

# BUSINESS OPTIMIZATION THROUGH A PORT E-COMMERCE

Georgeta Șoavă<sup>1</sup>, Mircea Alexandru Răduțeanu<sup>2</sup>

<sup>1</sup>Faculty of Economics and Business Administration, University of Craiova, Romania

<sup>2</sup>Faculty of Economics and Business Administration, University of Craiova, Romania

## Abstract:

Today's 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 new ways of relating to the client. Thus, we conducted this work, first trying to emphasize the need to develop appropriate software for e-business, creating a portal for electronic commerce and finally to introduce it, and that to highlight the main features that arose logically from the objectives set. We completed work showing some of the advantages of implementing Electronic Commerce Portal applications.

**Keywords:** e-commerce, e-business, e-Portal

## 1 Introduction

From a business perspective, e-business offers companies a way, to grow their businesses in an environment where technology meets user demand collaboration applications developed for the Internet. Thus, by using e-Business (the effective use of new information technologies in business, by developing an alternative sales channel with relatively low costs) is made an individualized approach to client relationships and manages IT using establishing relationships with incomparably greater number of clients, from traditional approaches.

## 2 Need to develop e-business software

The climate information society, in terms of the technological infrastructure is continually improving, the ability to specialize and to reconfigure the functionality is distributed over a field and heterogeneous computing resources is one of the basic problems is solved with the ability to package the functionality so that it can be used by other applications. Additional business will benefit from consistency rules, the more speed the implementation of a rapid response marketing and change management.

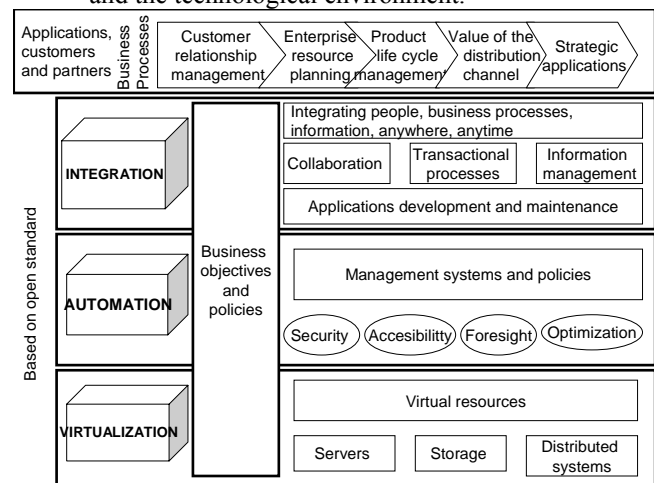
These needs - specialization and reuse of software functionality - have led to new models of software structure. An application is a set of services required to solve an economic problem. Whenever two applications need the same service, they will use a common service, that same piece of software that implements the designated

service. Logical analysis and design process involves the discovery service (and use of its character) needed to solve a specific business problems. The physical aspect of the process is to decide which services will be developed based on new components (ideally less) and that service will be handled by existing components in use (ideally more).

Component-based software development refers to techniques and tools that allow software from prefabricated components. These applications are, in a sense, the next generation of client-server applications and the tendency to reduce end-user involvement in the control flow processing, computing power is distributed between client and server.

These types of technologies have a number of features, of which the most important can be summarized as follows:

- are directed toward the goal - enable the company to focus on a target, based on their skills - which makes them successful and to be unique;
- provide prompt responses - have the ability to provide prompt responses to customers or market opportunities or other elements in the external environment;
- have the advantage of flexibility - at the operational and business processes;
- robust - offering the ability to respond to any changes at the level of decision making in business and the technological environment.



**Fig.1. The key components of e-business application**

Companies can achieve and needs using new technologies developed on the experience taken from

existing architectures, and those who develop e-business technologies must be based on good architecture, meaning a good definition of it. Attributes of these technologies that offer flexibility, rapid response and efficiency in demand by organizations that implement them are: integration, virtualization, automation and standardization open (permissive) [1].

### 3. Presentation application ePortal

#### 3.1. Application objectives

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

- ❖ reduce costs for both the entity and its business partners;
- ❖ reduce the time of sale and thus improve planning;
- ❖ standardization processes and expand enterprise-wide scalability;
- ❖ to obtain competitive advantage in the market.

