

## **VIEWS OF THE COMPANIES IN CENTRAL REGION REGARDING THE OPPORTUNITIES AND LIMITATIONS OF INFORMATION TECHNOLOGIES USED FOR PROCESSING AND ANALYSIS OF ACCOUNTING INFORMATION**

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**ABSTRACT:** *In the context of manual processing of data and the transmission of information by conventional means, many of the information valences of accounting remain unexploited because of deficiencies that may occur (delays in processing, redundancy, overloading the circuits, inefficiencies) and such information is likely to remain without decision value. Based on these considerations, the paper summarizes, in an original manner, based on both thorough documentation and experience held as a collaborator of companies in the financial and accounting field, implications that information technologies (specific programs, internet, intranet / extranet, EDI, ERP) propagate on the quality of accounting information, their advantages and limitations being outlined. One of the main contributions lies in identifying opinions within the companies in the Central Region, regarding the opportunities and limitations of information technologies used for processing and analysis of accounting information.*

**KEY WORDS:** *information technologies, accounting, software, internet, intranet, extranet, EDI, ERP.*

**JEL CLASSIFICATIONS:** *M410, O330.*

### **1. PRELIMINARY CONSIDERATIONS: ACCOUNTING INFORMATION IN THE CONTEXT OF INFORMATION TECHNOLOGIES**

Today, companies operate in a global computerized, intelligent and increasingly virtual environment. Ramin Bashir Khodaparasti highlighted, in a paper

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published in 2012, the role of information technology in organizations. Currently, an industry of new information technologies (IT) emerged that companies can use successfully in their accounting activity: software, internet, intranet, extranet applications based on artificial intelligence are only some of the most used information technologies, with broad applicability in accounting. In 2009, Ciuhureanu et.al. have published a study that highlights problems in the financial and accounting activities, solvable by implementing information technologies.

Using *accounting software* is not a novelty. But it is important to know that a computer program should not be selected at random. It will have to meet minimum regulated criteria (OMEF 3512/2008), to assist in data processing, but, what we consider important is that a competitive computer program will have to meet requirements for assisting management in decision making. The products' quality of accounting software is a set of technical, economic and social features that have the ability to respond the users' needs by utility and economic efficiency, being found in „ergonomics, reliability, maintainability, reliability, efficiency, stability, adaptability, portability, security and clarity” (Vasilescu, 2008, pp. 19-22).

Currently, the Internet is the most effective means for information exchange (Lascu, 2005, p. 56) in terms of communication speed and reducing costs, being, however, unable to replace classical instruments (Robu & Sandu, 2009, p. 69). The main use of Internet in accounting envisages disclosure or communication with users. With this reporting option, companies can focus their efforts on attracting potential investors and clients, generating transparency with beneficial effects on the growth potential of the company.

Internet also proves its usefulness for the build of a database with information on consumers of information, regardless of their nature, needs being understood and information offers adapted based on that. Another advantage lies in facilitating the transmission of statements and reports by applying the electronic signature, one of the main benefits being the administrative simplification (Ispas & Simion, 2010, p. 293).

The use of *intranet* in accounting aims specifically at giving up the written submission of documents and replacing it with electronic versions, the benefits being perceived both in terms of time, cost and timeliness. When external access is granted to an intranet it is said that the company has created an *extranet*, a special network that allows other companies to access the information on the intranet. We should mention that both networks are protected against access by outsiders through special security software, every user having a password.

A modern solution for an effective accounting information system is the use of *artificial intelligence-based applications*. Among these we find a first application called Electronic Data Interchange - EDI, in essence, is the “electronic document exchange from computer to computer in a standard format between business partners” (according to Edibasics).

Commission Recommendations 1994/820/EC provide that “the electronic exchange is the transfer from computer to computer, of commercial and administrative data as an EDI message structured according to an agreed standard. EDI message is a set of segments structured on the basis of agreed standards and are presented in a form that allows reading and computer processing automatically and unambiguously”.

EDI can be regarded as a modern instrument in the hands of business people to obtain acceptable solutions, profitable, a system that emulates the ability to make decisions of the human expert. On the websites of specialized organizations in developing and implementing EDI ([www.lifeandtimesofed.com](http://www.lifeandtimesofed.com), [www.edibasics.com](http://www.edibasics.com), [www.studyzones.com](http://www.studyzones.com), [www.accellos.com](http://www.accellos.com), [en.ecommercewiki.info](http://en.ecommercewiki.info)) and specialists (Ryan V 2013; Scala & McGrath, 1993, pp. 85-91, Maunola, 2009, pp. 34-36) in the area, there are stated views on their main opportunities and limitations. In table 1 we conducted one of their processing, customizing the light of the opportunities and limitations of accounting information capitalization in the company's management.

