SaaS – Better Solution for Small and Medium-Sized Enterprises

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Abstract: - The new enterprise application systems will have to be more customer-focused, incorporating e-commerce interaction and collaboration with business partners. E-Business technology and ERP applications are proven powerful business tools. Like the large companies, the small and medium-sized ones need to consider the potential of ERP and E-Business in their business processes. They will significantly change the way of doing business, but in a good and profitable way. Outsourcing of ERP operations is the next emerging trend as a company can typically save operational costs close to 50%. With the improvement in connectivity, the option of "ERP as a service" using the SaaS (Software as a Service) model is now proving to be viable. The paper will depict the enterprise applications that suit the SMEs, the technological challenges they have to reach, and the applications implementation options.

Key-Words: - software as a service (SaaS), application service provider (ASP), small and medium-sized enterprises (SME), ERP, e-business,

1 Introduction
SMEs represent the engine of the economy, as they create jobs and stimulate business potential, economic stability and social development.

In relation to the IT adoption, one main characteristic of the medium-sized enterprise is their traditional and conservative attitude. According to Gartner Group, 85% of medium-sized and 95% of small businesses describe themselves as conservative technology adopters.

In the IT adoption motivation, the competitive advantage counts little. SMEs want to have a safe, reliable business infrastructure that allows them to compete without a disadvantage. If large companies can afford to invest in ideas that may bring them a competitive advantage, for the SMEs it is an extravagance.

The IT budget of a small enterprise is a diminutive compared to that of larger companies. Given the decreasing and affordable prices of hardware, the main burden becomes the software. Application suites like ERP, CRM, SCM, or e-business are often too expensive and complex for small companies to manage. Moreover, in the traditional manner, these applications depend on an IT staff to maintain them and the support infrastructure. The triggered costs are regarded as a supplementary burden for the humble IT budget of a SME.

Rather than paying expensive support staffs to manage complex applications, a SME has now the alternative to pay an outside organization to buy the software, maintain it, upgrade it, debug it and make sure it’s up and running whenever the organization needs it.

This concept, once known as the application service provider (ASP) model, has returned and is now called "software as a service". SaaS providers are enhancing their software functionality and improving the ease with which companies can customize and more uniquely configure an ERP or e-business suite to meet business requirements.

SaaS is a model of software delivery that allows companies to deliver solutions to its customers in a hosted environment over the Internet. In addition, the service provider takes on responsibility for the maintenance, daily technical operation and support of the applications.

The paper will next depict the enterprise applications that suit the SMEs, the technological challenges they have to reach, and the applications implementation options.

2 Challenges of business applications implementation in small and medium-sized enterprises
SMEs represent the engine of the economy, as they create jobs and stimulate business potential, economic stability and social development.

However, it is debatable whether small companies really need the same powerful solutions as large firms in order to derive an equivalent benefit. SMEs have profited enormously from the internet, for example, simply by getting access to market information at low
cost. This has decreased the competitive disadvantage they used to suffer against larger companies.

Furthermore, recent activities of the large software providers are increasingly focused on the SME clientele; they develop new and flexible solutions adapted to the needs of smaller companies. This could enhance ICT adoption among these firms.

In opinion of some Romanian researchers, "the Romanian SMEs did not succeed in developing a culture exploiting the opportunities offered by these NIT, at the maximum level" [1].

Recent data from the White Chart of Romanian SMEs confirm the same unsatisfactory situation for the ICT use for e-commerce activities (only 9.59% ), as it can be seen in Figure 1 [2].

![The use of IT components in Romanian SMEs (%)](image)

Fig. 1. The use of ICT by SMEs in Romania.