In developing e-commerce portal ePortal we considered the following objectives[2] (Figure 2):

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

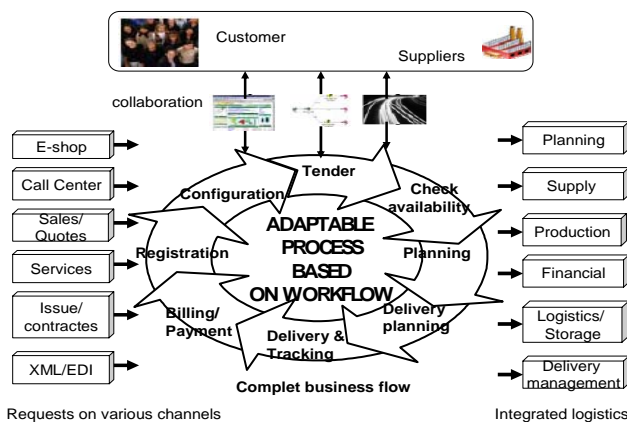


Fig.2. Business optimization

Business optimization is achieved by:

- real time processing;
- monitoring the contractual and payment;
- friendly interface, which one requires specialized training;
- automatic identification of exceptions;
- increase data accuracy;
- proactive and effective communication with business partners;
- increase efficiency orders / deliveries;
- lower accounting costs;
- eliminate the storage of products and reduce telephone costs;
- collaborative planning;
- automatically update inventory and automatic volume control needed to buy;

- make electronic payments, electronic bidding prices.

Due to more complicated problems that managers have to solve in the current period, in an environment, internal and external, more complex, it is necessary that management have to be made available in a coordinated system extended to all levels of companies. In order to act effectively in pursuit of the main functions of management planning, organization, coordination and control, current manager needs information, which - to be useful - must be of good quality and available in time (sometimes instantly).

In this context we have considered implementing a solution with open architecture-oriented applications available on-line services (Figure 3) that will extend business process automation to the entire internal value chain of business partners: suppliers, producers and customers.

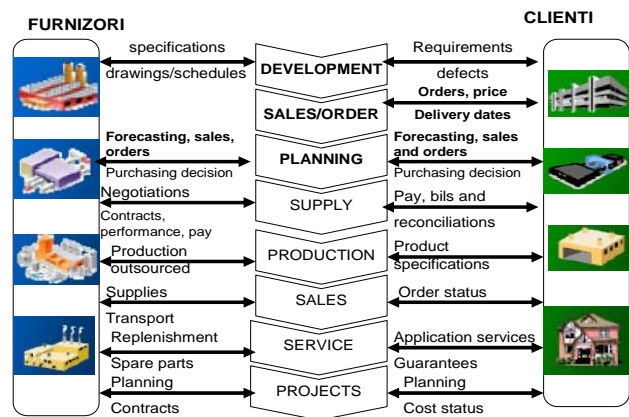


Fig.3. Implementing a solution that enables online trading

Thus, full integration of processes and value chain visibility will attract the quality of service differentiation (Figure 4).

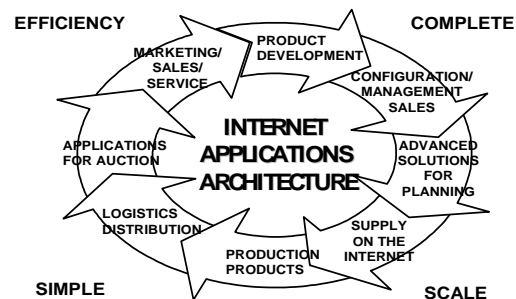


Fig.4. Extending process automation to the entire value chain

#### 3.2 Optimization of planning by using the portal

Planning, one of the most important benefits of such a solution approach to integrate business processes aims to decrease inventory costs and commitments to the client,

referring particularly to: forecast accuracy, inventory levels, planning cycles the accuracy commitments, value chain visibility.

