BIS: Web Based ERP to Support Small Entrepreneurs

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ABSTRACT

Software as services is link to the concept of cloud computing is a style of computing where information technologies enable business products, services and solutions as a service over the internet. The concept of SAS (software as services) is currently in very early stages of development. There are a lot of researches being carried out in this area. Authors focus to analyze the SAS and also to propose a concept based on qualitative studies for business process integration and Industrial collaboration, in the context of small businesses. The primary aim of their research work is to integrate process not only within the organization but also with the partners and customers.

EYWORDS

Software as services (SAS),	Cloud Computing
SMEs, Business Process integration	B2B collaboration

PREAMBLE

Enterprises are increasingly in use with rapid business environments that requiring the need to respond to fast moving windows of opportunities and respond to challenges and growth possibilities and shorter lead-time for decision making. Swift environmental changes, diverse business developments and continuous improvement in their information system, many organizations think to enhance their business processes through integration and B2B (business to business) collaboration. The enterprises today are forging ahead with the effort of integrating information systems across corporate boundaries to unite the customers, suppliers and any other business partners with which they interact [13,14]. They use the information regarding their finances, employees, and to manage the items or assets they own.

The focus of this study is to make the structure, constant and smooth flow of information with help of Web based services in efficient manners to support SMEs in textile sector with uniform graphics interface, as the interface is the gauge for the success of applications. As in SMEs, the textile manufacturing process is divided into clusters e.g. ginning, spinning, weaning, processing and made ups. Only few corporate level industries possess their own complete units for manufacturing. SMEs sector majorly faces the problem due to dis-integration and cluster based industry in different geographical locations. As they have to support each other in value addition process of a product.

BACKGROUND

Small Businesses have been facing tremendous changes within economic, commercial and technological environments. It is evolving an urgent problem for them how to utilize information technology and to build an effective information system. The poor performance is only due to limited resources and unawareness about the Information system capabilities, poor implementation, lack of business processes integration and industrial collaboration.

Due the limited resource and lack of IT expertise most of the organization do not have their own complete information system. As the installing, developing and maintenance of ES (Enterprise system) is very expensive as only the big or corporate level organization can bear the cost [15, 16]. Pakistani entrepreneurs have been facing tremendous changes within economic, commercial and technological environments e.g., excessive regulation, energy shortage, water shortage, difficulties in marketing and selling the products, unawareness about the technology, lack of expertise in information technologies, obsolete technology, limited R&D (Research and Development) support, lack of capital and financial resources, low skill mix of the labor / work force, limited productivity of works and rising competition due to imported products. [8]

SMES IN PAKISTAN

Small **M**edium **E**nterprise sector is the backbone of Pakistan economy, as it plays vital role in the social and economical development of the Pakistan. According to the statistics collected from SMEDA (**S**mall **M**edium **E**nterprise **D**evelopment **A**uthority), there are about 3.2 million business enterprises in Pakistan, (44% Rural & 56% Urban), where they produce a wide range of goods and services, provide employment for a large number of skilled and semi-skilled workers, account for a substantial proportion of manufacturing output, and make a major contribution to the country's balance of payments. [7] Author focus of attention on the textile manufacturing related SMEs is, specifically in Faisalabad. As Faisalabad is the third largest city of Pakistan having 45932 SMEs manufacturing units, from them 22378 related to business of textile sector.

Table.2 Total Number of SMEs in Textile clusters in Faisalabad

✓ *Ginning* 26	*Units:*
✓ *Spinning* 44	*Units*:
✓ *Weaving* 21842	*Units:*
✓ *Printing* 192	*Units*:
✓ *Apparel & Made Ups :* **Small & Medium 274, Large Units 12000 registered 300**	**250,000**

Table.4 Survey results on SMEs
✓ *Entrepreneur's Education:* **Only 49% entrepreneur in SMEs sector having college or graduate level qualification.**
✓ *Technical Training***: 70% entrepreneur in SMEs sector had not obtained any training.**
✓ *Computer Usage:* **only 46% have computer. While from them 57% SMEs it for just maintaining books of accounts while 43% for letter writing/email/internet.**
✓ *Power Outages***: 62% did not have their own power generation mechanism.**

