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Towards Building a Communication System and an E-Portal of an University

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Abstract: This paper was audited carefully current state of The Ho Chi Minh University of Foreign Languages and Information Technology (HUFLIT) such as infrastructure, IT and IS, network architecture, education and training operations to find out their strengths and weaknesses aspect and propose effective solutions to building and a communication system and an e-portal of HUFLIT.

Keywords: Communication System; E-Portal; university.

I. BUILDING COMMUNICATION SYSTEM (CS)

After analyzing we define the function requirement of CS is a knowledge management system developed for the purpose of supporting employee activities with the aim of creating value and revolutionizing of HUFLIT. Effective, practical use of this system will help solve some of the many problems that managers and organizations have. To strengthen the information network that connects managers and employees, the system not only disseminates managerial visions and strategies to all staffs, but also raises the level of each employee's consciousness. This leads to clarification of management goals and markedly raises competitive ability.

This system has an information screen to display information such as school trends, top-level policies, share values, etc. Not only does this facilitate the straightforward checking of information circulation (workflow), but each employee raises his/her own awareness of being a member of the organization through their daily use. Employees can not only manage information such as activity planning, documentation and reports, but can also accumulate comments from superior officials and other employees on that information. Employees can refer to attached comments at any time during their work activity. This is a great help for self-enlightenment. Exact action selection and high quality service with "Action Menu" following the work flow and "Assistant Message" suggesting. Check points for action, employees can always understand and verify their own actions. This helps to form a habit of "Awareness" and of adopting the most appropriate and efficient "Action". Also, with practical use of customer information, employees can offer high value-added service and develop active procedures that are of the best possible advantage.

Model of applications organization structure of CS is presented by Fig. 1.

Fig. 1. Model of applications organization structure of CS.

Description base function of CS:

- Notice and Action: employee can know urgent information relative with their job at the time they login.
- Activity Schedule: Confirmation and registration of your own or others schedules, working schedules (To Do), message memos, etc… Functions to reserve conference rooms, fixtures, recreation facilities, etc. are also explained here.

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- Customer Information Registration/Sharing: Registration of and search of customer's business cards, business negotiation status, claims and personal information, etc.
- Employee Information Reference: Reference to employees' information.
- Today's Activity Result Registration: Registration and modification of various business reports.
- Bulletin Board/Forum Utilization: Use of the bulletin board, participation in forums and transmission of information such as comments etc. Official notice/instruction registration.
- Document Information Registration/Utilization: New document registration/utilization. Explanation of how to get necessary information instantly through clipping service functions.
- Attendance Application: Application for overtime, holidays, compensatory holidays, etc.
- Confirmation of attendance status.
- Management Request Draft/Report Creation: Creation of and reference to management requests draft/report. Method of outputting the inputted application data as a CSV file .and DPF
- Deliberation/Approval: Deliberation of and application for approval, status confirmation, withdrawal of issues etc.
- Personal Information Modification: Environment setup, password modification, personal information modification etc.
- Knowledge Point Checking: Checking information utilization. Checking company's knowledge level.
- Facilities/Fixtures Management: Management of fixtures and recreation facilities.
- Attendance Management: Attendance information output and remaining paid holidays carried forward.
- Other Useful Functions: Linking information. Useful internet links.
- Co-operating with the main system.

II. BUILDING AN E-PORTAL

In order to having a lot of competitive opportunities in trend of WTO jointed status, to expedite processing education exchanges and training cooperating with domestic and foreign customers and partners, and to increase amount of student for every year, HUFLIT needs to build an e-portal communicating with them. In addition, the expedition could be increased by provide a communication channel with the partners of HUFLIT. This channel should be built on the Internet. Building an e-Portal communicating with HUFLIT students, customers and partners is absolutely a need for the school to improve its brand image and cut down costs.

The e-Portal is considered as following:

- Defining an infrastructure for an e-portal.
- Building B2B functions.
- Building B2C functions.

2.1 The infrastructure defining

Web Service (WS) is a state of the art technique. Many software providers are working on it. WS works on a standard protocol such as HTTP, could apply for firewalls and has more abilities thanks to the various technologies derived from XML such as XSLT for transforming data automatically and easily. All transferred information has to be standardization. XML emerges as the first choice. The WS method we chose above is built on XML. Furthermore, XML is an extensible language, a fundamental need in this project. Defining the format of transmitted documents is not so hard. Most of transmitted documents already have an international standard format. What the project needs to define is addition services for a document and the alert information when error happens. After finished this task, the information could be interpreted/scanned automatically. Furthermore, they are standard formats which applications will obey when transferring data. The server applications as well as programming language should be considered. A mark-up language for building website is the first choice. Using .Net framework as server architecture could leverage the server cost. However, Java provides more portability, more efficient with complex, high-volume applications with lots of business rules and has more features to offer for session management, fail-over and load balancing.