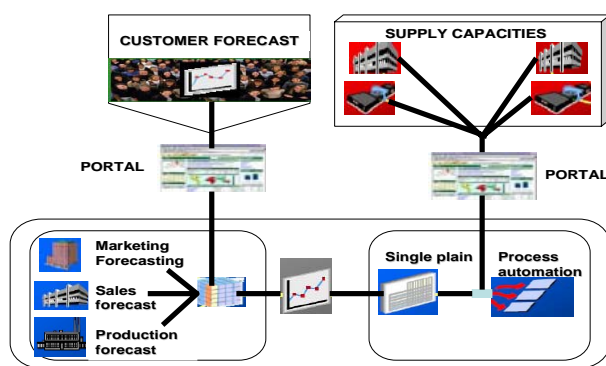
Planning reflects the major issues of planning and budgeting processes, made mainly as training activities of a financial year. The example application created, we considered the following planning cycle: it generally starts with sales planning, based on their defining the production plan, resource plan, and plan and then supply the income and expenses. Plans may be updated during the year to highlight the modifications to the strategy or tactical approach to organization and changes dictated by market developments.

To obtain information flow is necessary to obtain historical information from sales, supply, capacity, production, and external information - kind of market trends, raw material etc. Making plans and budgets is through successive refinements, simulations, scenarios "what happens if" etc. In terms of system for this type of applications suitable type systems Data Warehouse and Decision Support - the multidimensional technology.

Objectives of planning activity within the application ePortal reflected the following benefits:

- lead to a correct forecast demand through collaborative planning;
- reduces inventory by optimizing inventory deliveries increasing accuracy;
- reduce planning cycles with full optimization and planning;
- increased accuracy commitments to customers by including information from production, transport and capabilities of suppliers;
- identify and resolve exceptions occurred at all levels through integrated management company.

Systemic approach to the solution components and advanced planning are identified in Figure 5, may be observed that this solution will:



**Fig.5. Advanced planning solution between business partners**

- simultaneous material and capacity planning;
- commitment to Partners (available / able);
- advanced simulation capabilities;
- materials and capacity planning in real time;
- allocation of purchase orders based on historical data, the delivery plans of providers, provider-

specific command modifiers cycle times and providing specific article.

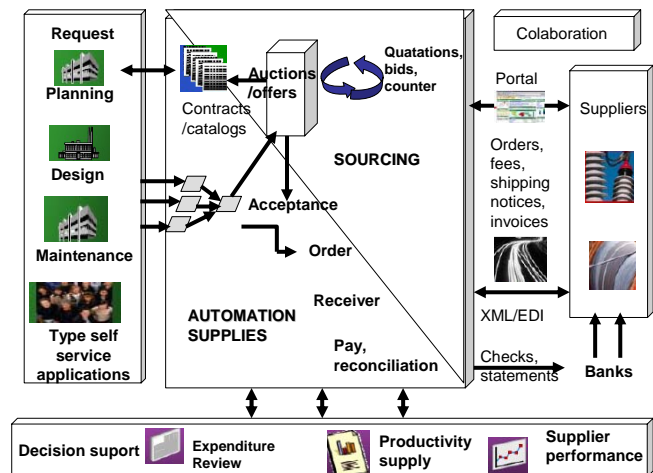
Planning sales next period, the application ePortal is based on sales in previous years, current contracts, market developments, new products, new markets, new technologies etc. Sales can be broken down by product, geography, distribution channels, sales channels, sales agents, etc. Objective achieved by planning sales, aimed to implement a multidimensional technology planning subsystem, with scenario simulation capability. Such a system can be extended with a foresight (forecasting) and control account (online sales), which in turn can be integrated with the order (order entry).

We considered also the possibility of providing direct information to a marketing system that uses information to optimize sales training sales campaigns.

Materials supply planning and materials allow the following functionality:

- scoreboard scheduler use to determine resources overused and tracking that can create any production interruptions;
- re-planning orders, change quantities or to remove places narrow limits;
- re-planning components and load resources in real time.

The system must receive data from the production system (for other raw materials) of planning production, existing stocks - by split materials in systems maintenance and repair management (for materials, spare parts), the planning of repairs and statistics unplanned repairs and investment system (investment material) of investment planning, investment budgets etc. The system will automatically generate purchase requests (requisitions) when it comes to a planned period (Figure 6).