We agree with the aspects pointed out by the same authors based on a fine analysis of the SMEs sector: "The majority of SMEs consider that the technological alignment does not mean more than a web site by which they sale the products and present information. Therefore, they apply a thin „pellicle” of information technology oriented towards the client back grounded by an old business organization and mentality. Actually, NIT should be used in changing the company organization ways, in relation to clients, suppliers, partners and employees. In the same time, SMEs undergo a transformation process, becoming organizations based on value." [3]

The Economist Intelligence Unit e-readiness rankings, 2007 pointed out that those countries where tangible commitment has been expressed in terms of national infrastructure initiatives and clear stimulus programmes - including Chile (30th) and Romania (45th) - made visible gains in scores and ranks. [4]

Another aspect pointed by The Economist Intelligent Unit is the following: "Resourceful businesses in many countries have also found ways of using ICT to create new service models, reaping significant benefits for themselves and their economies. India provides the most famous examples, with its IT-outsourcing and now “knowledge-process” outsourcing industries dependent on advanced networks to deliver services. Romania, Bulgaria, Brazil, the Philippines, Vietnam and other developing countries are similarly building outsourcing sectors that generate tangible economic benefits” [5].

Based on data from the white paper of the Economist Intelligence Unit 2009 [6], we selected the scores for Romania and compared them with the first and the last in top (see Table 1).

<table>
<thead>
<tr>
<th>Category scores (weight in overall score-%)</th>
<th>Denmark (first in top)</th>
<th>Romania* (rank 48 of 70)</th>
<th>Azerbaijan (last in top)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall score</td>
<td>8.81</td>
<td>5.07</td>
<td>2.97</td>
</tr>
<tr>
<td>Connectivity and technology infrastructure (20%)</td>
<td>9.50</td>
<td>5.30</td>
<td>2.95</td>
</tr>
<tr>
<td>Business environment (15%)</td>
<td>8.03</td>
<td>6.16</td>
<td>4.70</td>
</tr>
<tr>
<td>Social and cultural environment (15%)</td>
<td>8.53</td>
<td>5.20</td>
<td>3.03</td>
</tr>
<tr>
<td>Legal environment (10%)</td>
<td>8.10</td>
<td>6.65</td>
<td>3.25</td>
</tr>
<tr>
<td>Government policy and vision (15%)</td>
<td>9.65</td>
<td>5.35</td>
<td>2.70</td>
</tr>
<tr>
<td>Consumer and business adoption (25%)</td>
<td>8.90</td>
<td>3.38</td>
<td>1.98</td>
</tr>
</tbody>
</table>

As it can be observed in the above table, the category Consumer and business adoption, with a weight of 25% in overall score (3.38), is under the overall score (5.07) 1. The category Business environment has a better score (6.16). 2

If connectivity, societal adoption, and legal and policy environments are necessary enabling platforms for e-readiness, then the actual utilization of digital channels by people and companies is a measure of successful implementation. The Economist Intelligence Unit looks at the amount that businesses and consumers

1 Criteria for “Consumer and business adoption” : consumer spending on ICT per capita; level of e-business development; level of online commerce; availability of online public services for citizens and businesses

2 Criteria for “Business environment”: overall political environment; macroeconomic environment; market opportunities; policy toward private enterprise; foreign investment policy; foreign trade and exchange regimes; tax regime; financing; labour market.
spend on accessing ICT services and their adoption levels of e-commerce. This year the Economist Intelligence Unit has also re-oriented the category to include analysis of the availability of digital channels for accessing government services.

Among the key e-Business trends observed in 2006 and pointed out in January 2007 report of The European e-Business Market W@tch, we found very important this tendency: “Better solutions for SMEs” [7]

Until recently, the ICT industry was often criticized for failing to provide adequate e-business solutions for small and medium-sized firms. This is changing. Driven by market requirements, and enabled by technological advances, ICT companies are increasingly addressing the SME market. They are developing affordable, smaller-sized solutions (e.g., ERP and CRM suites) that can be connected with the more powerful systems of large firms.

3 ASP and SaaS – alternatives in applications' implementation
Based on the The European e-Business Market W@tch, one of the new trends watched out in 2006 is the increasing use of open source and software as a service [7].

Business models for software service provision could change in the future. Rather than just selling a product, the service component is becoming increasingly important. Growth in the use of open source (OS) software components is reinforcing this trend. These changes can be a challenge for business advisors; the range of products and service models from which companies can choose has increased.