Last but not least, hardware server is an important part. Based on the cost, the calculation of network traffic and volumes of data as well as the requirements of software, a proper server could be chosen.

Security is the last consideration based on firewalls, routers and other protections such as back-up. Software security gives more choices. Anti-virus software and firewall software are on the shelf with many providers. Other choices are HTTPS and SSL over the Internet. Moreover, the W3C and OASIS has established XML-Security specification based on digital signature stored in the envelope header of a message.

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2.2 Building B2C functions of e-portal

Functions built over the infrastructure are online tracking training and learning, information, programs, documents, school fee, schedules of training and learning, status and stages, etc…, alert of errors the e-Portal plays as a new channel from communicating with customers which provide more value-added services students.

The e-Portal will support the following functions for students, students' parent and customers of HUFLIT:

- Online examine registration: thank to this function that examinees can be enrollment examine registration through website of HUFLIT at their houses that they needn't submit their document to school.
- Training and studying tracing: students and their parent see students' studying, science research results and studying achievement, education programs and information, education documents and planning, academic exchange and training cooperation Information.
- Training and studying information updating: Automatically information update once they are put into the e-portal such as enrollment data, enrollment marks, university admission sheets for examinees who are enough conditions of admission, education contracts, programs, documents, schedules, planning academic exchange and training cooperation.
- Equipment information updating: automatically update equipment liquidate and demands information.
- Edit personal information: customers could provide their information through the website to joint buying liquidate equipments.

2.3 Building B2B functions of e-portal

HUFLIT should start from making an e-Portal for partners input information or making connectors to transfer data automatically. Based on the above infrastructure, all transmitted information must be sent in a defined format. The HUFLIT then leverages this information to create value-added services for customers. Built functions are interchange education exchange and training cooperation information, programs, documents, status and stages, alert of errors….

Academic exchange and training cooperation partners and other partners with HUFLIT will be supported by functions:
- Academic exchange and training cooperation information updating: Education contracts, programs, documents, schedules, planning academic exchange and training cooperation schedules will be updated automatically once they are put into the e-portal.
- Equipment information updating: automatically information update of equipment supplying demands of HUFLIT to partners, thank to this function that suppliers are known earlier information and HUFLIT is also supplied early equipment.
- Training controlling and tracing: Academic exchange and training cooperation partners can watch their partners' training processing to control them right as in the agreeing.
- Purchasing online: speeding up the purchasing process helps HULIT giving more efficient services to students and customers.
- Sending documents: error reduction and checking time saving is the objective of this function, all missives and documents of academic exchange and training cooperation are sent in a well-defined format must be achieved.

All mentioned functions will work together in order to make HUFLIT have a better service policy as well as get ready for future demands. A closer look into the infrastructure of the e-portal could help demonstrating the idea.

Model of e-portal infrastructure structure

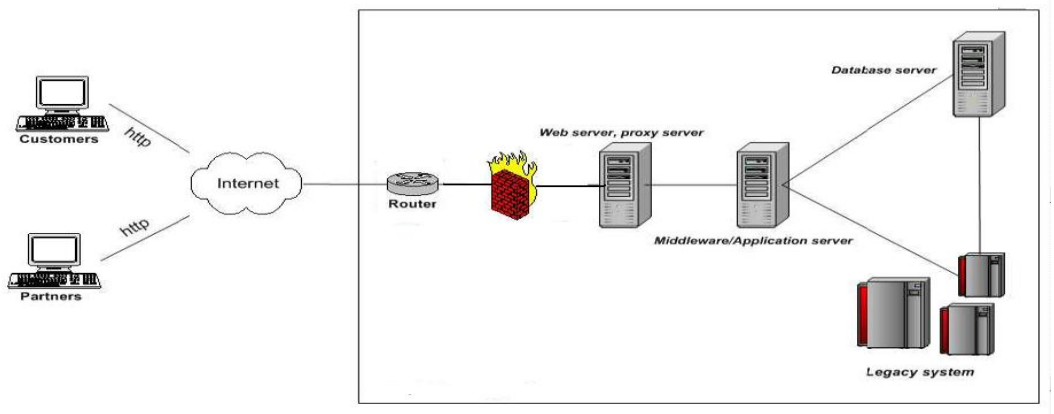

Fig. 2. Model of e-portal infrastructure structure.

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Model of receiving information from outside into e-portal

Partners and customers connect to the e-portal through the Internet. Each request has to pass firewalls, routers before it reaches the Web server. At this stage, the proxy server will determine which services could serve the request. Moreover, the proxy server has a security policy to authenticate and authorize the request's sender. After authenticated, the request will ask authorized services at the application server. The legacy system and database will be called when needed. At last, the response is shown on the sender's screen.