**Fig.6. Automate business processes of the beneficiary**

Of particular importance we attached to the supply cycle where contracting, delivery, transportation, receipt, unloading and storage takes place long intervals, there are risks of exceeding the standard limits set.

Strategic products (raw materials) are defined framework agreements between business partners,

including delivery terms, terms, quality, etc., negotiated terms being found in the purchase orders. This process includes the marketing supply (requests for proposals, bids, offers analysis, supplier analysis, preferred suppliers, catalogs, prices, etc.).

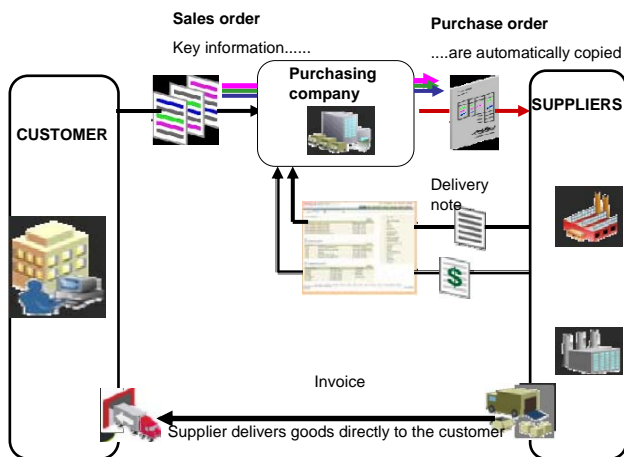
Objective achieved for planning to manage the supply and suppliers, was to implement a contract management subsystem (frame, dates, amounts, payment methods, etc.). Given the particular enterprise customer, such a system aims to optimize the short-term planning work related to production planning and supply of sales will ultimately lead to improved regularity of production, minimize inventory of raw materials / finished products and thus optimize financial exposure.

In this context, supply optimization aims to:

- ❖ reduce overall cost of procurement;
- ❖ suppliers sorting strategy;
- ❖ full automation;
- ❖ collaboration with suppliers;
- ❖ performance indicators (level of expenditure/supplier).

As can be seen from Figure 7, in terms of customer ePortal application involves:

- identifying the best deals through unified Internet search tools, support for complex negotiations;
- automation of the entire flow of purchases by processing all the necessary flows - payment;
- increase efficiency by working with suppliers through the portal access real-time messages in XML format;
- identify opportunities to reduce costs through integrated analysis of costs and performance of suppliers.



**Fig.7. Simplify logistics by eliminating the storage**

Furthermore the correlation of supply processes of dissolution will lead to substantial improvements in performance and profitability of enterprises, as seen in the examples shown below the business value chain is improved due to automated data management.

Optimizing sales and delivery activities aims to improve services, delivery speed, and lower costs through the following facilities:

- demand multi-channel;
- configurable products;
- collaboration;
- dynamic business practices;
- integrated logistics processes.

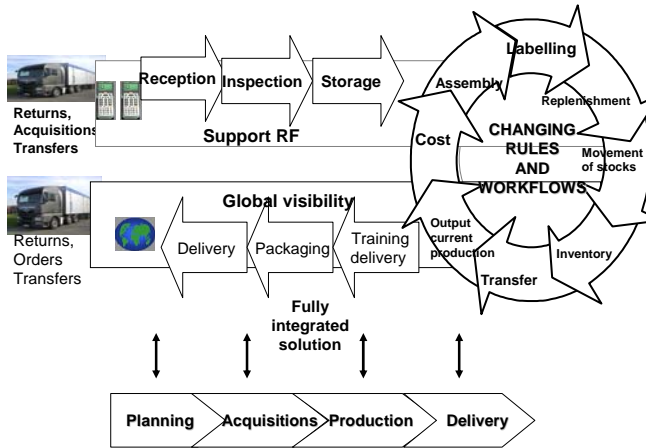
Management solution chosen sales and deliveries in the application has the following features:

- Supports flow control completely from the collection by multi-channel operation, configuration, configurable price, extended delivery promises;
- Encourage collaboration through automated processing, various delivery options, self-service;
- Use dynamic business processes - workflow-based architecture, friendly user interface, control at the command line;
- Processes have provided integrated logistics warehouse management and transport. Activities in this area relates to sales, marketing and logistics. It is important that in the end all sales channels (sales contract with strategic customers, direct sales based on ad hoc orders, retail sales in your network) and customer to converge into a unified system of reporting. It is possible to track existing and potential customers, to make predictions (forecast-s) to be compared with budget plans and sales channels, agents, etc. products. Marketing plans are organized according to the company's strategy for expanding its product range, market. Are reports of all types - sales, products, geographies, channels, agents, and client - to compare the achieved / planned.

