

## **ELECTRONIC COMMERCE PORTAL**

**Prof. Georgeta Șoavă Ph. D**  
**University of Craiova**  
**Faculty of Economics and Business Administration**  
**Craiova, Romania**

**Abstract:** : Today companies are faced with the need to exploit technology changing computer environments, in order to improve customer satisfaction and reduce costs. A successful approach to electronic portals is an effective demonstration of the new ways of relating to the client. The objectives that we have considered for the realization of e-commerce portal can be summarized as follows: structured communication, effective collaboration, complete and closed circuit of orders and deliveries, inventory optimization and planning, effective management of customers and suppliers. Electronic Commerce Portal proposed to be implemented, will allow the introduction of a high level of management and control of online sales, providing cost savings, production planning and most importantly, a perfect operation of the informational circuit. Distributed computer system as a result is fully integrated and flexible to support the company's main trading activities.

**JEL classification: M15, M21**

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### **1. INTRODUCTION**

Today companies are faced with the need to exploit technology changing computer environments, in order to improve customer satisfaction and reduce costs. A successful approach to electronic portals is an effective demonstration of the new ways of relating to the client. Thus, we conducted this work, showing the first Service Oriented Architecture, which I used in creating a portal for electronic commerce as then to highlight the main features which arose logically from the objectives set. We completed the work showing some of the advantages of implementing an Electronic Commerce Portal applications.

From a business perspective, e-business offers companies a way, to develop business in an environment of technology where users demands meet applications developed for the Internet collaboration. Thus, by using e-Business (the efficient use of new information technologies in business, by developing an alternative channel sales, with relatively low costs) is made an individualized approach to client relationships and the use of IT manages to establish relationships with incomparably greater number of customers compared to traditional approaches.

### **2. USING SOA ARCHITECTURE FOR DESIGNING THE EPORTAL APPLICATION**

In the climate of the information society, given the technological infrastructure is improving continuously, the ability to specialize and to reconfigure functionality

across a distributed and heterogeneous field of computing resources is one of the basic problems which is solved together with the ability to package the functionality so that it can be used by other applications. In addition the business will benefit from a consistency of rules, a faster implementation, a rapid response on the market and a management of change.

Companies can achieve their needs using new technologies based and developed on the experience from existing architectures, and those who develop e-business technologies must be based on a very good architecture, in the sense of a good definition of it. The attributes of these technologies that offer flexibility, short response and efficiency in demand by organizations that implement them are: **integration, virtualization, automation and open standardization (allowed)**.

In most cases, e-business applications are based on Web services. Any application that uses Web technologies, including Web browsers, Web servers and Internet protocols, is a Web application.

Web applications are of two types:

- presentation-oriented applications - when, in response to customer demand, dynamic Web pages are generated containing various markup languages (HTML, XML) and programming languages used for this purpose (JavaScript, Java, etc.);
- SOA service-oriented applications - to implement a service.

**Service Oriented Architecture - SOA** (Service Oriented Architecture), which I used in creating a portal can use Web services as a set of flexible and interoperable standards, and involves four key elements of e-business:

1. **Open Standards** - SOA provides a standard method that invoke Web services (at logical and functional level) for distant organizations which share borders in the network. These services use open standards to get connected through the network and the Internet:
  - messaging protocols (SOAP);
  - transport protocols (including HTTP, HTTPS, JMS);
  - security that can be achieved by transport level (HTTPS) and / or level protocols (WS-Security);
  - "**standard segments**" that can be included WS-I, W3C and OASIS that use technology developed by large corporations like IBM, BEA, Oracle, Microsoft, etc.. to accelerate and guide these standards creation and adoption.
2. **Integration** - Interfaces are provided to "pack" these services and provide an independent system architecture, but SOA can provide dynamic search and negotiation services, which means that integration of services comes to meet the demand.
3. **Virtualization** - the main key of SOA is that the requested services must be accompanied by service implementation, including location, platform, sometimes even the identity of the services' provider.
4. **Automation** – The applying of the SOA principles on the implementation of services infrastructure will provide increased automation.

Considerations behind the choice to approach the architecture design of the ePortal application were as follows:

- ❖ **Economic level services** - services are published to a level of abstraction that corresponds to real-world business and economic recognizable functions.