3.1 The shift to SaaS Models
Though the price of hardware is decreasing and becoming more affordable, a major predicament remains: enterprise software applications, such as complex enterprise resource planning (ERP), supply chain management (SCM), product lifecycle management (PLM), and customer relationship management (CRM) systems, are often too expensive and too complicated for small companies to govern. While they can afford the necessary hardware, they do not have the IT staff and infrastructure required to support a major enterprise application. Relatively cheaper solutions are now becoming widely available, and vendors are addressing their customers’ desire to use technology as needed. Users do not want to buy entire software packages or infrastructure when, typically, only a small percentage of the overall capability is used. User enterprises have also become more agile, requiring more flexibility in IT delivery and usage, as well as licensing and payment structures, and vendor business models. In the enterprise applications space, many customers are moving away from large upfront licensing contracts (with ongoing maintenance fees), to one that is variable, based on usage, and defined by a subscription-based relationship bundling the entire offering. There might also be a financial advantage to having the software be an expense rather than capital, which will depreciate over time.

Whether referred to as hosted services, ASP services, SaaS, utility computing, or software on-demand, the idea is basically the same: instead of buying and installing expensive packaged enterprise applications, users can simply access applications over a network, with an Internet browser being the only absolute necessity. Thus, often there is no software and hardware to buy per se, since the application is used over the Internet and is paid for through a subscription or supported by a third party, such as an advertiser. Advertising-based software offerings emerged several years ago in the form of Web e-mail and Web calendaring.

The widespread use of personal computers (PC), the Internet, and resulting Web-based applications has had an essential impact on the way business applications are being sold and delivered. Thus, any user working at a PC with a Web browser can access a variety of business applications running on different software or hardware platforms in any number of different locations for the cost of a simple Internet connection.

The concept of "software as a service" started to circulate in 2000 and 2001, associated with firms such as WebEx Communications, and Remote Business. The camelback acronym "SaaS" came into wide use after its first use in a non-profit conference on the subject in March of 2005 [8].

As a term, SaaS is generally associated with business software and is typically thought of as a low-cost way for businesses to obtain the same benefits of commercially licensed, internally operated software without the associated complexity and high initial cost. Consumer-oriented web-native software is generally known as Web 2.0 and not as SaaS. Many types of software are well suited to the SaaS model, where customers may have little interest or capability in software deployment, but do have substantial computing needs. Application areas such as Customer Relations Management, Video Conferencing, Human Resources, Accounting and Email are just a few of the initial markets showing SaaS success.

The key characteristics of SaaS software, according to IDC, include [9]:

- network-based access to commercially available (i.e. not custom) software
- activities that are managed from central locations rather than at each customer's site,
enabling customers to access applications remotely via the Web
- application delivery is typically a one-to-many model (single instance, multi-tenant architecture)
- centralized feature updating, which obviates the need for downloadable patches and upgrades.

Market studies show that companies are spending more on software as a service, as vendors improve on the technology for delivering functionality over the Internet. The worldwide SaaS market reached $6.3 billion in 2006 and is expected to grow to $19.3 billion by year-end 2011, according to Gartner [10].

Another Gartner report indicates that the segment of new business software revenue generated from SaaS products is expected to increase to 25 percent by 2011 from 5 percent in 2006 [11].

Furthermore, adoption of SaaS has varied significantly by market segment. The delivery model accounted for 8 percent of revenue from CRM software in 2005, but less than 4 percent of ERP and supply chain management sales. The majority of SaaS deployments continue to be on the department level in large corporations, and in small and medium-size businesses.

Although the SaaS market is still small, Gartner analysts said the scale of change that SaaS will produce requires providers to keep ahead of the SaaS wave.

3.2 ASP versus SaaS

The reason for moving away from the term ASP (application service provider) was primarily related to technology: ASP generation was merely traditional client-server applications with HTML front-ends added. Applications hosting was the model where another company ran the software and hardware for a user company, which may or may not have owned the software license. Customers paid a fixed fee for a service and rented access to the software over the Internet or a virtual private network (VPN). The hosting party, called an ASP, could be the software vendor or another third party entity that managed and distributed software-based services and solutions.