Objective we have considered on sales activity was the implementation of a subsystem customer groups, sales channels, agents, products to short-term sales forecast and sales plan update. Forecast had related to the plan and achievements and thus tracks the effectiveness of sales channels, agents, and update plans for sales, production, supply, resources and budgets. Also, in this situation and recommend implementing a marketing professional, who can do, besides launching a campaign, and campaign results management, resource management, customer campaigns etc. to be addressed. Is excluded and implementation in a given time horizon, a customer relations center on different channels (call / interaction center).

As can be seen from Figure 8 in terms of stock management, application ePortal provides the following features:

- complete integration;
- multiple implementations, warehouses, addresses;
- flexible structure code article;
- groups of products as user-defined criteria;
- follow-up version, batch, serial number;
- cost methods: standard weighted average periods weighted average, FIFO, LIFO;
- regular inventory and annual inventory;
- forecasts;
- planning and flexible supply of stock.



**Fig.8. Inventory management solution fully integrated**

## 4 Functional structure of the application ePortal

Electronic Commerce Portal is a collaborative application that allows client companies and 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 providing order confirmations, shipping notifications, requests for amendments or planning details. On the other hand, the application allows the company to make acquisitions, to seek information about orders, shipments, receipts, invoices and other payment information on all suppliers and sub-units of its business and to respond to requests for modification issued.

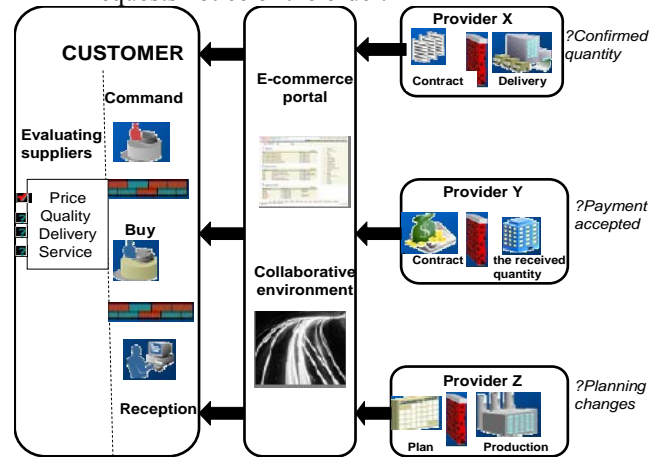
The interface is intuitive portal to facilitate communication with business partners, the principal objective is selling the markets both domestic and foreign markets and create an alternative channel to sell on the Internet, from traditional sales channels. Thus, it contains visual elements in English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

Thus, business partners can remove geographical barriers between the places of their work by using this flexible, fully integrated, significantly reduced cost compared to traditional operation to improve their own business and services, and default to increase market competitiveness by using the-art work (Figure 9).

EPortal application supports transactional documents and documents open read only (read-only):

- the transaction documents can be sent confirmation or request for change order or you can initiate transactions that advance notification of delivery, delivery notification or pre-payment of bills;
- read the documents you can view information about delivery schedules and forecasts of payment forecasts; Thus, a provider can access information about inventory, invoices and payments; it can send

confirmation of complex projects and change requests notice of the order.



**Fig.9. E-Commerce Portal - efficient operational solution**

For this, everyone must register first as a business partner, then as the user application to access the Internet. The procedure for authorizing access site begins with an invitation to visit the site, sent to the e-mail provided by pressing the button "Call" and the type of business relationship with your partner had, access is granted or not specific features of the application. Thus, domestic buyers and the company and the system administrator will have specific access rights to the application menu.

