Trends in Cloud-ERP for SMB's : A Review

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Abstract- In the world of competition, customer's disloyalty, globalization and uncertainity deploying ERP solutions is not only necessary but also mandatory. On premise ERP is associated with lots of overhead and requires spending of money and time. SAAS based ERP has many advantages which makes it the right choice for the manufacturing industries whose main job is manufacturing and not information management. This review paper focuses on the SAAS based ERP, its advantages and disadvantages. It also covers three case studies of three manufacturing industries and shows the benefits of the implementation of the Cloud based ERP.

Keywords- Cloud computing, SAAS ERP, Enterprise Security, on-demand ERP, Manufacturing work flow, SMEs

I. INTRODUCTION

The market is becoming intelligent with help of technologies like data mining, artificial intelligence, geographical positioning system, internet and so many more to come. Every company has a fight to retain its customers and expand itself globally. But how does it achieve all these. The solution is Enterprise resource Planning software.

On-premise solutions existed but they required both time and money and success was never assured to the company. The ROI (return of investment) was also long in terms of years.

Software-as-a-service (SaaS) has unleashed a new wave of opportunities for manufacturing and production companies to-use SaaS applications and it is offering them ERP on-the-cloud (internet) as a service. This is not only providing them easy access to a larger audience, but helping them make money from day one. The paper focuses on the advantages of SAAS based ERP solution for manufacturing and non-IT companies whose main work is not software .The paper gives the advantages and disadvantages of SAAS based ERP and then gives a detailed case study of three companies (Marcolite,PPL,BLUW) which have deployed SAAS based ERP and the solution helped them to encounter many challenges which were necessary to overcome in the field of competition.

A. *Challenges faced by Manufacturing Companies in Information Management-*

Competition in the next millennium increased emphasis upon time as expressed by speed, quality, service and global focus. Agility is the watchword. Manufacturers are measured by their ability to react quickly to sudden, often unpredictable change in customer demand for their products and services. To compete successfully the manufacturing applications have to be time and activity based and above all should be focused on customer.

Today companies must be able to deliver customer specific products with the lead-time of standard, off-the-shelf products. Make-to-stock and make-to-order types of modes at times have to be selected by the company.

Some of the major sub-systems of manufacturing are:

- a) Material and Capacity Planning
- b) Shop floor Control
- c) Quality Management
- d) JIT/Repetitive manufacturing
- e) Cost Management
- f) Engineering Data Management

g) Engineering Change Control
h) Configuration Management
i) Serialization /Lot Control
j) Tooling

The Human Resource management, business intelligence, supply chain management, customer-relationship management all are there existing in manufacturing companies. Now the major problem is that the company is proficient in manufacturing and production but does not have the expertise and assurance that all the above information islands can be merged together to give the best inputs to the decision makers and make life hassle free. The next section focuses on the solution to challenges in a timely and cost effective way.
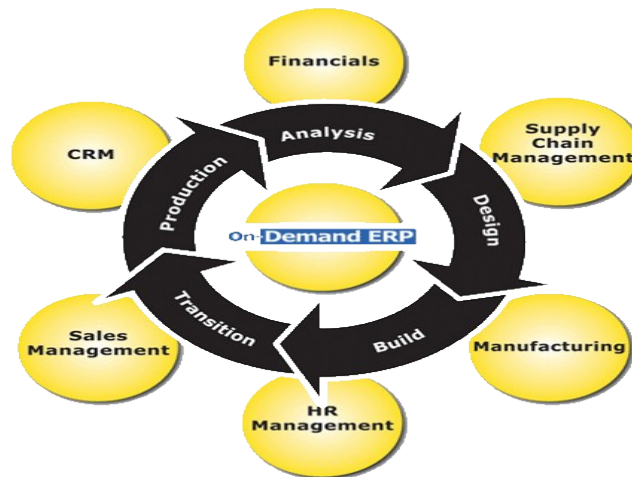

Figure 1. on Demand ERP System

II. SAAS based ERP: A Solution

On-premise ERP could have been a solution but a lot of risks are involved in it. Hence the paper focuses on alternative solution the Cloud based ERP. The Advantages of SAAS based ERP is given below.

A. Reduce Runtime and Response time

For applications that use the cloud essentially for running batch jobs, cloud computing makes it straightforward to use 1000 servers to accomplish a task in1/1000 the time that a single server would require. For applications that need to offer good response time to their customers, refactoring applications so that any CPU- intensive tasks are farmed out to 'worker' virtual machines can help to optimize response time while scaling on demand to meet customer demands.

