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FROM A FINANCIAL REPORTING PERSPECTIVE*

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Considerations on Modelling an Information System from a Financial Reporting Perspective

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Abstract

Due to pressure manifested towards reducing costs, rapid changes in business models, legislation or capital markets requirements many organizations have considered the need for a "reshuffle" of the financial reporting information systems. Analyzing the information provided by the international financial and accounting consulting companies, it results that the financial reporting and control of costs are highlighted as key elements of the economic and financial performance; so upgrading systems that provide elements for underlying the decisions in this sphere of activity is a condition for the sustainable business development. The concerns of the specialists are directed towards standardizing and automating business processes in order to reduce information's complexity and increase transparency on how to obtain the output of an organization. The geographical dispersion of a multinational company's units can generate difficulties arising from differences between the internal accounting practices and the ones used outside the company's country. Harmonization of financial reporting procedures, using modern technologies can be useful in this case.

È a causa della pressione originata dalla riduzione dei costi, dai rapidi cambiamenti nei modelli di business, dalla legislazione o dai requisiti dei mercati dei capitali che molte organizzazioni hanno considerato la necessità di una "ristrutturazione" di sistemi di informazioni di rendicontazione finanziaria. Analizzando le informazioni fornite dalle società internazionali di consulenza finanziaria e contabile, risulta che l'informativa finanziaria e il controllo dei costi devono essere considerato come elementi chiave della performance economica e finanziaria; quindi l'aggiornamento di sistemi che forniscono gli elementi di base per le decisioni in questo ambito di attività è una condizione per lo sviluppo di un business sostenibile. Gli sforzi degli specialisti sono diretti verso la standardizzazione e l'automazione dei processi aziendali al fine di ridurre la complessità delle informazioni e aumentare la trasparenza su come l'organizzazione ottenga il proprio output. La distribuzione geografica delle unità di una multinazionale può generare difficoltà derivanti dalle differenze tra le pratiche di contabilità interna e quelle usate al di fuori del paese in cui ha sede la società. In questo caso, può essere utile un'armonizzazione delle procedure di rendicontazione finanziarie, utilizzando moderne tecnologie.

Keywords: modern computerized technologies, information systems, system modernization, financial reporting.

1 – Introduction

The evolution of information and communication technologies has led to a large offer of financial reporting decision support systems emerging into the market. We believe that an application, which is

properly integrated within the information system of an organization, taking into account the criteria related to data redundancy control and the consistency of calculation procedures as well as the interpretation of the economic and financial indicators is a good tool for optimizing the decision-making reporting processes and at the same time it is a competitive advantage.

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Starting from this study hypothesis another research objective was outlined: developing and proposing a general architecture for the decision support systems in the financial reporting. Of the many types of decision support systems revealed by studying the specialized literature and the best practices in the field, we just mention the one that was proposed for the financial reporting and the diagnosis based on the reported information.

2 – Information systems modelling

In order to provide updated and good quality reports in practice one can see a connection of the reporting subsystems to the management, control and planning ones, which gives clarity and transparency to the decision-making processes. The optimization of the information systems accomplished in terms of financial reporting could cover four categories of functions:

- Automating operational activities and preparing associated data to be reported;
- Properly developing the reports (group ones, annual, functional on the value chain);
- Securing data access and data transfers between the subsystems involved in the reporting process;
- Providing a diagnosis with or without proposing solutions for the analyzed situations, developing financial predictions based on analyzing past and present situations.

Any financial information included in XBRL [Extensible Business Reporting Language] taxonomies can be processed by the recognition, selection, analysis, storage, sharing with other computers, presenting it in various ways to users.

The current use, on a global scale, of the XBRL language is owed to data management facilities in different languages, in accordance with the requirements of financial reporting standards in force in a given geographical area. To convert data into XBRL format there are suitable mapping tools or specialized software applications.

XBRL uses two standard information categories:

- Definitions of what may be reported, integrated in the so-called taxonomies; they allow mixing concepts used by the different reporting companies and ensure compliance of statements with standards and legal regulations adopted by companies; a taxonomy specifically created to meet the needs of data collection and internal reporting specific to an organization or an area is Global Ledger (GLTaxonomy);
- Actual reports referred to as document courts, which consent the factual reported situation.