After receiving the address of visiting the site, which is the address link to the next step of the consent procedure, the user will access the recording, which will be entered particulars of the company for which he works. Access to Electronic Commerce Portal will be thus secured the ID and password in the login screen, then through the home page of the application where features are displayed according to the authorizations that the user has the system (eg access to the administration menu is further restricted). Index Browser is actually the main portal and search tool and information retrieval transactions.

At the top of the screen are tabs to access menus as follows: residence, Orders, Shipments, Planning, Finance, Product, Decision Support and Administration. On the right side of the screen is displaying a high level diagram of data flow within the portal, which can be accessed for quick reference to the desired page, link to it containing addresses key application functionality.

In the center of the home page of the application are displayed most recent five notices containing system messages pending to be revised, the latest five orders in the system can view details of which will address about the number of command and supply most recent five full list of which can access all of this page by clicking on the "list".

Some notifications are only for viewing, others require user intervention, but to see the details necessary to access your connection to the subject.

### ❖ Orders

Real-time data provided by Electronic Commerce Portal allows exchange of information on the sale of the

provider and the client company during flow tracking purchase orders: view sales orders and contractual arrangements; order confirmations; submitter change requests; tracking stocks to third parties; can share supplies in convenient quantities; cancel delivery orders; can view the revision history of the procurement documents and agreements established with the supplier; information and retrieve commands can be followed throughout the procurement process-payment; planning collaborator type.

❖ Deliveries

Electronic Commerce Portal lets you view deliveries on this basis can be created or canceled the notifications in advance of shipping the products. Furthermore you can view programming schedules deliveries can be sent receptions / payment receipts or notices on bills that have not been fully paid. Access Menu Deliveries will be made on the home page of the application by going to the Shipping tab of the main menu, submenu appeared we can: wanted delivery; hierarchical registration supplies (no transport, no. Lot, no. Recording); optimized charging by volume; check returns; view inspections; internal logistics.

If the purchasing company has implemented a quality assurance system and has established a plan for testing products from suppliers, test results will be included in e-Commerce Portal. They will be evaluated before the goods are delivered, so may be canceled deliveries of those products which do not prepare quality standards set.

❖ Planning

EPortal allows forecasting application development, using existing information in the database. This is based on consistent data that are maintained throughout the product development cycle, such as product number, or the registration of orders, etc. modifiers. In terms of inventory, the inventory management environment allows the seller collaborationist and maintaining custody of spare parts distributors or data products for sale: retrieve information on registered products; update command modifiers; updating capacity constraints; item tracking in custody; listing details of items to be contracted; listing of delivery forecasts; the vendor inventory management; reports tracking transactions; graphical statistical evaluation of certain values. Communication through e-Commerce Portal allows not only a modern and competitive way to manage a partnership relationship between the company and its business partners, on the operation (issuing documents, inventory on-line), negotiation and electronic payments, but and better plan activities based on existing resources, which are known as partners.

❖ Billing and payments

Invoices and payment information can be viewed by accessing the Financial tab, in the corresponding menu is available all necessary information about the status of your invoices and view real-time debt or payment (partial or full) done: online billing; management accounts; monitoring payment schedules; reconciliation of accounts.

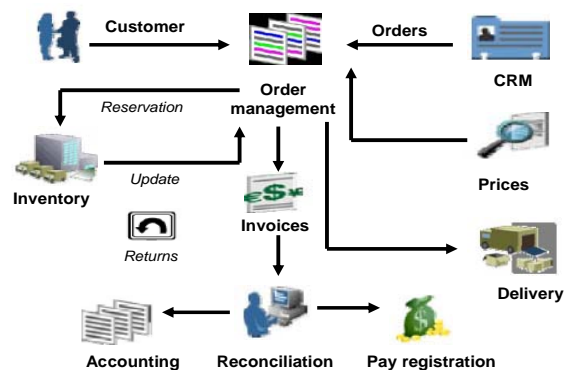
❖ Management partners

Management profiles partners involved in online transactions enables the key attributes of business relations, enabling them to provide the company with accurate and

timely purchasing. These include their address, major contacts, bank details, type of business and the work it carries information about the products they sell and the services they provide. Access the menu administration is through Admin's tab (Administration) only authorized and personalized update information is quickly realizing, be detailed: attract business partners; self check suppliers and users; setting security levels in the system; set of contact information: address, phone number, e-mail; setting category bullets d.p.d.v. business activity; identify services and products provided; definition of bank details.