The interaction of e-portal model is as following

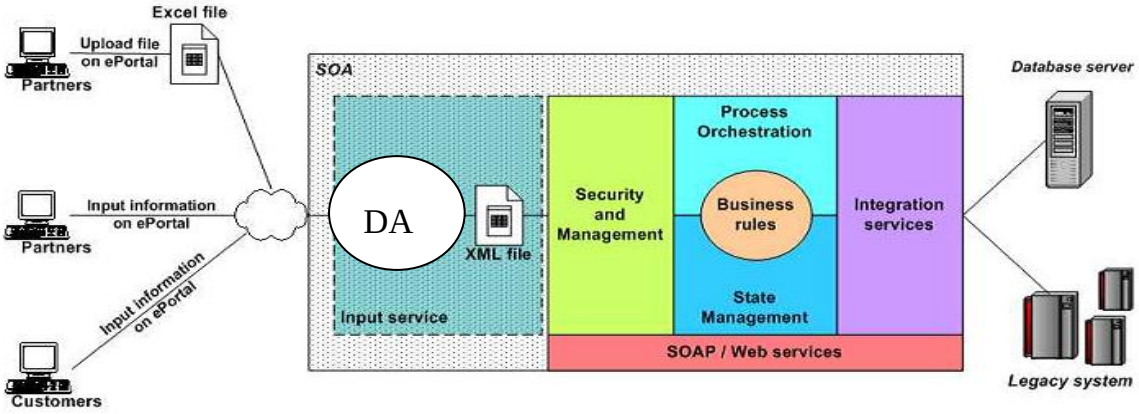

Fig. 3. Model of receiving information from outside into e-portal.

Most of data information, lists and schedules sent in Excel format. DAS will extract excel file to XML format. In other cases, partners and customers could use defined format of the company to send file or simply filling forms on the e-portal to send information. The input service is built with loose coupling with other services in order to easier replace it with another service for future demand, for instance, a service read information from information system hub. Integration services are in charge of connected to the legacy system and database.

Model of sending information to outside of e-portal

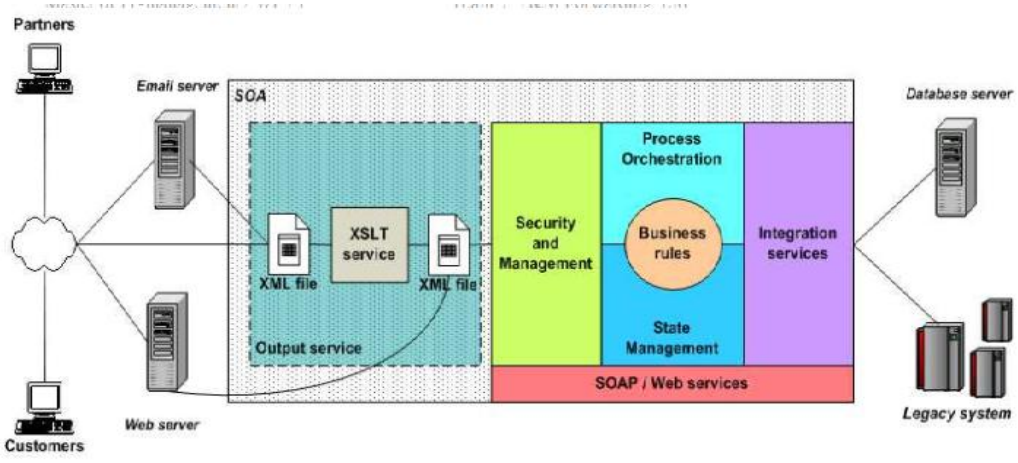

Fig. 4. Model of sending information to outside of e-portal

Information within the company will be processed and put out in an XML form. The output service then turns the XML form into an on-demand form depending on the receiver. Information is sent directly to the receiver, through email or simply announced on the e-portal. The output service is built with loose coupling with other services in order to easier replace it with another service for future demand, for instance, service send information to an Information System hub. Integration services are in charge of connected to the legacy system and database of information System.

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III. CONCLUSION

In short, with HUFLIT Information Systems many non-IT managed processes are needed to improve by using a new system allowing document transport instantly in an electronic form such as students' studying information management processes and students of school fee management and applications to support for human resource management…etc. And in order to provide information for students, partners and customer. These updating tasks could increase the flexibility of the company as well as minimize the error and lateness happening while transporting documents inside HUFLIT and between HUFLIT with the outside. The main purpose of the HUFLIT information systems project is to improve the IT systems at present of HUFLIT, apply IT in all of the university's activities in order to minimize paper work the most, reduce costs, times, increate high labour productivities.

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