Evaluation of Accounting Information System Performance at Trade Entities - Economic Efficiency of Accounting Information System at Trade Entities

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Abstract

Information systems, in general, and in particular the accounting ones, in my opinion, are intended to provide, in a timely manner and accurately, basic information necessary for running the entity. Information needed for every decision-making are regarded as knowledge-oriented towards objectives, being about the knowledge that a manager must have in order to be able to take the right decisions in terms of the processes taking place in the framework of the entity.

At the same time as a decision is taken on the basis of the available information, the quality of the decision, is directly related with the information available. In order to be able to make a decision as fair, it is necessary to provide a volume of information that satisfies the decisional situation; the volume of information required will be determined by the nature and importance of the decision itself, and the continuity of the decision-making process.

Key words: accounting information system, trade entities, performance, efficiency, software
J.E.L. classification: M 40, M 41

1. Introduction

Due to the existence of a context increasingly more competitive and a world that constantly changes, trade entities, for instance, must face the challenges by seeking new solutions based on getting the information, and to respond to such needs, the information system, in general, must be subject to continuous changes, adjustments or adaptations until substantial changes or even replacement.

2. Accounting information system performance evaluation at trade entities

According to Andone (Andone, 2006, p. 305), opinion with which I agree, when assessing accounting software systems, from the perspective of technology, must, or ought to be, a couple of questions that must be answered as follows:

- How scalable is the accounting software system? Can it comply with business growth?
- How well is running the system where a large number of transactions?
- How will adapt the system to the changes that will occur in the business process?
- You will need to purchase the software and system with functions which are not required for the accounting entity?
- It is difficult to update the software when you want customization of application interface or when business logic changes?

The author also states that the answers to these questions depend largely, by the granularity of software design and if the software can be distributed in the form of components (discrete functional objects, individual, each of them having a different functional task) and not in the form of fully functional modules.

The granularity of computerized accounting applications design affect their *scalability*, *performance* and *adaptability*; the author saying that build software applications design granularity

allows functional components to become isolated by task or by role, so that it can be assembled and developed in different ways; situation where accounting software designers are required to account for this and must seek the help of professionals as accountants.

The author considers a starting point for understanding how accounting applications can be designed around a model, on components (pellets) is considering four foundamental levels of functionality of software accounting systems, namely:

- *presentation level,* what the user sees on the screen, the application user interface;
- *validation level,* rules that ensure that data entered or requested by the user are invalid;
- *the level of processing,* the processing carried out in the system, such as the accounting records, financial reporting, etc.;
- *the database level*, the system of storage and accounting data management.

But if you analyse each of these levels separately, it can be seen that each can be broken down into levels of granulation and lower, as follows:

- *presentation-level*- individual data entry forms, the individual data fields within these forms;
- *the level of validation*- individual rules that apply to specific fields or forms;
- *the level of development* - individual processes, such as editing or printing of accounting journals, invoices;
- *database-level*- individual tables of database or columns within those tables.

At the same time within each level, it is possible to identify some components with a lower level of granularity and to be designed as tasks or individual and discrete functional objects within the application. Thus it can be seen, quite simple concept, a software system not as a set of modules, but hundreds, sometimes even thousands of parts (pellets), realizing their own functions within the global functional level.

The author believes that the accounting information systems based on components using discrete components (pellets) able to cooperate in terms of functional, such as together to implement all possible functions and accounting operations. They are granular designed, not modular and may contain components purchased from several manufacturers, selected on the basis of performance; and as with any major change in the design of accounting systems, computer applications based on components bring benefits, but also challenges for users of these systems. The author is mentioning among the benefits, *scalability, adaptability* and *low costs.*