Opportunity arises to implement comprehensive alignment and integration of the service lifecycle with the economic product and / or life cycle process;

- ❖ **Collaboration based on service** - although domestic services are widely used for integration purposes, the technical orientation change quickly enough. Services will increase economic activity in the real world reflection, so data will be obtained in real time, and combinations of services from collaborating organizations will cooperate to provide value added services. Even if there are differences in infrastructure covering issues such as security, between the services provided internally and externally, they will have one service model that allows operations of business processes both domestic and foreign of the company. Although services can be simple, they can be aggregated from different sources, again reflecting the economic activities that occur in the real world, this is one of the strengths of interaction between service requirements and the modeling of dependencies;
- ❖ **Separation of interface from implementation.** SOA's basic doctrine is that the interface is integrated, as opposed to the application, in a way that the user has no visibility of implementation, called "interface design based on", well-known technique in component-based development. However, it appears more like a technical perspective, the services being offered at an economic level of abstraction, which makes the interface to be an economic interface what generally means, a contact that is expressed in XML;
- ❖ **Integration based on contract** - the importance of SOA contract is very big. Formal contract is the mechanism that allows the creation of virtual business processes, formalization system and field borders, minimize dependencies and maximize adaptability, use of testing, there is a simple choice of service switching. In fact there is a pretty good perspective as design by contract to be carried out in UML and a more vague perspective to formalize contract elements in BPEL;
- ❖ **Separation between provider and consumer** - SOA should be designed with a simplicity perspective related to management - which includes risk management of the supplier. If the enterprise is dependent on a few key suppliers for services, this represents a potential risk, which will be reflected in the major requirements in the design phase (specified services to be as general as possible), which conflicts with the performance objectives .

A proper specialization of the patterns depended on several factors such as:

- **Application requirements.** For example, it makes sense that the company's to use a model of application with three or more levels for transaction processing systems. To simplify the decision support applications the business logic can be placed in the database with data. System design process must discover whether the same rules can apply to both systems;

- **Technology services available in the workplace.** For example, before deciding to have logic implemented in the workstations or to distribute processing between interconnected servers via the Internet will check whether Internet communication between the participating servers is reliable and use secure protocols.

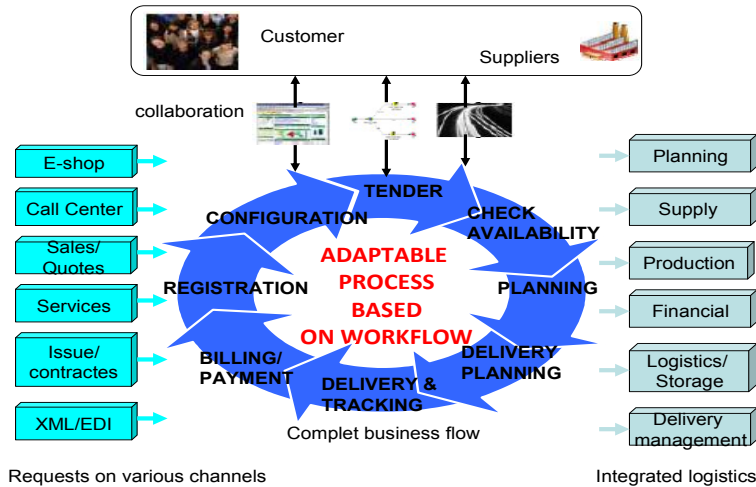
### 3. EPORTAL APPLICATION OBJECTIVES

Need for ePortal application in terms of business development is required by the following economic aspects:

- costs reduction, for both the entity and its business partners;
- reducing the time of sale and buying and thus improve planning;
- standardization of the processes and enterprise-wide scalability expansion;
- to obtain competitive advantage in the market.

In developing the e-commerce portal ePortal we have considered the following objectives (Figure 1):

- ◆ **structured communication, efficient collaboration;**
- ◆ **complete and closed circuit of orders and deliveries;**
- ◆ **planning and inventory optimization;**
- ◆ **efficient management of customers and suppliers.**



**Fig.1. Business optimization flow**

Business optimization flow is achieved by:

- Real time data processing;
- tracking contract terms and payments;
- friendly interface that requires no specialized training;
- Automatic identification of exceptions;
- Increase data accuracy
- proactive and effective communication with business partners;
- increase efficiency orders / deliveries;
- lower accounting costs;
- eliminating intermediate storage of products and reduce telephone costs;
- collaborative planning;
- automatically update inventory and automatic volume control needed to be bought;
- electronic payments, electronic bidding prices.

Due to increasingly complex problems that managers have to solve in the current period, in an environment, internal and external, more complex, it is necessary that the management of resources at their disposal to be made in a coordinated system extended to all levels of a company. In order to act effectively in exercising leadership's main functions planning, organization, coordination and control, current manager needs

information, and these- to be useful - must be of good quality and available in time (sometimes immediately).

In this context we have considered the solution of implementing an open architecture- application oriented to on-line services (Figure 2) that will extend business process automation to the entire internal value chain of business partners: suppliers, producers and customers . Thus, full integration of processes and value chain visibility will trigger differentiation through quality of services (Figure 3).