CLOUD COMPUTING IMPLICATIONS

It is a style in which all the information technology related capabilities are providing services and transferring technology, data and software applications from local systems thought network into Clouds. According to the [3] "the aims of the cloud computing is the migration of users", data and processing from desktop PCs (client system) and corporate servers to the cloud [3]. It is also defined by [4] why not just move all processing power to the cloud and walk around with an Ultra-light input device with a screen? The Cloud computing brought a lot of services i.e. database, storage, backup, data replication, data protection and maintain the security of the services [4, 9]. Cloud computing in simple words is the delivery of services or capabilities over the network and it is segregated into three following entities.

a) *Software as a service (SaaS):* **Applications based services delivered over the network.**

b) *Platform as a service (PaaS):* **A software development framework / components all delivered on the network on demand, the users have to pay.**

c) *Infrastructure as a service (IaaS):* **An integrated environment of computing resources, storage and network fabric delivered to network users have to pay for usage model.**

d) *Hardware as Layer (HaaS)*

e) *Virtualization as Layer (VaaS)*

SAS BASED ERP

Software as a service is link to the concept of cloud computing a new paradigm e.g., Google apps [12]. The paradigm focuses on sharing data

and computation power over the scalable network nodes. Nodes include the end user computer, data center and web services [9]. Software as a service term is used to provide software and application based services to users on their demand. It is also defined by [10] today most of services we use on the web, are not just the web pages but are the web based applications that we access through network using a browsers. It is increasingly prevailing distribution model based on applications that are hosted by provider to customer through the network. It is a mature and a new development approach. [9] A lot of IT expertise companies offers this SOA (Service oriented architecture) through web where the user has to pay against the desired services e.g., SAS based ERP, E-supply chain management, CRM. As ERP (enterprise resource planning) changed from traditional Client / Server environment to the web based and Internet / Intranet network computing support environment along with user oriented approach for usability perspective [17], [18]. Web based services are the new breed of web based applications. These services performed different functions from simple to complex business processes.

A great benefits of SAS based ERP is that remote user like executive and sale person, can access the data with the help of browser. It removes the problems from the investment towards the maintences of server and other hardware's. It also removes your problems for new add-one feathers, upgrades, easier management, compatibility, effective collaboration and global accessibility.

Different companies provide similar service oriented architecture through browsers in order to solve the enterprise problems and to derive their perspective solutions. **BScaler enterprise recourse Manager**™, **Black Soft** and **Web ERP**™, **Salesforce.com** and **Sugar CRM** provides SAS based ERP to Small and medium level industries which include Business 2 Business (B2B), CRM and e-supply Chain services [10]. **SaaSplus, Inc** is also SAAS ERP providers in USA, also offering ERP based applications [11].
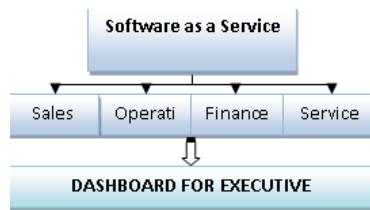
Fig. 3 Flow of Information and Business Process Integration

USER INTERFACE

Interface of application play an important role for the adoptability and efficiency of the application. The interface describes the function between the things, this term related to engineering technology used to describe the equipment, components and components connections [20], [21]. User satisfaction is one evaluation mechanism for gauging system success. There is need to evaluate, the efficacy of user characteristics and fitness factors as determinants of ERP success [22]. The technological products always relied upon the User Interface Design (UID) to elevate their complexity and usability. Technology its self may not win user acceptance and satisfaction. The usability, and user experiences on the end product, is the key to acceptance / satisfaction. Engineer's always focus on the technology aspects while the usability specialists focus on the interface at which user interact. When applied to computer software and web based applications, User Interface Design is known as Human-Computer Interaction (HCI).

Interface Design in terms of computers refers to many products where the application user's interacts with controls / displays. The best user interface designing always requires the systematic approach and to ensure optimum performance, usability Testing is required for evaluations. This empirical testing / investigations permit the application users to provide data that use to design optimized interface. [23]

FINDINGS

The purposed concept of computing is derived from the real world service model to give out the processing time to SMEs in textile sector to mange their business processes individually. So this requires the deployment of datacenter and storage which must be in control of government and at a place where the uninterrupted power supplies i.e. electricity or solar panel are available. SMEs can freely access the desired business applications accordingly. Here the focus is on the cloud based services oriented infrastructure (SAAS Based ERP) that will not only facilitate the SMEs to manage their business activities, but also to develop fastest supply chain with smooth flow of information between different cluster of SMEs where they exist demographically at different locations.