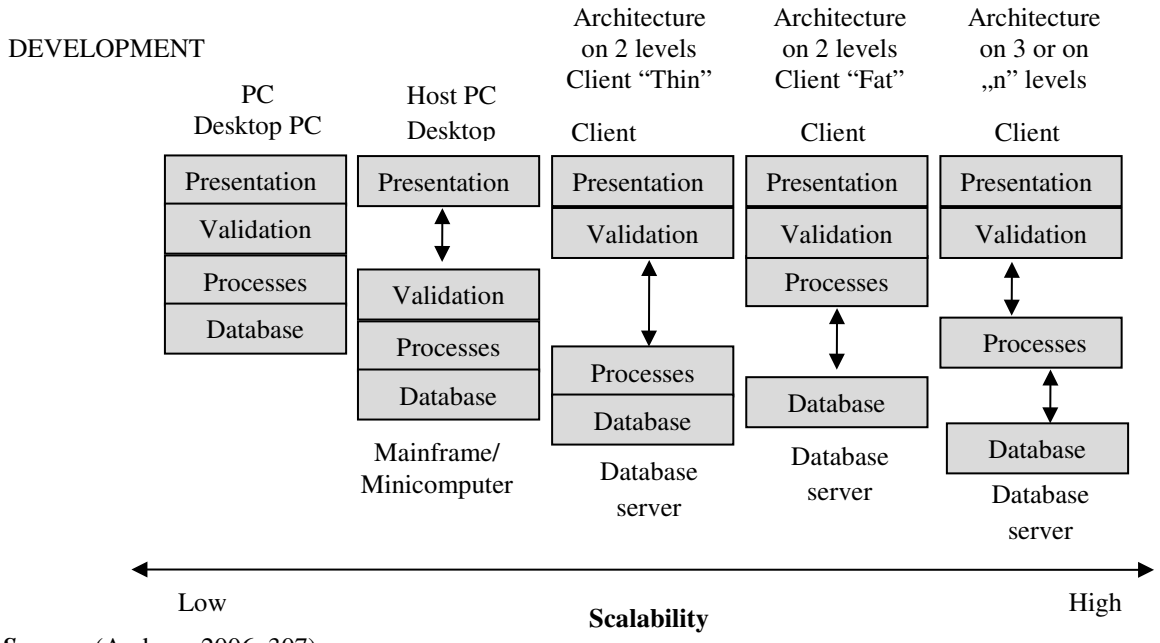
1. **Scalability**

At economic entities in general, and those in the trade, in our case, component-based systems can be developed in a variety of ways, and flexibility is key to their ability to provide three types of scalability in business processing, as follows:

- *transactional scalability,* treating the growing volume of transactions*;*
- *connections scalability,* to deal with the increase in the number of users;
- *functional scalability,* for the increasing complexity of business processes.

The author presents four functional accounting software which have been developed according to the hardware architecture, as can be seen in the figure below:

Figure no. 1: Common Development of accountancy functional levels along the platform



***Source**:* (Andone, 2006, 307)

As the higher functional levels can be separated on different computers, so the systems become more scalable. The author argues that scalability can be solved by interventions with hardware resources, opinion with which I agree, given that this solution is typically a much more pleasant and more efficient in terms of cost, than changing accounting software; so, at trade entities, for instance, in most cases the solution involves supplementation hardware resources (CPU, memory, data storage drives on servers in the existing accounting system) or, more simply, adding servers to increase the available resources for the entire system. Based on a client/server architecture on two levels (two-tier) can move relatively easily from a three-tier architecture (three-tier) or n-tier (n-tier) without improving client computers or by changing the database server, in turn, may be added to the network, in a simpler manner, application servers or processes that may be cheaper computers.

Finally, I am of the same opinion with the author and that we can conclude that at trade entities, for example, granular functional design and ability accounting software to run as discrete components anywhere in the network shall constitute the reasons for encouraging developments on n levels.

2. Adaptability

In view of the above, the level of the lowest granularity, in the case of accounting applications at trade entities, is the module, namely general accounting module, module for suppliers accounting, accounts, receipts/payments module, etc.; modules users applications may or may not have access to each of them or just certain modules, depending on the size and complexity of entities activity, the system being developed as a set of modules for vertical applications.