Creating taxonomy adds semantic value to the XBRL language considered to be a language which is

independent to the software and hardware platform, used internet reporting (Stoica, 2004: 31). A double perspective analysis – of the XBRL application reports producer and of their beneficiary - in the case of geographical distribution companies, it revealed several aspects.

First, for the producer, the classification and storage of specific XBRL documents would require a solution for capturing data from the company's information systems and converting them into XBRL format or transferring them into specific structures for internal reporting. Securing external communication via the Internet is the second objective which the reports producer would be advisable to consider. At the reception, the beneficiary would need to dispose of the specific functionalities for reading the used taxonomies, for managing the XBRL repository, for converting the XBRL financial reports in various other timely formats, for financially and technically validating the received data as well as for analysing the data published in the reports (Florescu et al, 2009:935-939).

A second function of a computer system optimized in terms of financial reporting – automating the operational data and preparing the associated data for reporting – it implies adapting the formats of operational data collection and processing to the XBRL standards.

The third function, on data security, is of interest because it raises the question of migration between applications as well as that of publishing the reports on the internet.

Last up, the analysis and diagnosis function, can be achieved by using appropriate ICT tools. For the use of information resulted from financial statements prepared in compliance with international standards, ICT tools can be diversified: from operational databases to data warehouses and banks connected to the XBRL application - all of them can be sources for simple or complex analyzes, achieved with modern ICT technologies. In the consulting practice, experts have noticed that in the decision-making processes on choosing informational solutions for business financial management, often, administrations competent within the ICT benefits, opt for ERP systems [Enterprise Resource Planning] (Patel, 2010).

Regarding electronic information management systems for financial reporting and specific techniques, we have in mind projecting a general architecture for a diagnostic system based on financial reports published by a company quoted on the financial market. The system was designed be used by the respective companies, in order to support the decision making activity.

As a first step, we identified the main operations that the target system may carry out:

- a) Collecting the financial reports of the analyzed company, possibly from program components

using XBRL; organizing information for further efficient processing, if XBRL or other standards are not being used;

b) Acquiring information on policy, strategy, vision and values of the company, given the fact that the financial reporting is usually aligned with the reporting company's strategic objectives;

c) Procuring additional information coming from the company's financial and accounting management, for advanced analysis;

d) Developing a diagnosis and determining the possible correlations between performance indicators as well as prospect financial and accounting audit trails;

e) Consulting security protocols for access rights to information, managed by the company;

f) Transferring the results provided by the system to the beneficiaries;

g) Storing them for possible reuse, possibly in structures of organizational memory information systems (SIMO).

Examining each operational step, several information subsystems necessary in diagnostic mechanism, may be detached.

The first subsystem may be one that uses XBRL or similar techniques. Its inputs consist of data provided by information subsystems such as the financial, accounting and operational ones.

The undertaken processes would cover the construction of taxonomies relevant for organizations they would supply requested and received operational data, and finally, develop the subsystem's outputs - the company's financial reports.

Tracking the evolution and timeliness of the set strategic objectives, the company's values and overall vision sends us to consulting a policy and strategy information subsystem (SIPS).

We mention that storing that kind of knowledge could be subject to a SIMO - specialized component.

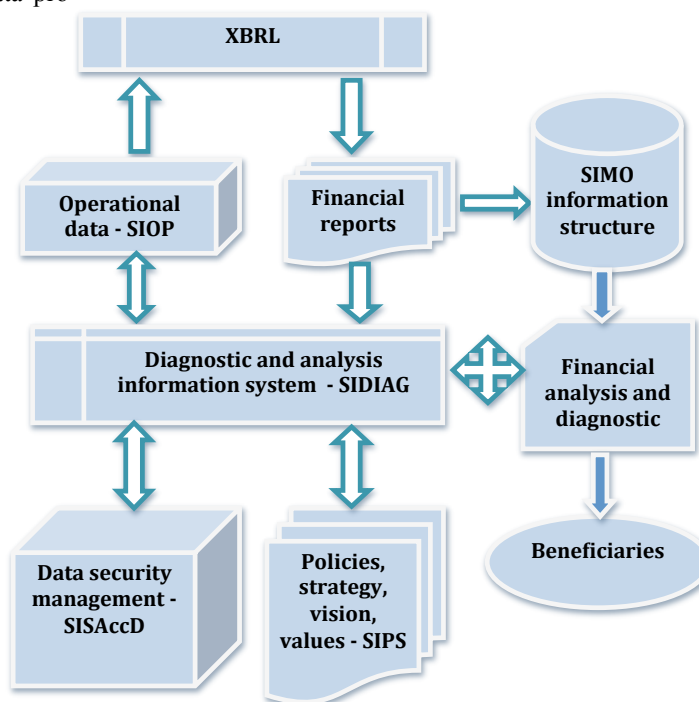
The SIPS entries represent available information both on the strategic and tactical management of an organization regarding the objectives, financial and economic policies developed and adopted by the management, and in general, drawn from corporate culture. The data needed for characterizing the financial position and developing advanced situations and analysis on the organization's current activity can be purchased from the for financial and accounting operational management information subsystems (SIOP). The inputs of these systems are data