**Table 1. Opportunities and limitations of capitalization of the accounting information through the implementation of EDI**

<b>Opportunities</b>	<b>Limitations</b>
Long term decrease of overall costs: stationery, archiving, transmission, human resources. According to calculations made by specialists, these costs can be reduced in the long term by more than 40%.	The high cost of immediate costs to purchase and implement, being a major limitation, especially for small companies.
Knowledge, receiving and transmitting real-time information on stocks accounting, collection, payment, ordering, provisioning, etc. which allow an effective control and timely decisions.	Generates maintenance costs both through the permanent updates and the need to train the personnel involved in use.
The issue, storage and archiving large volumes of accounting information that has the effect of documents' dematerialization (Bălăsoiu, 2012; Cuc & Almași, 2015, p. 57).	Safety problems may occur, requiring protection programs and back-up.
Sharing information with multiple users at the same time and in different locations. It offers a common language of business, facilitating business development through partnerships with organizations in other parts of the world.	Compatibility issues, hence the occurrence of problems in communication with business partners or even termination of contractual relations. An example is Walmart, a company that does business only with other companies using EDI.
Reduces the accounting system's deficiencies, management being backed by computerized "assistance" in developing financial analyzes necessary for decisions.	There is a risk of human error (it is a risk that occurs in any type of technology, regardless of the field).
They allow creating simulations for decision-making, analysis of deviations from plans.	The reluctance of managers and other staff on their implementation, reluctance which is not related to the cost and difficulty of use.
Provides transparency in reporting, promotes social responsibility and corporate governance.	In Romania, there are implementation difficulties which are caused by too frequent legislative changes and the multitude of exceptions.

Also in the modernization of information technologies with applicability in accounting, we find ERP systems - Enterprise Resource Planning, seen in their

simplest form as integrated systems for processing and analyzing information gathered from all business processes. The difference between an accounting software and ERP system comes mainly from the fact that the latter uses data from all company's functions.

In promoting these systems, supplying companies (Open Systems Inc., NetSuite, Technology Group International, Acumatica, EBS Romania, TotalSoft etc.) show as benefits at least the following: synchronization in the circuit and information flow, the existence of standardized formats, contributes to financial performance, offers solutions for managers in making decisions, reduces the time required for compulsory reporting, lowering operational costs, aims at the company as a whole not just as a component, integrating all the information in the financial accounts, instant analysis by a simple click, better coordination at the company etc. As with other complex systems, the main limitation lies in high costs for the acquisition and implementation of ERP. However, if benefits are taken into account, we believe that cost / benefit ratio is in favour of benefits and thus the quality of accounting information propagated over the management of the company.

An analysis of views on the opportunities and limitations generated by the information technologies in the processing, analysis and utility of accounting information for the management is presented below.

## 2. METHODOLOGY OF RESEARCH

The conducted research is a “*quantitative survey type selective research*”. We state that this part of the research is part of a much complex research which was based on a 78 questions questionnaire.

To achieve the research purpose, we established a central objective and secondary objectives, to which two main hypotheses are being associated (table 2).

**Table 2. Objectives and hypotheses of the research**

<b>Central objectives</b>	<b>Main hypothesis</b>
$Q_1$ Identifying views on the opportunities and limitations of information technologies used for processing and analysis of accounting information.	<p><math>IP_1</math> – Most companies use information technology, software having the highest frequency.</p> <p><math>IP_2</math> – Most respondents believe that information technologies are very much useful to management for the capitalization and utility of accounting information, the main opportunity being rapidity and the main limitation being costs.</p>

The information was collected through *direct research*, by survey. The instrument used was the questionnaire distributed directly to the managers or administrators. The research variables in terms of name, operational definition and type are presented in table 3.

**Table 3. Research variables – name, operational definition and type**

Central objective	Name of variable	Operational definition (code taken from the questionnaire)	Type
$Q_1$ Identifying the views on the opportunities and limitations of information technologies used in the processing and analysis of accounting information.	Information technologies	v28	Multiple choice / Closed, with multiple answers
		v29	Multiple choice / Closed, with multiple answers
		v30	Multiple choice / 5 steps Likert Scale
		v31	Multiple choice / Open

The population from which the sample was selected is formed of economic entities from industry, trade and services, active in 7 Centre Development Region (Alba, Braşov, Covasna, Harghita, Mureş, Sibiu). To establish the sample, *the non-probability random sampling was used, using the “snowball” method*. There was, however, the condition that companies have registered turnover on completing the questionnaire. The number of valid questionnaires was 301 generating a response rate of 42.16% and a margin of error of  $\pm 5,63\%$ .

