THE IMPORTANCE OF DATABASES IN ECONOMY
- SOME GENERAL COORDINATES -

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Abstract
The purpose of this article is to provide an easier and clearer view on the economic impact of secure, reliable and scalable IT applications in economic activities. Databases have emerged as a human need to store and manage a growing volume of data and contain centralized data, correlated in a logical way. Due to changes in the economy and technological progress, databases have become an indispensable asset in any entity, from SMEs and corporations to public institutions.

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1. Introduction

In a modern society, the development of database systems is one of the most important aspects of information technology, having a decisive impact on the organization and functioning of the activity. From communications, commerce, banking, transport and insurance companies to universities, all types of entities are dependent on the correct and uninterrupted operation of database systems.

A database is defined (Trandafir, Nistorescu and Mierluș-Mazilu, 2007) as a group of related data organized in such a way as to allow relatively easy access to the information. The stored data represents a subject or object in the real world and will be handled through certain specific instruments, thus making operations of addition, alteration or deletion. Data stored in the database represent the values that the user actually entered through the Structured Query Language (SQL) or assisted by a graphic interface. They are static, which means that remain unchanged until a manual or automatic change

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occurs. In order to be converted into information with a certain sense, data needs processing to provide utility for the one who uses it. Depending on how it is updated database, the information obtained after processing can be called dynamic information with an unlimited number of processing and processing ways (Embley, 1998).

SQL (Structured Query Language) represents the standardized language that is specific for a database administration, while being the most popular language used for data manipulation by the relational Database Management Systems (DBMS). SQL allows the use of instruction in a few words because it is designed to provide an easy way to write and read a database. Also, SQL represents a non-procedural and declarative language, where the user describes the data that wants to obtain without imposing the modalities by which to reach those data. Being a multitude oriented language it cannot be included in the category of system or programming language. In brief, SQL is useful for creating and querying a relational database.

The main distinguishing characteristics of SQL from other languages are: through it are performed operations on data sets, not on individual data; it provides automatic access to data and it is based on details of implementation allowing a programming at logic level. Globally, the performance of application is considerably amplified by using a database that has the capacity to manage a very large volume of information and distribute it to last users in a timely manner.

2. The security and integrity of stored data

For organizations it is very important to realize the risks associated with the use of technology and the management of information. It is necessary to address this issue through awareness of the importance of information security, understanding the typology of risks and vulnerabilities specific to computerized environments and applying control practices. Such a situation requires the implementation of specific measures, which should ensure the protection of information against unauthorized loss, damage or disclosure. The most sensitive aspect is to ensure the security of information managed by computer systems in the new technological framework.

The data security means the denial of access to data for unauthorized users, to ensure the integrity, confidentiality and availability of information. The technologies on information security have a great impact on how economic entities manage their businesses aiming strategic objectives. The security

represents the main reason of concern in the development of any database because, unlike programs that are installed on a single host machine, the databases are shared to several participants in the company's activity.

Information is an essential element for a proper functioning of the company and its ability to store and process certain information can be a major advantage over competitors. It has to be said that the information is useful only as long as it provides relevance, remaining unaltered. The impact of sabotage operations on the database can be devastating for any organization. Thus, the information must be adequately protected to ensure continuity, decreasing the potential damage and maximizing business opportunities and benefits for that company.

The security of a database (Mihai, 2007) involves creation of user accounts and assigning certain access rights to these users. Each user can be granted rights to ask the database, to modify certain information or to delete them, all these operations being made individually. In other words, access to the database will be made using the username and password assigned to each participant. However, access may be restricted to specific data structures (Andress, 2002) such as tables or fields of tables, or for modifying and creating certain procedures.

The integrity of a database refers to the accuracy of the information that we can find in it and requires both detection and correction of errors that may affect existing data. However, integrity involves preventing future errors reported and corrected. Thus, the database integrity implies setting rules that restrict the valid values on a table column. Integrity constraints are for the work with tables, views and tables synonyms. For example, if a DML (Data Manipulation Language) statement tries to perform a forbidden action by a integrity restriction, it will generate an error transaction and will be rolled back.

3. The economic impact

In the last years, the development of databases has been representing one of the most important aspect of information technology with significant impact on different entities organization and functioning. These entities are dependent on the correct and uninterrupted operation of the database management system. Thus, the management of databases is an essential part of everyday life in modern society.

Lungu, Velicanu and Botha (2009) think that using databases reach a database from various applications, and also some of related concepts, have become accessible to all categories of IT users.

Daily, most people perform activities that involve interaction with a particular database according to their specific needs. Such activities can include: management of company`s employees; online purchase of products or services; deposit of money in the bank account; booking of air tickets; search for a book in a digital library etc.