But at other trade entities to which the user of accounting software applications is no longer a simple executor of trades but a knowledge handler oriented on solving tasks, modular structure is no longer supported, used, because functional tasks go beyond the boundaries of the modules from accounting applications with a lower level of granularity. Thus, users of accounting applications are no longer limited to using only the modules, they can manage an entire business process (i.e. supply) from start to finish, by combining the functionality of multiple modules (purchase, suppliers accounting or general accounting) within their own custom system. In component-based accounting applications, for example, the general accounting term or suppliers accounting are just generic terms to denote a collection of functional components that fulfil the role of traditional accounting modules of general accounting and suppliers accounting.

At trade entities, for example, an accounting software system with a high granularity allows its users assemble related components specialised tasks, because their functions are fragmented

enough to allow functional reassembly, consistent with the needs of business processes; products-management processes or workflow products can achieve the design interaction between such functions.

This approach does not resemble the old habit to turn off menus as options to hide certain operations against a certain type of users, but on the contrary, all functions of the computer system, from all modules are displayed, so that users can combine and match in full accord with the conduct of the business process to be informatized, with all its responsibilities.

Having in mind the above, I agree with the above remembered author and we can appreciate that the possibility for users to assemble the different functions of the application workflow, processes or tasks, illustrates the adaptability of granulary accounting systems.

At economic entities in general, and those in the trade, in particular, another example of adaptability is the use of a dictionary of data within the software that plays the role of metadata for the accounting database; so metadata provides information about the data in the accounting system and how they are used.

In general, according to the author, a central repository of information on all aspects of the accounting data is of great help to users and system administrators because:

- can edit the data dictionary to reflect their specific rules, terminology or messages, and any changes made to a data field dictionary is reflected throughout the accounting application, regardless of where that field is used; so that a single change to a data field in the data dictionary, it will be reflected in the data for each form, report, or window that is using that field.
- on the other hand, data dictionary can provide metadata in a number of different languages, so that at trade entities, when a user is logged, the application to load the requested language. Thus, an accounting system which has a dictionary are often the best solution for international business because the system can be developed in a multilingual environment.

3. Low cost

The author is of the opinion that as the accounting information systems will become more granular, the price will decrease, and the implementation and updating of the accounting software will become much more efficient in terms of cost. I also agree that at trade entities, when conducting an accounting system from individual software components, it creates the possibility of buying only parts that is needed; there is also the possibility of updating the system by adding new components, relatively cheaper as the functional entity needs grow.

In conclusion, the author notes that, in an accounting application, there are several components, the faster accounting software manufacturer can implement new functionality, because the new components are based on existing ones, tested and validated, in turn, can inherit much of their functionality.

In terms of economic efficiency study of computer systems, according to Baron (Baron, 2009, p. 38) must be considered certain aspects, of which at least:

- **general appearance**, which take into account the economic side, whereby efforts for establishment and functioning of a computer system to be smaller than the effect obtained, meaning spending resources to be effective;
- **specific aspect**, which takes into account the context (requirements, conditions, features, etc.) of achievement and exploitation of a computer system, meaning everything that comprises the hardware, software, methods, techniques, used, etc.

At economic entities in general, and those in the trade, in our case, the establishment and operation of a computer system involves making some major investments, which must be justified economically and recovered over time. Economic justification shall be considered by classification of expenditure within the limits accepted by the beneficiary, at one point, that is, the computer system must satisfy the accomplished information after it has been put into operation so that the determination of the economic efficiency of the information systems involves determining the effort and determination of the obtained effects.