The division of this service oriented model for E-government into three levels as given in **figure.4** First part is to manage the business resources and transaction individually, in second to make collaboration between business to business (B2B) in different cluster of SMEs. The third phase to provide the service oriented architecture (SAAS Based ERP) with uniform graphic interface based applications (UUGI) for better understanding, memorability and adoptability as discuss later.

The Web Based ERP possesses tremendous potential to meet the above mentioned challenges as its goals to obtain better resources, utilization of ES capabilities and also to provide the cost effective services. It will help to produce a valuable product or services with concrete flow of work, material, and information. The informational/ functional integration and collaboration within the different clusters of SMEs facilitate them in planning, which involves demand forecasting, level of inventory, manufacturing and production planning. This level of integration between the different clusters of SMEs in textile value chains makes fastest the supply chain process to reduce the emission of carbon. It can also raise the utilization rate of resource and reducing the electricity cost and consumption as Pakistani SMEs facing now a days.

This will help to resolve the biggest issue in Pakistani textile sector, that is the workers as well as entrepreneurs are not very much familiar

with software and computer based applications. It is also costly for the entrepreneurs to spend time and money for training. Web based ERP with uniform graphic interface will enhance the workers adaptability, memorability and thy can work consistently. Application with single graphic Interface could also reduces the human mistake and builds confidence in them
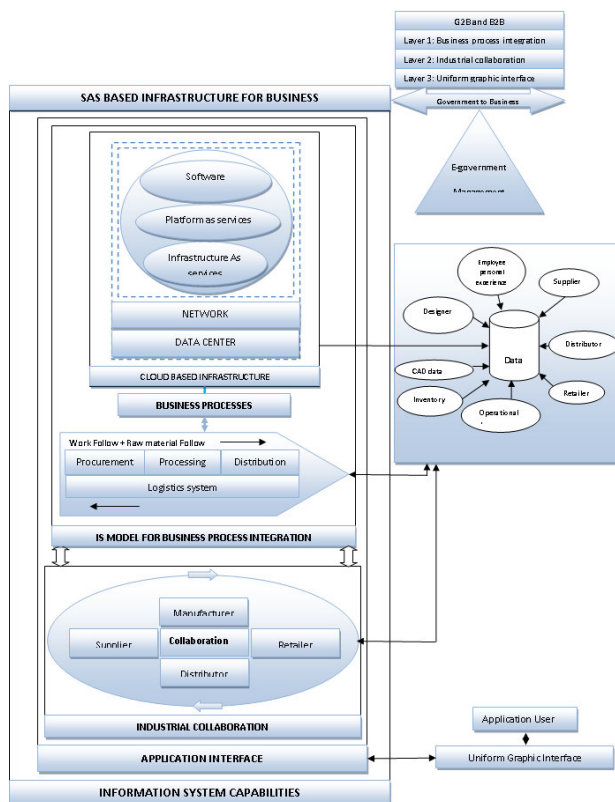
Fig. 4: Conceptual Diagram for SAS based ERP to Support Textile Sector

CONCLUSION

This paper discusses how to make an organizational process and information centric with cloud based application. It suggests to the government to offer such application to entrepreneurs so they can reduce their operational cost. To develop this cloud computing infrastructure there are high prioritiy needs i.e. complete support of Government authorities and the support of the autonomous

bodies that are directly responsible for the development of SMEs in Pakistan. Pakistan is a developing country where no any organization is ready to take the initiatives to promote the awareness and capabilities of information technologies in entrepreneurs. This way government can supply the business communities with enterprise application via cloud computing and can raise the utilization of data center considerably to reduce the consumption of energy. Therefore, cloud computing is the best Environment to establish the e-government The Ministry of Industries, commerce, science and technology, and the **S**mall and **M**edium **E**nterprise **D**evelopment **A**uthority (SMEDA). The authors have recommended that there should be some actions taken by the government officials to regulate, promote and to create cloud computing environment for textile SMEs in Pakistan.

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