B. Minimise Infrastructure Risk

IT organizations can use the cloud to reduce the risk inherent in purchasing physical servers. Will a new application be successful? If so, how many servers are needed and can they be deployed as quickly as the workload increases? If not, will a large investment in servers go to waste? If the application's success is short-lived, will the IT organization invest in a large amount of infrastructure that is idle most of the time? When pushing an application out to the cloud, scalability and the risk of purchasing too much or too little infrastructure becomes the cloud provider's issue. In a growing number of cases, the cloud provider has such a massive amount of infrastructure that it can absorb the growth and workload spikes of individual customers, reducing the financial risk they face. Another way in which cloud computing minimizes infrastructure risk is by enabling surge computing, where an enterprise data center (perhaps one that implements a private cloud) augments its ability to handle workload spikes by a design that allows it to send overflow work to a public cloud. Application lifecycle management can be handled better in an environment where resources are no longer scarce, and where resources can be better matched to immediate needs, and at lower cost.

C.   Lower cost of entry

Since the infrastructure is rented, not purchased, the cost is controlled, and the capital investment can be zero. In addition to the lower costs of purchasing compute cycles and storage "by the sip," the massive scale of cloud providers helps to minimize cost, helping to further reduce the cost of entry.

Applications are developed more by assembly than programming. This rapid application development is the norm, helping to reduce the time to market, potentially giving organizations deploying applications in a cloud environment a head start against the competition.

D.   Increased pace of innovation

Cloud computing can help to increase the pace of innovation. The low cost of entry to new markets helps to level the playing field, allowing start-up companies to deploy new products quickly and at low cost. This allows small companies to compete more effectively with traditional organizations whose deployment process in enterprise data centers can be significantly longer. Increased competition helps to increase the pace of innovation and with many innovations being realized through the use of open source software, the entire industry serves to benefit from the increased pace of innovation that cloud computing promotes.

E.   Free from software licensing/up gradation/maintenance

Cloud computing frees up user from any further licensing of the software or from up gradation and maintenance. All the services are provided by the service providers. No longer having to worry about constant server updates and other computing issues, government organizations will be free to concentrate on innovation.

F.   A mobile profile

Since all is accessible through internet, it will be accessible globally. It will be too much beneficial for a small and medium sized enterprise that is not willing to invest a lot in network setup and wish to free from maintenance.

G.   An interim evaluation for the Business

In cloud computing models, customers do not own the infrastructure they are using; they basically rent it, or pay as they use it. The loss of control is seen as a negative, but it is generally out-weighed by several positives. One of the major selling points of cloud computing is lower costs. Companies will have lower technology-based capital expenditures, which should enable companies to focus their money on delivering the goods and services that they specialize in.

As any technology is a boon for an evaluation as the history is evidence, there are disadvantages too which cannot be ignored. Despite a fact cloud computing has so many features which can be awaiting a new horizon there are also key factors which cannot be ignored. Few have been summed up below:

A.   Lack of connectivity

It causes 100% downtime, whereas with traditional applications, lack of connectivity allows for some local function to continue until connectivity is restored.

B.   Lack of industry-wide standards

It means that a usage surge can easily overwhelm capacity without the ability to push that usage to another provider. Companies providing computing services will over-sell these services similar to how bandwidth is over-sold based on average or "peak" usage, instead of "maximum" usage. ISP's typically operate at multiples of 5 to 1, where they sell 5 times more than they have in capacity, assuming users will not use more than 20% of their allotted resources. This works, until there is a popular YouTube video that everyone wants to see at the same time.. resulting in outages. Cloud computing is even more vulnerable to the peak-usage problem than internet bandwidth.

C.   Denial of service

It attacks, currently common, become easier. What's more they become harder to trace, as compromised "cloud resources" can be leveraged to launch the attacks, rather than compromised "individual pc's". Cloud computing is vulnerable to massive security exploits. Currently, when a system is broken into, only the resources of that system are compromised. With cloud computing, the damages caused by a security

breach are multiplied exponentially. By "centralizing" services, cloud computing increases the likelihood that a systems failure becomes "catastrophic", rather than "isolated". No political approach has been made till date to control the uncontrolled factors to bring the service under the boundary lines of trust and owner ship, as these services are beyond country lines.

