A Systematic Review Study on the Enterprise Information Portals (EIPS)

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Abstract – As the use of Enterprise Information Portals (EIPs) continues to grow in contemporary businesses, the implementation and use of effective, reliable, safe and cost-effective Enterprise Information Portals modules among important departments will be essential for businesses striving to compete in the ever-evolving global economy. Enterprise Information Portals can be used as an instrument for communicating, sharing and exchanging wealthy data across broad networks that can span the globe. Enterprise Information Portals are currently used in company to help design, manufacture and manufacture procedures and are a main element of company tasks. This study reviews the Enterprise Information Portals (EIPs), definition of EIP, history for EIP, the differences between Websites and Portals, benefits of EIP, types of EIPs, EIP objective and design issues of EIPs.


I. INTRODUCTION

One of the most vibrant and continuously increasing economies is the worldwide e-commerce industry, that what the e-Marketer report [1] says. E-commerce (e-commerce) is a form of business transactions in which the parties interact electronically instead of physical exchange or direct physical contact, thereby transferring the right to own or use a product or service from one person to another [2]. To know the importance of e-commerce in the gross domestic products (GDP) of Ukraine, the world and Western Europe in nine years from 2009 to 2017 see figure 1 according to [3]. For example the amount of e-commerce (B2C) in Ukraine in 2014 amounted to approx. 1.6 Billion dollars [4]. Another example is to illustrate the importance of global e-commerce see figure 2.

According to the e-Marketer report [1], the global retail e-commerce reach 7.4%, 8.7%, 10.1%, and 11.6% of retail sales in general, in 2015, 2016, 2017 and 2018 respectively.

According to Daulatkar and Sangle (2016) there four categories of benefits got from using IT in the business which form IT business value (ITBV) as a measure to these benefits. The four categories as following: strategic, transformational, alliance, utility ITBV benefits [5].

Enterprise Information Portals are quickly becoming a significant part of the e-business infrastructure of today. Enterprise Information Portals connect users with everything and everyone they need to support their job role, and provide the tools required to work together. Enterprise Information Portals are applications that enable companies to provide access to internally and externally stored information. They offer users within and external to the enterprise, a single window to personalized information needed to make informed business decisions. They are uniting software applications that consolidate, manage, analyze distribute information across
An Enterprise Information Portal (EIP) is a browser-based system that provides access to the very important business information in the same method that content portals like Yahoo the gateway to content on the Web. Enterprise information portals are applications that enable companies to access to internally and externally stored information, and provide external users to access information needed to make informed business decisions.

Developing an enterprise portal is a complex, cross-functional activity that brings together people, data, and applications from many parts of a company. The goal of an enterprise portal is to connect a company to its many constituents - employees, customers, partners, and suppliers - by bringing the right information to the right user, at the right time. According to a recent Business Week article, “It’s now apparent the Internet is connecting people and businesses more tightly than ever”.

This paper is organized as follows: the Introduction (Section 1), which is followed by the definition of enterprise information portal (Section 2). The history for enterprise information portal (Section 3). We discussed the differences between websites and portals (Section 4). The benefits of enterprise information portals (Section 5). Types of enterprise information portals (Section 6). We discussed the objective of using enterprise information portals (Section 7). Next section provide a further discussion on the design issues of enterprise information portals (Section 8). The conclusion (Section 9).

II. DEFINITION OF ENTERPRISE INFORMATION PORTAL

A Web-based enterprise portal is a user-centric framework which enables efficient and effective information management by an organization. A portal provides an infrastructure for tightly integrated and fully functional components. Portals apply Internet technology and a standard Web browser interface, to allow users from across and outside the enterprise access to information. The portal framework allows legacy systems to integrate with “best of breed” applications to meet the specific needs of all the stakeholders in an organization.

“Enterprise Information Portals are applications that enable companies to unlock internally and externally stored information, and provide users a single gateway to personalized information needed to make informed business decisions.” [6].