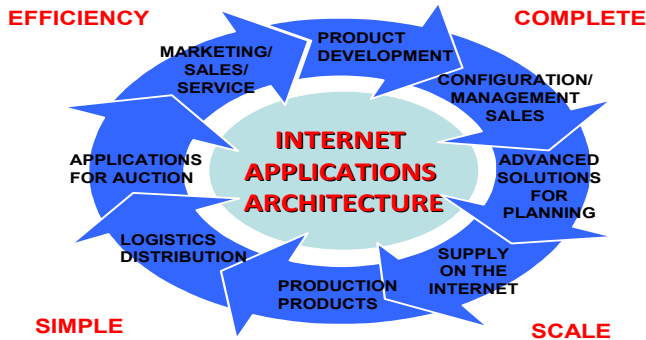


Fig.2. Implementing a solution that enables online trading

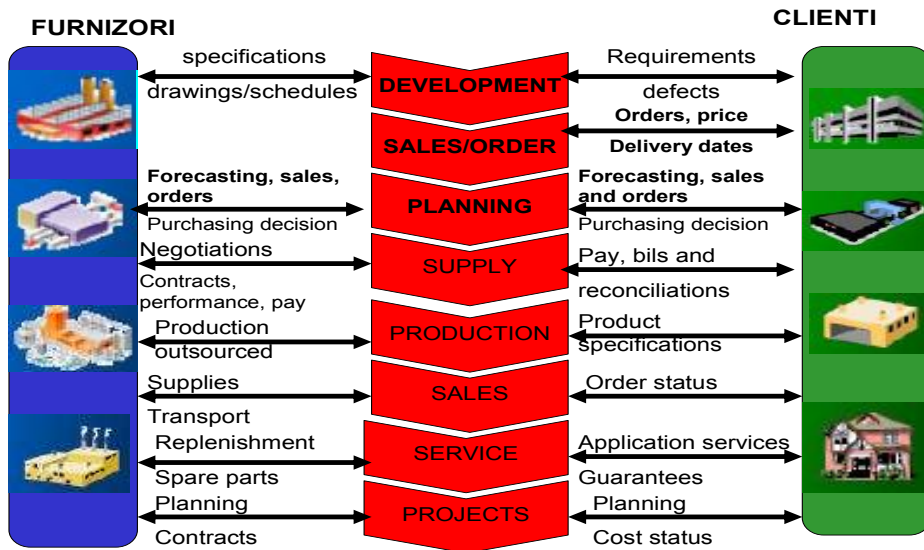


Fig.3. Extending process automation to the entire value chain

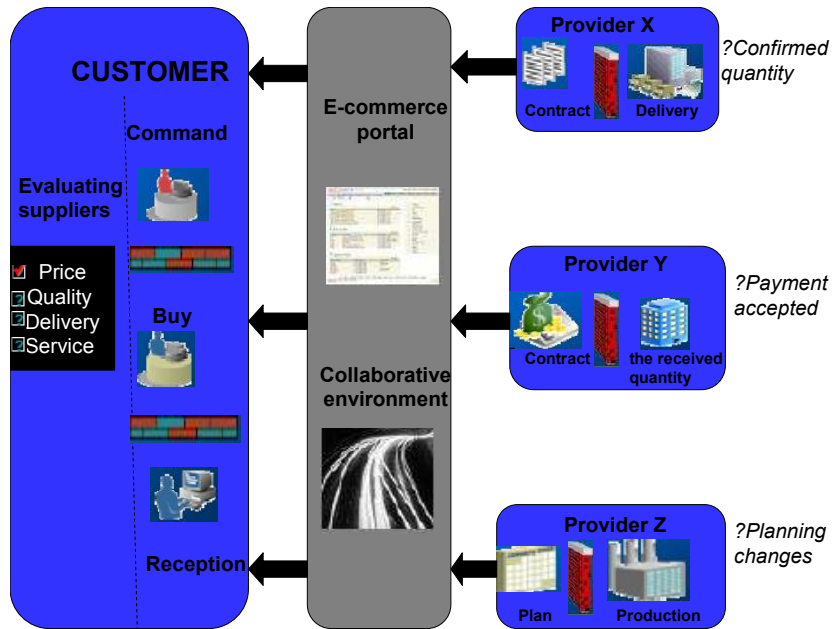
#### 4. FUNCTIONAL STRUCTURE OF THE EPORTAL APPLICATION

E-commerce portal is a collaborative application that allows a client company and its partners to communicate via the Internet. This allows them to have real time information such as orders placed in the system and delivery schedule, to meet the client company demands providing order confirmations, delivery notifications, requests

for modification or planning details. On the other hand, the application allows the company that makes the acquisitions, to seek information about orders, shipments, receipts, invoices and other payment information on all suppliers and sub-units and its business to respond to requests for changes issued.