❖ Tracking performance can: tracking performance indicators: price, quality, delivery services; comparing the results; forecasts.

Links between the main features of the application are illustrated in Figure 10 which shows that e-Commerce Portal nucleus consists of order management; data flow is explained in detail below.



**Fig.10. General diagram of the application ePortal**

EPortal application implies that the sale / purchase are made from a command that can be launched under a contract system or directly, depending on conventions established a priori between buyer and seller. Order establishes specific conditions of purchase (quantities, prices firm, delivery, payment terms, quality, etc.), and follows a stream of approval.

The next step is acceptance of quantity, quality, and storage.

Starting from the supplier, once received, materials and inventory management enters the recipient.

Adopting this solution replaces a process often conducted manually, which starts at the reception and not the order is dictated by legislative requirements of the accounting.

After the information gathered in studies we observed that generally is originally paper reception (NIR) and then is introduced into the system and supply management process (request for proposals, quotations, etc.) is conducted manually without the support an integrated management at customers and suppliers.

We recommend extending the system by managing the supply requests (requisitions) and provider orders (purchase orders). Orders should reflect exactly the

conditions of the contract - quantity, firm prices, delivery dates, terms and payment terms etc. mandatory and must be controlled through an approval cycle. You can also make and supply budget control, in order to control purchases by budgets.

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

The invoice must reflect the amounts received and prices and conditions defined in the contract. Therefore, an essential operation is the pairing bills and orders receptions. Further, payment of invoices is treated in the Financial module. The aim was to correlate the financial system (billing and payment) to the trading system (command - reception). Each invoice must be correlated with: (amounts, dates, prices, etc.) and reception (quantity, time). Also be addressed possible differences in price between the invoice and order. It is necessary, in addition, implementation of the hierarchy for approval.

## 5 Benefits of implementing e-Commerce Portal application

Benefits of implementing a software solution as the portal for e-Commerce are given some specific advantages:

- exchange of information - the massive increase in the amount of information and need to exchange information quickly between different points in geographically distant locations are necessary to connect between autonomous computers;
- share resources - the cost of increasing the capacity of a distributed system is much smaller than for resources connected to a single-server computer at a time will be exceeded, and in terms of investment, many organizations prefer to buy more computers around reasonable cost and power than to buy one, much stronger, but more expensive;
- increased safety in operation - if a computer system consists of a single computer malfunction made it impossible to use the whole system, whereas in a distributed system the failure of a node does not disrupt operation of the other, but in most cases they take tasks of the unavailable;
- increased safety in operation - if a computer system consists of a single computer malfunction made it impossible to use the whole system, whereas in a distributed system the failure of a node does not disrupt operation of the other, but in most cases they take tasks of the unavailable;
- performance improvements - the presence of multiple processors in a distributed system makes it possible to reduce computing time to achieve a

massive, this is possible by dividing tasks among different processors, subsequent collection of partial results and determine the final outcome, this process is known as name of parallelization of the calculation;

- specialization nodes - designing an autonomous computer system with more functionality can be very difficult for practical reasons, so this design was simplified by dividing the system into modules, each module implements some functionality and communicates with other modules, revealing two aspects: the first covers the hardware and computing machines that are seen as many autonomous entities and the second part concerns the software and means that users need to collect all programs as a single system.

## 6 Conclusions

The study which resulted in achieving portal may conclude that the use of leading commercial portals first solve the premises requirements of information society, the changing:

- ❖ complex representation of reality (company, customers, products, services, etc.);
- ❖ information managed in a system tends to increase in complexity and manipulation must be in a readily perceived by the end user;
- ❖ informatics systems must be flexible in relation to changing data structures and must evolve naturally over time, thus following the evolution of the organism it serves;
- ❖ IT systems evolve to broad areas of application approaches to meet the growing needs of users.

Proposed Electronic Commerce Portal allows the introduction of a high level of management and control of online sales, providing cost savings, production planning and most importantly, smooth operation of the circuit information. The computer system is so fully integrated resulting distributed and flexible to support the company's main trading activities.

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