A portal is a single, personalized interface that integrates people, processes, applications and information. Personalized portals can help customers, employees, agents, seller and partners to increase easy access to information. Portals can also help employees to increase access to data to performing their particular jobs, thereby helping to improve overall products, increase customer satisfaction, enhance business and maintain a competitive edge you can put into portals all relevant documents such as Information assemblies (data bases), archives, actual information and messages, discussions, yellow pages, link lists, relevant e-mails, calendars.

Several other definitions have also been used for defining enterprise information portal see [7]-[8]-[9]-[10]; as shown in table 1.

III. HISTORY FOR ENTERPRISE INFORMATION PORTAL

The portal in the beginning came to exist to help of the users to find information on the World Wide Web. While more and more information became available on the World Wide Web, it became very difficult to find
useful information without knowing first where to look. The early Web portal consisted mainly of simple search engines. These tools returned a list of Web sites containing of the key words and/or the phrases personalized by the user. Shortly after that the creation of web enable search engines, it became obvious that the users needed than one an unsorted list of thousands of Web sites containing the key words indicated. This led to the development of the Web portal. The early portal was primarily Web search engines containing the various categories which could be searched and explored independent of the reset of the Web, many search engines have feature on this days.

The next step in the development of EIP came while the businesses tried to use the technology of Web to bring the order to their own internal information. The businesses created internal Web sites or Intranets. Typically, these sites were composed of static information such as policies employee manuals. The first true corporation portal was those which integrated both internal information and external information via the World Wide Web. These early sites linked internal information with various sources of external information from the Web anything from the stock quotes to the news feeds to maps and personal finance services.

Concurrent with developing the corporation portal, Entrepreneurial Resource Planning (ERP) helped to manage the relationships among standard businesses applications including inventory, ordering, financial systems, production systems, and human resources. ERP systems integrated these resources of information in a single system to better track the relationship between the applications. Before ERP systems, a company typically had the completely different systems to take an order from a customer, to produce of an invoice, and to achieve the order of maintenance. By implementing an ERP, the natural relationships among these information entities could be defined, maintained, and used for analysis.

While the ERP systems could integrate the standard businesses information in a single system, a significant source of knowledge always missed. This missing information was not as readily quantifiable as the information stored within computer databases. It represents the knowledge of the enterprise and is found in a large variety of places within the enterprise. Enterprise Information Portals provide the glue which holds all the preceding ideas together. They allow not only the integration of various sources of structured and unstructured information, but they also allow separate applications to be integrated into the single entry point of the EIP. This allows the existing legacy systems, the ERP systems, and the future systems to be connected in a single place.

**IV. THE DIFFERENCES BETWEEN WEBSITES AND PORTALS**

The differences between websites and portals should be viewed from two different perspectives: functional and technical. Functionality specking, websites offers the same information and same resources to whoever visit it. A website does not care who the user is. A portal, on the other hand, is designed to recognize a visitor based on his/her role, status and personal preferences. On this basic, it offers different sets of information and resources personalized to the user’s anticipated needs. In order to operate in this way, the portal must ask for the user’s identification information and require at least an initial authentication. Technical speaking, portals offer active and dynamic services as compared to the passive services provided by traditional websites. Databases provide back-end services in all portal environments.

**V. BENEFITS OF EIP**

An enterprise portal transforms a general-purpose PC into a self-service desktop that provides users with a q-
quick, flexible gateway to corporate data. The enterprise portal's most significant benefit is supplying relevant knowledge to facilitate decision-making.

The main benefit of a corporate portal is the increased employee productivity that results from the following improvements:

- Organized and structured information, which is easier to navigate.
- Quick access to relevant personalized news, information, services, applications, and documents.
- A highly interactive and personalized interface that provides targeted information based on employees’ roles and preferences.
- Enhanced search capabilities that reduce the amount of time necessary to find sought after information.
- Filtered, targeted, and categorized information so users receive just what they need.
- Leveraging intranets and extranets. The portal aggregates, categorizes, and delivers pertinent content to critical business audiences while, lowering operating costs, increasing sales, facilitating better customer service, and making the supply chain more efficient.
- Built-in security. Because individual users must be authorized, enterprise portals offer another level of corporate security.
- Support of multiple corporate functions. The enterprise portal unifies disparate parts of the enterprise, including accounting, forecasting, and marketing.
- Improved productivity for an enterprise’s employee based on providing integrated access to general corporate information, critical data from enterprise application and business intelligence tools for processing.
- Improved enterprise business processes resulting from better information flow between knowledge workers and enterprise applications as well as from the collaborative environment that help reduce the time needed to transform raw information into knowledge and expertise that feed that process.
- Shortened time to market resulting from the reduction in deployment and management overhead for information gathering and decision making in the enterprise.