A database utilization involves sharing data and applications and presents numerous advantages compared to traditional centralized systems. Kifer, Bernstein and Lewis (2005) consider that one advantage of using a database within an economic entity is that it reduces and even eliminates the redundancy by integrating files, in this way no copies of the same data being stored. However, in some cases, in order to improve the performances, there is provided a deliberate duplication of certain data items. Also, by eliminating the redundancy, the risk of incoherent data is significantly diminished, so we find another advantage - the consistency of stored data. By using a database, data security is also ensured against unauthorized access. Without these security measures, the integration of files makes them more vulnerable than in the file-based systems. At the same time, within a database is provided both data management and control, which can be used by multiple users at the same time and they may have different requirements that may be incompatible.

Databases, as a way of organizing data in external memory, evolve into files through a process of integration, taking into account the requirements of software applications that serve the organization. This process is determined by the following aspects:
- easy and quickly access to data;
- increasing the complexity of stored data;
- storing a large amount of data;
- improving the equipment for collection, storing, transmission and processing of input data.

In terms of economies of scale, by combining all of the operational data within an economic entity into a single database and by providing a set of functional applications for this newly created single data source will result important cost reduction.

Operational data are data from databases, distinct from input, output or other data. Generally, each department has a budget for the development

and maintenance of a system based on its files. However, by using a database, the budget of all departments is designed to develop the database, which could lead to a decrease in the overall level of spending, resulting scale economy.

The data storage is one of the most important process taking place in an economic entity. The volume of data processed and the complexity of domain modeled determine the use of databases by most applications. Thus, for large databases, which store huge volumes of information, it is created the concept of data warehouse. As stated by Inmon (2002) -considered the "father" of the data warehouse concept, "a data warehouse is a collection of data oriented by topics, integrated, historical and nonvolatile designed to support managerial decision making".

Data warehouses and databases are containing large amounts of structured data, which is generally based on relational technology and can be accessed quickly using access structures. However, data warehouses and databases are different from many points of view, both not being designed from the same objectives.

The database management systems are designed for the data management, which is known as OLTP (On-Line Transcription Processing) systems. They incorporate operations that are performed daily in an organization, such as paying bills, purchasing, accounting operations, issuing vouchers etc. The data warehouses are known as OLAP (On-Line Analytical Processing) and the aim is to organize and coordinate information from different sources, gathering and synthesizing data, integrating and storing them to give users a proper image. Practically, data warehouses are serving users and on the other hands, specialists in data analysis and decision makers, being more complex and varied than database management systems. The way in which a data warehouse works in a company is presented in Fig. 1.

Figure 1: Operation of a data warehouse
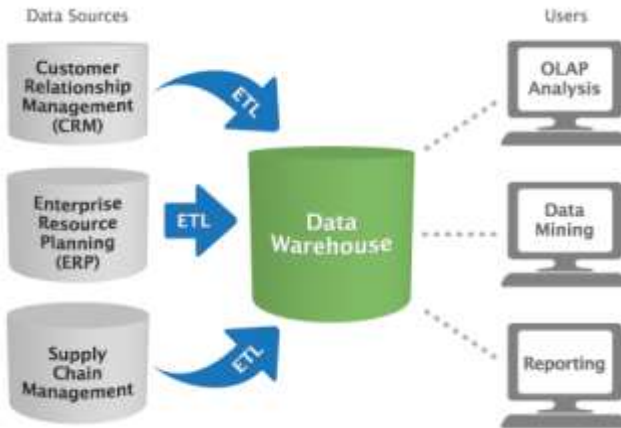
The implementation of such a data warehouse application within an organization become a necessity. A data warehouse can be implemented through specific programs, which provides an integrated data management and analysis and brings qualitative elements in any type of organization. Among the qualitative elements which will be felt at the entity level, we can mention the following:

- sharing data will be generated across multiple platforms, applications and devices to facilitate the linking of internal and external systems;
- achieving cost control without diminished performance, scalability, availability and security of applications;
- occurring the development, implementation and administration of the applications at the entity in a most secure, reliable and scalable mode;
- maximizing the productivity by reducing information technology complexity.

More than that, Bicevskaa and Oditisa (2017) discuss the possibilities to create data warehouse solutions by using NoSQL database management systems.

4. Conclusions

We can say that the use of modern technologies and simple and adaptable programming languages can increase the productivity of any application in the information technology area, enhancing its benefits. Also, any economic entity can increase its performance by using a database capable of storing a large volume of information.

Thus, information from the data processing are handled to achieve the objectives of the company. Taking into account that the economic activity is in a continuous diversification and development, there are new requirements for the adaptation of an organization both to its endogenous environment and to the exogenous environment in which it operates. The dynamic of information technology outlines the progress and necessity of using databases, especially in the economic field.

An information system is useful only if it has the ability to safely change the information within the company, ensuring that the processes run in a timely manner within it, which can be achieved by implementing a database data.

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