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INCREASING THE PERFORMANCE OF DEDICATED BUSINESS SYSTEMS THROUGH THE CUSTOMIZED DESIGN OF THE MAIN MODULES IN THE APPLICATIONS

Dănuț-Octavian SIMION, PhD Associate Professor

Athenaeum University, Bucharest, Romania

danut_so@yahoo.com

Abstract: *The paper presents the increase of performance in dedicated business systems through the customized design of the main modules in the applications. Executive IT systems are managerial IT systems built on the informational needs of strategic management. Managers obtain the information they need from many sources, including letters, memos, journals and reports made by hand or through computer systems, from meetings, telephone conversations and social activities. The main purpose of executive IT systems is to provide the decision-makers who ensure the strategic management of the organization quick and easy access to information about critical factors in the fulfillment of strategic objectives. Such systems involve the use of graphical representations and quick access to database content to provide information on the current state and projected trends of strategic components in the organization. A business computer system can be any entity in real life, for which a set of components is identified (phenomena, objects, processes, notions, concepts, entities or collectivities) located both in mutual relations, as well as with the environment and acting jointly for achieving well-established objectives - we can easily establish that any organization economy can be considered an open, adaptable system operating in an environment of business. An economic organization must use customized business IT systems for different application modules that must manage inputs and outputs, but be interconnected at the same time with the business environment external to the organization.*

Keywords: *business systems, environment of business, executive computer systems, data for system modules, data usage, customized design of economic applications*

JEL Classification: C23, C26, C38, C55, C81, C87

1. Introduction

Achieving good economic efficiency by enterprises depends on the existence of a scientific management based on a good knowledge of economic laws, operative and accurate knowledge of demand and supply on the internal and external market, of the dynamics the prices of the goods, the technological trends as well as the way of use resources at their disposal. Starting from the fact that, on the one hand, mathematical models represent the scientific component of an information system, and on the other hand, taking into account the facilities offered by the use of information and communication technology as a component of the computer system, the latter is a real tool in scientific management of economic activity.

Here are some of the arguments brought forward in favor of the management of organizations economic using IT systems:

- SI offers the possibility of simulating economic processes and phenomena both at the microeconomic and macroeconomic levels. Mathematical models can be developed and implemented regarding the economic development forecast, different plan variants can be developed and then the optimal variant can be chosen.

- at the microeconomic level, with the help of IS, the available resources are harmoniously correlated with the proposed objectives like planning overhauls and capital repairs, ordering scheduling and tracking production, inventory management.

- by means of SI, it is possible to implement the principle of selection and information by exception. By applying this principle, decision-makers are relieved of a series of data that are often „suffocating” and cannot be used properly. Ex: In supply we have a nomenclator of raw materials and materials with 15,000 positions – the idea is to highlight only the products that deviate from the normal state (stocks outside the lower and upper alarm limits) to avoid breaking stock or fixed assets of current means (supernormative stocks).

The higher the management level, the smaller the set of necessary indicators, and the more complex the indicators. According to the principle of selection and information by exception, only those indicators that are necessary and sufficient for each decision-making level should be selected (Bernhardt, Liu, and Serfes, 2007; Otter, 2022).

- SI ensures the implementation of a multitude of mathematical models and as a result of this aspect will increase the economic efficiency at the level of the reference unit. Ex: In the field of foreign trade, models can be implemented regarding the prospecting of the foreign market, the correlation

of the export load with the domestic manufacturing production, the calculation of the economic efficiency on each commercial transaction, the choice of the optimal offer.

- by implementing IS, the anachronism regarding the use of labor is removed. Ex: approx. 70-80% of the time of the technical-functional staff is used for routine activities (observation, recording, centralization of data on processes and economic phenomena), leaving too little time for control, analysis, forecasting and ordering (decision) activities. Thanks to the use of IS, decision makers will have more time to analyze data and make appropriate decisions.

2. Preparing economic data for customized applications modules that are used in transactions

At the micro and macroeconomic level, the design of information systems must take into account the use of databases, mathematical models, obtaining final situations with the character of preventive signaling of deviations from the normal state, all of which represent a scientific form of management. This concept changes the entire information system, transforming it from a passive tool for ascertaining, recording and analyzing some economic phenomena and processes that have already happened, into an active tool for forecasting, commanding and controlling them.

By implementing some mathematical models and using the calculation technique in the specific activities, the information system prints increased valences to the information system under a quantitative and qualitative aspect. It is about increasing the computing capacity in terms of the volume of data processed and the operations performed, increasing the accuracy of information, increasing the operability, complexity and completeness of reporting-information situations, etc. All this determines a closer proximity of the decision-maker to the economic phenomena and processes that he has in mind, with the multitude of positive economic aspects that derive from this (Hidalgo, 2023; (Bürgi, 2023).