Efforts for the achievement and exploitation of a computer system can be determined by summing up the expenditure incurred, by categories of spending and by the stages of realization, in accordance with the methodology used. The effects obtained as a result of the development and exploitation of the information system can be determined by taking into account a variety of issues

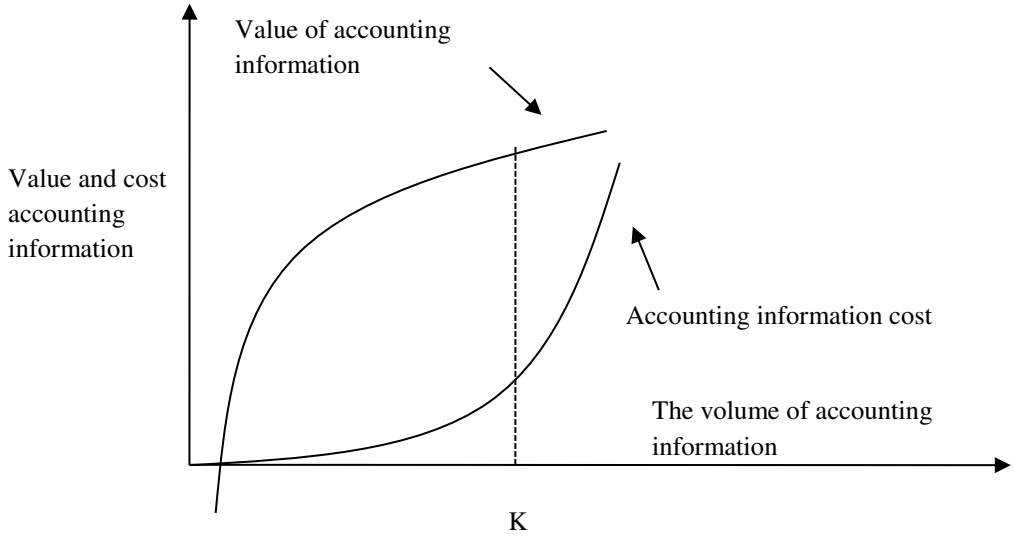
among which, at trade entities, we can mention the following: shorten the time for obtaining the information expected, rigorous substantiation of decisions, improving the management of the activities of the entity, etc.

According to the author mention in economic research were approached different points of view about the economic efficiency of information systems; and between these points of view, with some relevance may mention the following: *usefulness, impact and contribution*.

Considering the *usefulness*, the economic efficiency of the information systems at trade entities occurs when the computer system information complies with requirements of the management of the entity on three levels: strategic, tactical, and operational.

The impact of an information system on the activities taking place in the context of an trade entity determines their effectiveness *by the value* and *cost* of information computer system it provides. According to the author, between value and cost of information must be **an optimal,** in the sense that, at a given point (K), the amount of information will increase proportionally with the increase in the cost of information, after which further growth in cost of information will lead to an increase in the value of this information is insignificant, as can be seen in the figure below, idea that I think it can be applied at trade entities, too:

Figure no. 2: The relationship between value and cost accounting information at trade entities



Source: (Baron, 2009, 39)

At the same time it is possible to assess the economic efficiency and through the contribution of a computer system to increase the effectiveness in any activity within trade entities.

With regard to indicators of economic efficiency of information systems the author is of the opinion that in order to express the usefulness and effectiveness of an information system implemented in any field can use *constructive features* - offered by the report among the effects achieved and efforts-and *functional characteristics* – given by information system capacity to meet the information requirements of the users.

In turn, at economic entities in general, according to the author, and to those in the trade, in particular, in my opinion, these features are caused by various *organisational factors*, specific to the respective entity, beneficiary of the informatic system, *and technical and economic factors*, by analysis of the different variants of realization of an information system, using various indicators.

Among these indicators the author considers that the following may be noted:

- ***Coefficient of information requirements (Csc),*** calculated as the ratio between the quantity of information provided by a computer system (Cp) and the amount of actual information provided by system (Cr);
- ***Response time coefficient (Ctr),*** calculated as the ratio of the response time of the system (Tri) and the difference between adjusting time admitted computer system (Tra) and the time of driving processes (Tpc);

- ***Economic efficiency coefficient (the Eec),*** calculated as the ratio between the sum of the potential economic effects for a specified period of time (See) and information resources needed for the same time period specified (Rin);
- ***The coefficient of the term of rehabilitation (Ddr),*** calculated as the ratio of information technology resources (Ri) and economic effects potential (Eep), during the life cycle of the information system;
- ***Economy personal coefficient (Cep),*** calculated as the ratio between the economy's potential for employment of staff (Eptm) and working hours are consumed for performing data processing operations (Tmca);
- at the same time the author presents **technical-economic Coefficient (Cte),** a synthetic indicator, used for the justification of the decision to choose the optimal variant for realization of the computerized system, when other coefficients presented are only relevant for the establishment of an optimal level of efficiency of the system. This indicator can be calculated using weightings which are of importance to be granted to the other indicators presented in the conditions of a minimum consumption or for consumption required to obtain the resources allocated to certain economic effects.