The portal interface is intuitive, to facilitate communication with business partners, the main objective pursued being the selling on both domestic and foreign markets and create an alternative channel for sale on the Internet, compared to traditional sales channels. Thus, it contains visual elements in English to facilitate communication with foreign partners, but in addition this application has the option for English, which can be selected to register as external user of the portal.

Thus, business partners can remove geographical boundaries between the places of their work by using this flexible solution, fully integrated, at significantly reduced costs compared to traditional operation, to improve their own business and services, and to increase market competitiveness using the most advanced work technologies (Figure 4).



**Fig. 4. Electronic Commerce Portal - operational performance solution**

EPortal application requires that each sale/purchase is made starting from a command that can be launched in the system based on a contract or directly, depending on conventions established prior between buyer and seller. The order establishes specific purchase conditions (quantities, firm prices, delivery, payment terms, quality, etc.) and follows a stream of approval.

The next step is the quantity, quality and storage reception. Starting from the supplier, once received, raw materials and other materials inventory management enters at the recipient.

Adopting this solution replaces a process often performed manually, which starts from the reception and not from the order, being dictated by legislative requirements of accounting. From the information collected from the studies, I noticed

that general reception is initially on paper (NIR) and then is introduced into the system, and the supply management process (request for proposals, quotations, etc.) is carried out manually, without being supported by an integrated system of customers and suppliers management.

We recommend extending the system by managing the supply applications in the system (requisitions) and supplier orders (purchase orders). Orders must reflect exactly the conditions of the contract - quantity, firm price, delivery terms, payment terms, etc. and must be controlled by an approval cycle. It can also be made a supply budgetary control, in order to control purchases by budgets.

The reception should be made directly in the system - by linking with the approved order - under which purchase was made. Also, for certain products a quality reception is required. Storage must be made directly from the reception to avoid operating errors, also the price of storage should be correlated with the order or invoice price (if it exists at the time of storage). In addition, the integration of the orders system with a marketing system in mandatory (requests for proposals, quotations, etc..).

The invoice shall reflect the amounts received, as well as the prices and conditions of the contract. For this reason, an essential operation is the pairing of invoices with receipts and orders. Next, paying the bills is treated in the financial module. The aim was to correlate the financial system (billing and payment) to the trading system (control - reception). Each invoice must be correlated with demand (quantity, time, price, etc..) and with reception (quantity, time). Also the possible differences in price between the invoice and order need to be solved. It is necessary, in addition, the implementation of the hierarchy system for approval.

## 5. CONCLUSIONS - ADVANTAGES OF ELECTRONIC COMMERCE PORTAL APPLICATION IMPLEMENTATION

Benefits of implementing an IT solutions such as Electronic Commerce Portal application are given by several specific advantages:

- ❖ **Exchange of information** - the massive increase in the amount of information and the need to exchange information quickly between different points in distant geographical locations require connections between autonomous computers;
- ❖ **Share of resources** - the cost of increasing the capacity of a distributed system is much smaller than for the resources connected to a single server-computer which at some point will become obsolete, and in terms of investment, most organizations prefer to buy more computers around reasonable cost and power than to buy one, much stronger, but more expensive;
- ❖ **Increased security in operation** - if a computer system consists of a single computer, its malfunction makes it impossible to use the whole system, whereas in a distributed system the failure of a node does not disturb the operation of the other, but in most cases they take the tasks of the unavailable;
- ❖ **Improved performance** - the presence of multiple processors in a distributed system makes it possible to reduce time to achieve a massive calculation, this is possible by dividing tasks among different processors, subsequent collection of partial results and determine the final outcome, this process is known as parallelization of the calculation;

❖ **Nodes specialization** - designing an autonomous computer system with more functionality, can be very difficult and from practical reasons, so this design was simplified by dividing the system into modules, each module implements some of the functionality and communicates with other modules, revealing two aspects: the first concerns the fact that hardware and computing machines are seen as many autonomous entities and the second point concerns the software and refers to the fact that users need to perceive all programs as a single system.

To these is added the solving of the requirements imposed by the Information Society premises, which change rapidly:

Complex representation of reality (company, customers, products, services etc.).

Information managed within a system tends to increase in complexity, and must be manipulated into a form easily perceived by the final user;

IT systems must be made flexible in relation to changing data structures and must evolve naturally over time, following the evolution of the organism that it serves;

IT systems evolve to broad areas of application approaches to meet the growing needs of users.

Electronic Commerce Portal proposed to be implemented, will allow the introduction of a high level of management and control of online sales, providing cost savings, production planning and most importantly, a perfect operation of the circuit information. The resulted distributed computer system is fully integrated and flexible and it supports the company's main trading activities.

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