Regarding the relationship between the computer system and the information system, it can be appreciated that the computer system tends to equalize the dimensions of the information system, but it does not have the same scope as the latter, because within the information system there may be activities that cannot be fully automated.

The computer systems are included in the information systems, and they are intended to serve the management of the economic unit, so it can

be appreciated that the main objective of the IS coincides with the general objective of the basic economic activities.

The main objective pursued through the introduction of an IS is the selective and timely provision of all management levels with necessary and real information for the substantiation and operative elaboration of decisions regarding the most efficient performance of all activities in the economic unit.

The main objective therefore refers to the entire activity in the economic unit. In order to get to know the activity more closely, and to carry it out in the best conditions, other secondary objectives can be defined, which are called "conditions" for achieving the main objective. Between the main objective and the secondary objectives there must be a compatibility, in the sense that the achievement of the secondary objectives must lead to the achievement of the main objective.

Classification of the objectives from the point of view of the fields of activity on which the economic effects are reflected

- General objectives - are the objectives that affect the basic activity within the economic unit (supply, production, sales).

Example of objective: Increasing the degree of loading of the production capacity. It is achieved by implementing mathematical models, planning, programming, ordering, launching and tracking production. OR through the implementation of advanced models and techniques for planning overhauls and capital repairs of machinery (Bernhardt, Liu, and Serfes, 2007; Kolari, Huang, Liu, and Liao, 2024).

Example of objective: Increasing labor productivity. It is achieved through the rational use of the labor force (the operative monitoring of personnel activity is carried out on the computer).

Example of objective: Optimum use of transport capacity (for fleets). It is achieved by implementing mathematical models that optimize transport routes, correlating the volume of goods to be transported with the capacity of the means of transport.

Example of objectives: Reduction of the number of administrative staff. Increasing the profit and profitability of the economic unit (Otter 2022; Sánchez-García et al., 2024).

- Specific objectives - are the objectives that affect the functioning of the information system.

Example of objectives: Increasing the response speed to beneficiary requests. Increasing accuracy and precision in the process of processing data and informing management. Ensuring the completeness of information necessary

for management. Ensuring the appropriateness of information necessary for management. Simplification and rationalization of information flows.

The economic effects of achieving the objectives related to the operation of the information system are difficult to quantify, but can be estimated. In the end, they will positively influence the development of the basic activity. In conclusion, the economic effects of IT implementation are direct and indirect (Burgi 2023; Otter 2022).

Classification of objectives from the point of view of the possibilities of quantifying their effects (objectives)

- Quantifiable objectives (quantitative): increase in production volume, decrease in transport costs, decrease in specific consumption of raw materials and materials

- Non-quantifiable objectives (of a qualitative order): increasing the prestige of the economic unit - it is achieved, for example, by increasing the quality of production (or services), decreasing the refusals of the beneficiary (the number of complaints).

At the level of an economic unit, a lot of objectives can appear, but since the resources to achieve them are limited, it is necessary to know and prioritize them according to the management's requirements. By presenting the objectives in front of the management and then among the employees, there is the possibility of getting to know them, of better understanding the requirements that impose the achievement of the objectives, and as a result, a closer and wider acceptance of all the factors that can compete in the implementation of the systems will be acquired informatics.

3. Customization of data used in IT systems

IT systems for company functions

It is important for a manager to understand that IS directly supports functions operational and managerial aspects of the organization in accounting, finance, human resources, marketing and operational management. For example, marketing managers need information about volume and sales trends, provided by marketing IS (Applications: Sales management, Market research and forecasts, Promotion and advertising, Automation of the activity of sales, Interactive Marketing, Customer Relationship Management – Customer Relationship Management = CRM, Production Management. Economic directors need information about financial costs and benefits, provided by financial IS (Applications: Preparation of the income budget and expenses

= BVC, Financial planning, Cash management, Investment management). Managers responsible for production need information to analyze resource needs and labor productivity, provided by manufacturing information systems (Bernhardt, Liu, and Serfes, 2007; Hidalgo, 2023).

HR managers need information about entitlements employee salaries and professional development, provided by information systems of human resources and the applications are: Personnel record, Payroll, Improvement of personnel qualification. In conclusion, information systems for enterprise functions provide managers with a variety of information for substantiating decisions in the functional areas of business.

Operational computer systems

Operational computer systems processes data generated and used in business operations. Depending on the role they have, there are several categories: processing systems of transactions - records and processes data resulting from transactions, updates databases of data and produce a variety of documents and reports; process control systems that provide operational decisions that control physical processes; automated systems of services - those that support communications (Hidalgo, 2023; Otter, 2022).

