part of a company's information system and it is advisable to assure its linking to the document management system.

Management uses accounting information in differently aggregated formats.

If we consider the needs of financial management, we have to decide whether the information is to serve operative, tactical, or strategic decisions. Current accounts primarily serve for operative decision making; however, in terms of strategic financial management the information of financial accounting can be labelled as financial reporting information, as the information is drawn from financial statements.

Accounting Information System should convene all levels of financial management.

Managers, questioned in the empirical research, evaluated the accounting system as complex; however, in their responses they highlighted the importance of strategic decision making support. The research proved the structure of basic modules necessary for current accounts in companies is convenient, this does not, however, hold true for the area of financial reporting.

The managers want reports and statements to be structured to meet their needs, they consider the degree of a possible aggregation inadequate and refer to a bad interlink of a statements generator with the modules of financial and cost accounting. Frequent problem of information systems rests in insufficient graphics.

The accounting information systems assessment of the research came out as a result of respondent's subjective evaluations. Questioned managers gradually analyzed requirements and the degree to which these have been met, and thus they arrived at an overall expression of their satisfaction with the current accounting system.

The results available in Tab. 3 show 73% of the respondents are partly or fairly dissatisfied with the accounting information system.

The overall satisfaction, with all the used modules, can be expressed by a weighted average of 2,27 (average deviation 0,03). To evaluate the information system subjectively, the managers used a scale of four integral values; the result calculated by median equals 3, which corresponds to "rather inconvenient" referring to rather critical approach of the managers to the current system in the light of the response frequency in Tab. 3. The

mathematically expressed evaluation of the overall satisfaction with the accounting information system, of the companies may, be considered analogical to the respondents' subjective evaluation.

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