### 3. RESULTS OF THE RESEARCH

In order to identify the use of information technologies for the processing and analysis of accounting information, and reasons of use, the operational variable v28 was elaborated in the operational questionnaire. Preliminary answers on the use are shown in table 4.

**Table 4. Companies use information techniques in accounting**

		Frequency	Percentage	Valid percentage
Valid	Yes	301	100,00	100,00
	No	0	0,00	0,00
	No, but we intend to	0	0,00	0,00
Total		301	100,00	100,00

Regarding the use of information technologies for the processing and analysis of accounting information, the conclusion is very simple: all companies surveyed use the technology. If we consider that we live in a world where information is power and speed and accuracy of information are critical to achieve power, it would be totally unacceptable that in this era of informatics there still exist companies whose accounting processing is made differently than based on information technologies. Of course it is also important what kind of technology is used but ultimately this is an

issue that depends heavily on the interest in processing the accounting information, in the results that are desired and not least in financial strength.

It is not enough to know whether information technologies are used, but we thought it would be interesting to find out the reasons for their use in accounting (table 5). In the questionnaire we offered a number of reasons, respondents being able both to choose and express their own opinions.

**Table 5. Reasons why information technologies are used in accounting**

	<b>Frequency</b>	<b>Valid percentage</b>
A. Speed in obtaining information	97	32,23
B. Saving financial resources	21	6,98
C. Easiness and rapidity for collection, processing, query, selection, use, transfer, storage	289	96,01
D. Possibility of resuming documents' processing / analysis	132	43,85
E. Rapid transfer of documents	297	98,67
F. Developing mandatory reports (statements, financial statements) and their transmission	253	84,05
G. Sharing information with multiple users at the same time and in different locations	75	24,92
H. Conducting simulations for taking a decision	31	10,30
I. Analysis of deviations from planned activity	58	19,27
J. Financial diagnosis	65	21,59
K. Reducing human errors	187	62,13
L. Storage and archiving of a large volume of information	168	55,81
M. Improving internal control	43	14,29
N. Other reasons	12	3,99

We notice that the most important reasons that determine the use of technology in accounting come from the rapid transfer of documents (98.67%), ease and speed for collection, processing, query, selection, use, transfer, storage (96.01%), development of mandatory reporting (84.05%), reducing human errors (62.13%), storage and archiving large volumes of information (55.81%).

We add up the results shown by the fact that these reasons can be fulfilled by using software and the Internet. We also highlight the lower shares of those who mentioned as reasons making simulations for decision-making (10.30%), analysis of deviations from the planned activity (19.27%), financial diagnosis (21.59%) and which are based usually on more complex and costly systems. The category of other reasons includes primarily inventory management, management of suppliers and customers, financial planning.

In order to know the types of information technologies used for processing, exploitation and analysis of accounting information as well as to identify generated opportunities and limitations, variables v29 and v31 were formulated in the questionnaire, the responses being summarized in tables 6 and 7.

**Table 6. Types of information technologies used**

A. Specific information programs				
		Frequency	Percentage	Valid percentage
	Not mentioned	0	0,00	0,00
	Mentioned	301	100,00	100,00
B. Artificial intelligence-based applications (EDI, ERP)				
	Not mentioned	215	71,43	71,43
	Mentioned	86	28,57	28,57
C. Internet				
	Not mentioned	12	3,99	3,99
	Mentioned	289	96,01	96,01
D. Intranet / extranet				
	Not mentioned	226	75,08	75,08
	Mentioned	75	24,92	24,92

From the diversity of information technologies, all respondents state they use software and the majority (96.01%) the Internet. Artificial intelligence-based applications (EDI, ERP etc.) know a more limited use, being mentioned by 28.57% of respondents. We have identified a similar situation for intranet / extranet networks which are used by 24.92% of the companies surveyed. We believe that the reduced percentage of the last two categories is derived mainly from higher costs and the reluctance of certain professionals / managers / administrators to use such technology, general reluctance of ignorance. The information presented determines the confirmation of the initial hypothesis that  $IP_1$  - *Most companies use information technology, software having the highest frequency.*

Centralisation of information obtained from processing the responses collected by variable v31, which aimed at identifying opportunities and limitations of using information technologies for the capitalization and analysis of accounting information is presented in table 7.