3. Diagnosing the accounting information system at trade entities

As accounting information made available to users increases, the flow of information should become more selective; modern computer systems provide users with both information about the socio-economic environment in which the entity works as well as internal information and knowledge generated in the entity. (Fusaru, 2008, p. 18)

At trade entities, for example, all staff, at all levels of the entity, requires information useful for daily activities; but if each uses information as Lupu (Lupu, 2000, p. 31), said , the question arises, what information, who puts at its disposal and what you will do with it once you get?

Information systems, in general, and in particular the accounting ones, in my opinion, are intended to provide, in a timely manner and accurately, basic information necessary for running the entity. Information needed for every decision-making are regarded as knowledge-oriented towards objectives, being about the knowledge that a manager must have in order to be able to take the right decisions in terms of the processes taking place in the framework of the entity.

At the same time as a decision is taken on the basis of the available information, the quality of the decision, is directly related with the information available. Thus, in order to be able to make a decision as fair, it is necessary to provide a volume of information that satisfies the decisional situation; the volume of information required will be determined by the nature and importance of the decision itself, and the continuity of the decision-making process. Also awareness is always determined by the data timeliness, accuracy and speed with which they will be available for the decsion making person.

Together with the development of technology and communications issues, each trade entity, for instance, must have an accounting information system functional and flexible to meet the needs of its decision-making, and leadership of the entity must be permanently trained on the quality of accounting information system; as a result I think we can define qualitative characteristics of accounting information system as follows:

Table no. 1: Qualitative characteristics of accounting information system at trade entities

Crt. No.	Characteristics of accounting information system	Explanations
1	Dynamic	Able to be modified or changed; adaptable to new situations
2	Fully understandable	Significantly
3	Organized	Mutual correlation between parts, dominated by feature overview

4	Communicative	Dissemination of information to all users accounts
5	Integrated	All parts of the system are linked to (AIS) as a whole
6	Centralized	The concentration of information in an accounting information system integrated
7	Accessible	Provision of accounting information system
8	Comprehensive	The totality of the properties that constitute the system
9	Restrictive	Confined within boundaries set by the system
10	Punctual	Upon request
11	Functional	Grouping related information unrelated to the accounting department
12	Simple	The ability of a system to meet the need of the user
13	Standardization	Classification and identification of accounting data so that the same meaning to be conveyed at all levels
14	Modularization	Susceptible of expansion or contraction, after needs

Source: made by author after (Lupu, 2000, 32)

However, as we can conclude from those postulated by Lupu, through these qualitative characteristics cannot be achieved in all circumstances the operation of the information system; under these circumstances, the question arises of the mutual adaptations for the purposes of accounting information system adaptation to the conditions of operation or adaptation to the specific conditions of activity of the entity structure and manner of operation of the information system. In reality it is necessary that the two types of adjustment should be carried out at the same time pursuing the objectives; and by specifying the characteristics of the accounting information system of qualitative and their effects on decision-making within the informational activity at trade entities should be laid down points in the diagnostic analysis of the accounting information system.

4. Conclusions

In conclusion, we can say that, at trade entities, for example, important decisions that generate major changes within the entity are taken at higher levels of management, relying doubtless on a significant volume of information logically, selected as needed and coming from all the specific tasks that are performed under a trade entity, however in these circumstances, the investigated field, assessed or diagnosed should include accounting information system in its structuring, at all levels, both at the managerial levels and the implementation of specific activities which are carried out in the framework of a trade entity.

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