Moreover, many of researchers demonstrated the benefits of EIPs; see [11]-[12]-[13].

VI. TYPES OF ENTERPRISE INFORMATION PORTALS

A. Intranet

Intranet information portals are the predecessors of B2E and enterprise portals. They provide users with a single point of access from which they can:

- Find and determine information from across the organization.
- Cooperative and act as a team with people.
- Full simple, generic business errands.
B. Business-to-Employee (B2E) Portals

B2E portals are also known as Enterprise Information Portals (EIP). The goal of enterprise information Internet portals that integrates all relevant information, both internal and external to the organization, and are linked together in some way that becomes understandable to each individual user based on their role or performing the operation, it helps to work in the performance of their jobs more quickly and accurately.

C. Business-to-Business (B2B) Portals

These Internet portals extend a job to processors, partners or other businesses. The gate has been accounting function or self-service, or information processing chain to those customers.

D. Business-to-Customer (B2C) Portals

B2C Internet portals designed to meet the individual needs of customers' recruited, self-service function and product information.

E. Internet Portals

There are many general public portals on the Internet are now household names as: Yahoo, Google, AOL, MSN.

F. Mobile Portals

The goal of the mobile portal that can access the full knowledge of the enterprise from anywhere, on any device on any contact. Designed for portable Internet portals to deliver high volume of data to a portable device, for them, including liability tools radio wave reasonable and communications charges.

G. Voice Portals

Using Internet voice portals technical distinction advanced voice to provide access to Internet content on the phone.

VII. THE OBJECTIVE OF USING ENTERPRISE INFORMATION PORTAL

The principal goal of an EIP is to combine all appropriate information, both internal and external to the organization, and attaches it together in a way which has direction for each individual employee based on their role or the process that they carry out, helping the staff to perform their work more quickly and accurately.

VIII. DESIGN ISSUES OF EIPS

Although Enterprise Information Portals are widely used, yet there is a lot debate about design issues the following is a list of design issues for EIPs:

A. Ease of Use

The need to make portal use intuitive and convenient cannot be overstated. Of course the user will have different ideas about what constitutes “intuitive” and “convenient” but we can get consensus on 80% of ease-of-use factors by adapting few design principles:

- Keep a user-centric perspective.
• Personalize the service offered.

• Follow recognized design patterns.

• Use a single sign on-service.

B. Maintainability

Once a portal system is in production, it requires routine maintenance. The routine maintenance is always being mistaken for hardware maintenance and backup of the database. Routine maintenance includes the maintenance of software and database that may constitute a major part of a portal's support. The questions are how much maintenance a system needs, how often, with what cost, by whom, the internal staff or external vendors?

C. Potential for Personalization

One of the unique characteristics of Web portals compared to traditional Web Home page is that portals can adapt. Can adapt to the individual characteristics of the user, the more fully the portal adapts the better. Personalized portals are easier to use, less costly to support and more interesting information to visit than static Web pages. A personalized portal automatically offers different information and resources to different users based on their roles, rights, interests, past usage, etc. We are in the very first stages of using the new generation of portals with personalization capabilities. The limits of what we can do with them have yet to be fully explored.

D. Ease of Customization

Although portals are not the only type of software environment. Microsoft Office has offered customization for a number of years. Customization is a nice feature offering certain predefinition types of software and various setting to different groups (customers) in portal environment. For instance, the capability of customizing the personal portal page (My Portal) by moving the e-mail channel to the top left corner, the bookmark channel to the left side, the news channel to the middle column and the weather to the lowest part of the page.