**Table 7. Opportunities and limitations of using information technologies**

Opportunities	Limitations
<i>Computer software</i>	
<ul style="list-style-type: none"> <li>- primary data processing</li> <li>- drawing up financial statements</li> <li>- respecting the legal framework for compiling and drafting documents</li> <li>- ease of use</li> <li>- accuracy of the information</li> <li>- rapidity in developing final documents</li> <li>- safety</li> <li>- allow the knowledge of certain situations at any time (stocks' balance account, cash, bank accounts, customers, suppliers)</li> </ul>	<ul style="list-style-type: none"> <li>- clarity</li> <li>- risk of human error</li> <li>- dependence on suppliers</li> <li>- legislative changes that hamper programs' adaptability;</li> <li>- dependence on electricity (power shutdowns)</li> <li>- maintenance costs</li> </ul>
<i>Artificial intelligence-based systems (EDI, ERP etc.)</i>	

<ul style="list-style-type: none"> <li>- enable a much better management of business</li> <li>- planning</li> <li>- assist management in making decisions</li> <li>- allow internal control</li> <li>- allow resource planning taking into account maturity</li> <li>- allow analysis of deviations</li> <li>- calculation of economic-financial indicators</li> <li>- developing business plans</li> <li>- calculation of costs and stocks' management</li> <li>- quality information</li> <li>- better management of working time (they reduce time spent drafting documents / statements / calculations by other methods)</li> <li>- rapidity</li> <li>- safety</li> </ul>	<ul style="list-style-type: none"> <li>- high costs</li> <li>- dependence on suppliers</li> <li>- staff training</li> <li>- disinterest</li> <li>- permanent legislative changes that do not allow adaptability or increase costs</li> <li>- difficulties in implementation</li> <li>- these technologies are not known</li> <li>- dependence on electricity</li> </ul>
<i>Internet</i>	
<ul style="list-style-type: none"> <li>- diversity of information sources</li> <li>- fast communication</li> <li>- real-time transmission of information / documents</li> <li>- enables allocation of time for other activities</li> </ul>	<ul style="list-style-type: none"> <li>- uncertainty in terms of information correctness</li> <li>- dependence on electricity</li> </ul>
<i>Intranet / Extranet</i>	
<ul style="list-style-type: none"> <li>- eliminating documents drafting on paper (economy)</li> <li>- solving problems in real time, quickly;</li> <li>- eliminating downtime with travels</li> </ul>	<ul style="list-style-type: none"> <li>- insecurity regarding access of others to information</li> <li>- dependence on electricity</li> <li>- maintenance costs</li> </ul>

If, through the previous variables we sought to identify the reality within the companies surveyed, by formulating the operational variable v30, we sought to know the general opinion of respondents on the usefulness of information technologies for the processing and analysis of accounting information in the company's management. The answers are presented in table 8.

**Table 8. General opinion on the utility of information technologies used in accounting for the company's management**

	Scale	Frequency	Percentage	Valid percentage
Valid	to a very little extent	4	1,33	1,33
301	to a small extent	12	3,99	3,99
	neither to a small, nor a large extent	31	10,30	10,30
	to a large extent	88	29,24	29,24
	to a great extent	166	55,15	55,15
	Total	301	100,00	100,00
Score	4,33			

The analysis of data collected in order to know the general opinion on the usefulness of information technologies, whatever the type used, the motives,

opportunities and limitations envisaged, shows that most respondents (55.15%) believe they prove their usefulness to the company's management to a great extent and 29.24% believe that the benefits are felt greatly. We notice the extremely low percentage of those who do not perceive the utility of accounting technologies for the management (1.33% - a very small extent, 3.99% - to a small extent). The conclusions drawn from the data obtained through v30 and v31 lead to the confirmation of the hypothesis launched prior to the research *IP<sub>2</sub> - Most respondents believe that information technologies are very much useful for management for the exploitation and utility of accounting information, the main opportunity being rapidity and the main limitation being costs.*

In conclusion, the current economy must be based on new technologies and the work of professional accountants will mean continued development of skills. An efficient accounting information system can only be one that recognizes the importance of new information technologies. Management must be willing to pay more to get what it wants when it wants, than to be in the position to get something with a delay that can cost a lot more.

#### **4. FINAL CONCLUSIONS**

Today, businesses are increasingly carried out by using new technologies of information and communication. Software, internet, intranet, extranet, EDI or ERP systems are some of the most used information technologies with broad applicability in accounting. The selective research carried out in this direction targeted a primary objective and four operational variables. Regarding the use of information technologies for the processing and analysis of accounting information, the conclusion is that the companies surveyed use them. From the diversity of information technologies, all respondents state they use software and the Internet is the most used. The most important reasons that determine the use of technology in accounting arise from the rapid transfer of documents, ease and rapidity for collection, processing, query, selection, use, transfer, storage, development of mandatory reporting, reducing human errors, storing and archiving large volumes of information. An important contribution to the research we consider it to be identifying respondents' own views on the opportunities and limitations generated for each type of technology mentioned. It was also shown that the risk of failures cannot be eliminated completely but, by implementing new information technologies, it will be reduced.

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