III. SAAS DRIVERS IN SMBS AND non-IT BUSINESSES

There are four key factors driving this growth:

First, Companies are looking for options to reduce their IT capital expenditure budget. Second, SMEs today have a global customer base and need to service this client in a better and in a cost-effective manner. Most companies now also have distributed workforce. Being connected to the customer or employee has become an important business requirement. This draws SMEs toward a SaaS platform. Third, the growth of the Internet and increased availability of reliable, high-speed broadband connectivity at inexpensive rates have encouraged companies to move to SaaS-based ERP deployment. Finally, budget constraints and shrinking bottom lines are driving SMBs toward a SaaS model that can help support specific business needs. SaaS-based ERP deployments allow SMBs to have all the benefits of a sophisticated ERP product at a fraction of the cost of an on-premise offering, and they can start reaping the benefits immediately.

IV. CASE STUDIES

a) NetSuite Helps Consumer Products Company Save £50,000 Over On-Premise IT:
BLUW operate on three continents, Europe, Asia, and North America, and its business was undergoing enormous growth. It was difficult for them to predict future systems and infrastructure requirements for their business. They implemented NetSuite OneWorld, A SAAS solution.
Results:
- Saved more than £50,000 over on-premise IT software and servers
- Company grew from £1.2 to £2.8 million since switching to NetSuite
- NetSuite multi-currency capabilities facilitated financial consolidations
Challenges:
- Small company was trying to manage growth across 3 continents
- Needed to manage multi-location inventory, distribution chain
- Needed financial consolidation for complex vendor and product relationships glabally.

b) NetSuite Helps Malcolite Cut Order Processing Time from 3 Days to 40 Minutes
NetSuite's platform helped the business improve customer service, eliminate paper and waste, and utilize advanced inventory management techniques to bring new products to market quickly.They were able to save money, and use the NetSuite system to help grow sales.
Results:
- Saving $75,000+ yearly on reduced staffing, overnight shipping between locations, and paper/toner costs
- They were able to build complex lighting assemblies from multiple suppliers
- Custom-order pricing quotes were reduced from 12 hours to 2 hours
- They could cut order-processing time from 3 days to 40 minutes
- Automated order processing saving 15-20 hours/mo for copying, faxing, etc.
- Real-time order visibility reduced carrying costs, increased inventory turned by 66%
- Won Progressive Manufacturing's PM100 Award for its innovative way of doing business with NetSuite.
Challenges:
- Wanted to increase operational efficiency, extend benefits of efficiency to customers
- Cutting costs of inventory, shipping, and logistics, particularly challenging with a growing list of 8,000 product variations
- Wanted to expand business by helping customers save money in difficult economy.

c) Ramco's ERP solution hosted on a cloud enabled PPL Company to manage processes across all locations, making business much easier and more efficient Pearl Polymers chose Ramco OnDemand ERP because the company offered ERP software on a SaaS model, which met Pearl Polymers' business objectives. This cost-effective ERP software posed itself to provide an integrated solution, which would bring together all business domains, with no additional infrastructure and investments. A manufacturing company Pearl Polymers Limited (PPL) with headquarters in Delhi .The Company manufactures PET containers and bottles. They had the following challenges.

- Unavailability of online data from across many locations
- Lack of production modules to map to the main line of business
- Need to consolidate data offline after exporting data from existing systems across all locations
- Unmanageable range of products
- Ramco OnDemand ERP Benefits

The benefits reaped by Pearl Polymers include:

Consolidated View: Integration of the manufacturing units with the branch offices, using Ramco OnDemand ERP software, provided a consolidated view to the senior management of key operating parameters like inventory management, capacity utilization, customer shipment schedule, account payable and receivable, and many more. This was required for informed decision making, and was missing in the earlier system

Multiple Location Management: With web-based ERP software the invoices raised from multiple locations were tracked online with group-wise , time period-wise detailed analysis

Efficient Tracking: Ramco OnDemand ERP has facilitated tracking the stock of packing materials provided by suppliers

Shorter Implementation Time: The ERP solution was implemented in a short time-frame of 10 weeks; this ensured the early start of returns on investment

Better Accessibility: Ramco OnDemand ERP provided anytime, anywhere access; the senior management could review the business parameters 24 X 7

V. Conclusion

The manufacturing, production companies have global market and companies. The SAAS ERP gives all the benefits of integration, all time data access, and hassle free set up, less cost. Small and medium sized manufacturing and production companies are opting the cloud based ERP solutions.

The case studies indicate the benefits that the companies could reap and the amount of time required was also in terms of days and not in terms of years. The companies had a 24X7 access. They were able to achieve integration and the business became more efficient.

Cloud based ERP solutions are here to be there for long.

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