Computer systems have always been necessary for the processing of data generated and used in business operations. Operational ISs produce a variety of information, but they (the knowledge) do not highlight which information products are most appropriate for managers. For this reason, further processing via computer systems is necessary.

Transaction processing systems

Operational informational systems include most transaction processing systems, which have evolved from manual information systems to mechanical data processing systems and then to systems of electronic data processing. Transaction processing systems record and processes data resulting from transactions such as sales, purchases and changes of inventory. They can process data created by modifying items in a database file of data (for example the name and address changes of a customer), generating a variety of informational products for internal or external use (for example invoices for customer, paychecks, sales receipts, purchase orders, dividend payments, payments of taxes and financial invoices) and highlighting the databases used by an organization for further processing, through managerial information systems (Bernhardt, Liu, and Serfes, 2007; (Bürge, 2023).

Process control systems

Operational informational systems generate information to support routine decisions, which control scheduled operational processes. Decision rules outline the actions to be taken when a computer system is faced with a multitude of events. There is a category of computer systems called process control systems, in which decisions to adjust the production process are made automatically by computers. Oil refineries and automated enterprise assembly lines use such systems, which monitor a physical process, acquire and process sensor data, and make real-time process adjustments (Bürigi, 2023; Kolari, Huang, Liu, and Liao, 2024).

Automated service systems

One of the roles of operational information systems is the development of traditional office automation methods and paper-based communications. Automated service systems acquire, process, store and transmit data and information in a form specific to electronic communications. Automated systems are based on word processing, telecommunications and other information systems technologies. Examples of typical office automation applications include word processors, electronic mail, publishing, teleconferencing, and image document processing.

For custom IT systems, the encapsulation and reuse of objects can be described in the following example:

```
package ejb.customer_bank_account;

import javax.ejb.CreateException;
import javax.ejb.EntityBean;
import javax.ejb.EntityContext;
import javax.ejb.RemoveException;

public abstract class CustomerBankAccountBean implements
EntityBean {
    private EntityContext theContext;

    public CustomerBankAccountBean() {
    }

    // creation method of a home interface

    public String ejbCreate(String contNr,
String accountDescription,
float initialBalance)
throws CreateException
{
    setAccountNumber(accountNr);
}
```

```
setAccountDescription(accountDescription);
setAccountBalance(initialBalance);
return null;
}

public void ejbPostCreate(String accountNr,
String AccountDescription,
float initialBalance)
throws CreateException
{
}

//abstract getter/setter metode

public abstract String getAccountNumber();
public abstract void setAccountNumber(String cnr);

public abstract String getAccountDescription();
public abstract void setAccountDescription(String cnr);
public abstract float getAccountBalance();
public abstract void setAccountBalance(float acb);
//the metodele remote interface

public String getCntNumber() {
return getAccountNumber();
}

public String getCntDescriere() {
return getAccountDescription();
}
public float getBalance() {
return getAccountBalance();
}
public void increaseBalance(float sum1) {
float acb = getContBalance();
nr1 += sum1;
setAccountBalance(nr1);
}
public void decreaseBalance(float sum1) {
float nr1 = getAccountBalance();
nr1 -= sum1;
setAccountBalance(nr1);
}

//the methods javax.ejb.EntityBean interface

public void setEntityContext(EntityContext ctx) {
theContext = ctx;
}

public void unsetEntityContext() {
theContext = null;
}
```

```
}  
public void ejbRemove()  
throws RemoveException  
{  
}  
public void ejbActivate() {  
}  
public void ejbPassivate() {  
}  
public void ejbLoad() {  
}  
public void ejbStore() {  
}  
}
```

A primary key that refers to multiple fields of the entity bean class is usually represented by a specially developed class for this purpose. Such a class must be a public class and must have a public constructor with no arguments. The fields of the primary key class that represent the primary key of the entity bean must address those of the entity bean class by name (Hidalgo, 2023; Sánchez-García et al., 2024).

4. Conclusions

A business company must maintain appropriate relations with other economic, political and social systems in its environment. The group of systems includes several factors such as customers, suppliers, competitors, shareholders, trade unions, financial institutions, government agencies and communities, each with its own objectives relative to the organization in question. Information systems are those that facilitate the interaction between the organization seen as a system and each of the listed factors. On the other hand, taking into account the definition of an information system characterized by the existence of at least two subsystems between which there is self-regulation through reverse connection and analyzing this for the economic information system we can find that it has a cybernetic character. (Bernhardt, Liu, and Serfes, 2007; Otter, 2022). A company involved in the business environment needs customized IT systems that allow the flexible use of data and are much more flexible to the changes that are currently occurring in the company's external environment.

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