These applications were hosted by IT firms who typically did not have application development expertise, but were only managing servers. Because the applications were not written as net-native applications, performance was poor and application updates were no better than self-managed applications. By comparison, current net-native SaaS applications or independent portions are updated regularly, even daily.

In essence, ASPs are a way for companies to outsource some or almost all aspects of their IT needs. ASPs emerged on the Internet in the late 1990s in response to the expenses, upgrades, and technical difficulties, including misbehaving applications, random server downtimes, and compliance issues suffered by enterprises.

Despite the fact that ASPs eliminated most of application deployment and maintenance issues, the hosting companies were unable to substantially modernize the traditional packaged software they offered, and did not make the software easier to access and use. Moreover, most of the first generation of hosted applications was not suitable for delivery over the Internet and certainly was not appropriate for the SMEs.

The first SaaS approaches were ASPs who ran a turnkey application on behalf of their clients. But ASPs generally did not build the application themselves; rather, they took an off-the-shelf application (such as an ERP or a CRM package) and ran it for customers. ASPs deployed one application instance on a server for each customer, just as a customer would deploy internally. This inability to scale this kind of business model may be cited as one of the reasons for the failure of the ASP model.

As we pointed out, SaaS model is based on a multi-tenant architecture, meaning that multiple customers are running the same software, but with a virtually separate data. The multi-tenant architecture simplifies application management for the vendor and also simplifies the value for all customers since upgrades are instantaneous available across the entire platform.

ASPs that have reinvented themselves as SaaS providers have done so by first focusing on one or two core areas, such as sales force automation (SFA), e-mail management, e-commerce storefronts and product catalogs, human resources/payroll, or financial software. They also offer only their own software, written from ground up entirely for an Internet-based architecture, and run the software on shared servers to minimize costs. This is the next step in the evolution of hosting services [12].

3.3 Potential SaaS Benefits

The SaaS business model offers several advantages to both the customer and the vendor that compensate the eventual, long run, higher costs of this model. By purchasing a software service (as opposed to purchasing a software license), the customer has little or no up-front acquisition costs, no hardware or software to buy, and no numerous support IT staff to hire and train. The cost of acquisition is basically reduced to the cost of training employees on the application, the initial configuration of the application, and converting existing data.

Hosted SaaS is also easier to get running, partially because customization is limited, but also because there is no hardware to buy and no software to install. Moreover, there is no software to manage, fix, or
upgrade, as this becomes the vendor’s responsibility. Users get a semi-custom application without having to hire an IT team to keep it running. Because the vendor is hosting the application, customers see only one instance of the software.

Then again, with the on-premise model, the software is distributed to the customer and is installed on the customer’s computers in a variety of environments, out of the control of the software provider. Again, SaaS reduces the pain of upgrades, as customers automatically remain current on releases, despite spending minimal effort on upgrades.

Thus, traditional fixed costs turn into variable counterparts, since a customer only pays for software it actually “consumes”. This may require some new approaches to IT budgeting, but it should reduce unnecessary software spending. Moreover, customers may start preferring to be able to pay-by-use, provided it is controllable.

Further, these cost reductions may allow the vendor to charge more for a software service than the classical user-based on-premise license. Additionally, the SaaS model severely lowers switching costs, and should oblige software providers to uphold higher levels of customer satisfaction and deliver better product functionality to ensure broader user adoption.

Owing to the existence of only one instance of the software application, often the vendor only has to support one hardware and software platform, which greatly reduces development costs. Vendors can offer more targeted customer support while focusing on a single version. A single instance also means that the vendor can introduce software enhancements one at a time, breaking the dreaded major upgrade cycle and eliminating the cost that cycle generates. SaaS delivery gives vendors real time customer feedback, and astute vendors can continually monitor usage of their application and apply this insight toward continued product enhancements.

4 The SaaS wave and SMEs
The lower acquisition cost of software services makes these affordable for a broader range of prospective customers. In particular, this affordability gives SMEs the opportunity to use virtually the same solutions as their bigger brethren, and thus expands vendors’ opportunity to sell their service to a greater number of customers.