from documents related to ordinary activities and the outputs - any document or statement required by the regulations in force, as well as by the company's management. Inputs from the subsystems described above, as well as from other internal or external sources are directed towards the diagnostic and analysis information system (SIDIAG) – the fourth determined systemic component.

In addition to the financial reports, to determine a complete and accurate diagnosis, this subsystem will require operational data (various categories of costs), strategy, policy, vision and value elements, the organization is aligned to and information on user's access rights. The supplied outputs are diagnostic situations, analyzes, forecasts, budgets, reports - all of them serving for documentation and support of the top strategic decision making processes. The SIDIAG results will be provided to users in accordance with the results of consulting the data security policy and data access management information subsystems (SISAccD).

According to these findings the general architecture of data flow - user and generator systems could be as shown in Fig. 1.

Fig. 1 – The general architecture of information flows and subsystems applied in financial analysis and diagnosis



3 – Conclusions and proposals

The ideas emerging in the previous lines lead to the modelling of a technical architecture of the decision support and financial diagnosis information system,

SIDIAG, where the data warehouse occupies the central position.

Financial statements can be uniformly developed by companies interested in internet visibility, using information systems compatible with XBRL, a topical product, with taxonomies available for countries in different regions of the globe. Romania (by CEC-CAR, for example) could create an XBRL specific taxonomy, tailored for the international financial reporting standards as well as for the national legislation.

The benefits of implementing decision making support systems in financial reporting are important including for the work of the specialists and managers in the field. According to the information available on the XBRL dedicated website, an accountant professional, a specialist in financial reporting or a financial auditor, receives enhanced skills from the use of XBRL in companies, regarding: getting faster reliable data on company performance, simplifying and automating daily tasks, reducing efforts and costs of collecting and analysing accounting financial data, contributing to a more efficient use of software applications and redirecting the attention towards the work of analyzing and creating value for the company.

Starting from O'Leary's idea, the support systems in the decision making activity could help reduce information asymmetry within an organization by collecting assessments from the experts that exploit them. Recent studies show the concern for developing organizational memory information systems, to allow capitalizing the expert provided knowledge by a larger number of employees, in possible future similar

situations (Anica et al., 2010: 472-489).

In the category of this information we can also place the one resulting from the use of some expert financial diagnostic subsystems, based on financial reports. Following a pragmatic research trail, the studies could continue towards identifying the ICT tools, finding some models of combining them and capitalizing the financial reports by integrated systems assisting decision makers in organizations (Munteanu, 2010).

References

Stoica, M. (2004), "Business Reports Based on XBRL", *Revista informatica economică*, no. 3 [31].

Florescu, V., Amza, Tudor, C.G. (2009), *The Normalization of Financial Data Exchange over the Internet: Adopting International Standard XBRL*, *Annals of Faculty of Economics*, Vol. 4, issue 1 [935-939].

Patel, Z. (2010), *The matterss Question. Tehno-gy's Impact on Financial Reporting*, www.eisneramper.com.

Anica, P., Vrîncianu, L., Amza, C. (2010), *Enhancing Business Process Management by Using Organizational Memory and Capitalization of the Cognitive Acquis, Transformations in Business & Economics*, No. 9/1 [472-489].

Munteanu V. (2011), *Improving the accounting - financial informational system with a view to managerial decision making in the context of economic crisis*, *Crises After the Crisis. Inquiries from a National, European and Global Perspective* (IECS 2011), Sibiu, website: <http://iecs.ulbsibiu.ro/>