E. Ease of Integration with Existing Services

Any Portal system should have features that allow it to be integrated with existing database and web application services. For example, a campus portal would have very little value if it weren't integrated at least with the campus student information system. Before a campus portal project is begun, the design team should identify all existing database and services with the portal is to be integrated. Most portal projects, when initiated, are broken into different phases, each with a different deployment schedule. Each phase may include the integration of existing services into the portal. For example, the integration to the campus library system may not have sufficient priority to be included in the first phase, but it may be in the plan for inclusion into the second or third phase of the project. It is important keep in mind that integration is a two-way street. The campus will want to integrate future services and products with the portal system. The “hooks” a portal product offers to facilitate to integration include application programming interfaces (APIs) and adherence to open software development standards.

F. Platform Independence
Many vendors of portal systems tie their products to the operating systems or hardware products of particular manufacturers. Sometimes this is because a partnership exists between the two companies. Other times it simply reflects a technology performance or a business decision on the part of the portal system vendor. Selecting a portal product that is tightly tied to a particular operating system is limiting but may be practical, especially if that operating system is well supported. In most cases such a decision does not also tie the portal to a single hardware vendor. The flexibility to change hardware vendors in response to market conditions is important, so a portal decision that ties the company to one hardware vendor is not just limiting but dangerous. Unless the company's IT environment is single-vendor focused, and is projected to remain so far the life of the portal product, platform independence is an important selection criterion.

G. Performance

The performance of the portal is critical when the system is under heavy use. Performance problems become noticeable to the users when the system slows down or rejects new logons. Performance problems tend to occur during periods of peak use of the system, for instance at the beginning and end of a semester in university. When implementation decisions are being made, the team needs to consider such factors as network capacity, performance benchmarks of the hardware being considered and expertise of the system administrators in tuning the performance of the operating system on which the portal application will run.

H. Availability

Availability refers to the readiness of the technology for actual products. “Out of the box” readiness is rare, even for mature commercial production setup. Availability may be an even bigger concern for home-grown portal software. The beta version of such a product might prove itself ready in a limited testing environment but not be ready for use in a production environment. To make sound, informed decisions, implementers need an exact understanding of where their chosen product stands in its life-cycle.

I. Focus on Business Processes

Portals hold many advantages over delivering stand-alone applications in mainframe or client-server environments, but unless the portal deployment is in service of specific business processes, benefits will not be realized. Organizations should introduce portals to solve a specific problem; they should not introduce a portal and then look for a problem. As counterintuitive as it sounds, this practice is all too common.

IX. Conclusion

Information is an important business asset in today’s enterprises, as a powerful enabling technology, the EIP ability to aggregate information and enterprise applications into a Web-enabled facilitates, many strategic organizational initiatives including collaborative e-commerce, customer relationship management (CRM), EIP technologies are rapidly becoming the foundation for many B2E, B2C and B2B e-commerce initiatives. Web technologies are the foundation of today’s intranets business, government, and education have discovered the power of these technologies as a new computing paradigm for information sharing and collaborative computing. The overall conclusion of this paper is to provide a comprehensive overview of EIP and how they can increase organizational productivity and speed to innovation.

A. Figures and Tables
Fig. 1. Dynamics of the share of e-commerce in GDP of Ukraine, the world, and Western Europe in 2009-2017 (Hlinenko & Dainovskyi, 2018).

Fig. 2. Dynamics of the volume of world e-commerce.

Table 1. Definitions of eI.

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<th>Definition</th>
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<td>1.</td>
<td>“Amalgamation of software applications that consolidate, manage, analyze and distribute information across and outside of an enterprise (including business intelligence, content management, data warehouse and mart and data management applications).”</td>
<td>Shilakes and Tylman (1998)</td>
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<td>2.</td>
<td>“Software that provides user-customizable access to information and applications through a web browser.”</td>
<td>White (2000)</td>
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<td>3.</td>
<td>“Single all-encompassing solution, able to meet any conceivable user need for any type of information across an entire organization.”</td>
<td>Davies (2007)</td>
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REFERENCES


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