There’s a good chance that SaaS is right for SMEs, as a future leading delivery mechanism. Although SaaS penetration into this space is slow, there are many reasons for SaaS to prevail. Here are some reasons to consider:

- **Low cost of entry.** Instead of paying lots of money to roll out a complex solution across the entire company, customers can roll out tests involving one department consisting of relatively few people. The risk is very low if it fails, and they don't have to involve their busy IT staff. This is especially true for small organizations since they do not have the resources available to pay large sums in advance for software. Also, small companies often have less capable or more overburdened IT staff and may lack robust systems for backup, security control and high availability services.

- **The responsibility is on the vendor.** If the vendor's software is broken, they won't be getting money from any customer for long. The company is motivated to fix the problem. The vendor works for the buyer. Customers don't have to rely on their IT department to install an application because everything runs securely at the vendor's location.

- **Less risky investment.** Instead of spending 40,000 Euros all at once, for example, customers pay for the software monthly.

- **Vendors must provide a secure data environment** or they’re out of a job. Most vendors understand that data must be backed up religiously, and security is the top priority. Customers' IT departments are typically pulled in many directions and can't be as focused on one solution. Customers can rest assured their data security is probably better with a hosted solution, not worse [13].

- **The world is flat.** SME managers and owners work 24 hours a day and many of their employees do the same. In addition SMEs need to interact with externals like telemarketing agencies, their accountant or vendors abroad. SaaS products allow them to access your data from wherever you are.

- **SaaS is safer.** The data, safely stored in a secure location, is safer than a SME can provide in-house. It is common for small businesses to lose data due to viruses, human errors or even thefts or natural disasters, and the results are devastating.

- **SaaS products are automatically backed up.** People are not good about backing up data, and with SaaS products the company doesn’t have to worry about it.

- **SaaS vendors innovate faster.** The good SaaS companies innovate much faster than the rest. With no need to attend to old versions, all of the R&D resources can be focused on new...
versions. In many cases, the older on-premises vendors dedicate more than half of their R&D budget to previous (but still used) versions.

• **SaaS is more stable, especially for SMEs.** With no IT department and chaotic operations, SMEs are more exposed to stability issues in their systems. When all they need is a working browser and Internet connection, very little can go wrong.

• **Packaging and pricing.** In most cases, SaaS products are packaged in a much simpler way than on-premises products. This is not a matter of technology but rather lack of heritage. In addition, adding users or functionality will usually take minutes, not weeks.

5 Conclusion

With its conservative nature and low IT budget, the SME represents the ‘proven standard adopter or late majority’ of the market. These numerous companies thus require proven, stable and standard solutions that fit their tendency to invest in business applications technology.

We think business applications vendors need to understand the conservative nature of the SME market and adjust their sales, services, and support efforts accordingly. Since proof is key to the decision making process, vendors should work hard to document their accomplishments in their chosen target markets and build relationships with existing customers in order to help potential customers know the value of the vendor’s solution.

According to Gartner, 30% of new software products will be delivered as a service by 2010 and the market will reach 19 billion USD by 2011. [14]

Business models for software service provision could change in the future. Rather than just selling a product, the service component is becoming increasingly important. Growth in the use of open source software components is reinforcing this trend. These changes can be a challenge for business advisors; the range of products and service models from which companies can choose has increased.

Since software decisions tend to last 5-10 years, every company is interested in selecting a modern platform today that will carry him into the future. Especially if it is a small company with a modest IT budget.

We expect SaaS models to become popular alternatives, especially for SMEs and startups that do not have the same, large IT budgets as larger companies. Companies can acquire software for a lower entry cost and pay for more only as their business expands.

SaaS applications are generally priced on a per-user basis, sometimes with a relatively small minimum number of users, and often with additional fees for extra bandwidth and storage. SaaS revenues of the vendor are therefore lower initially than traditional software license fees, but are also recurring, and therefore more predictable, much like maintenance fees for licensed software.

References:

[2] adapted from Marchianu B., “*Carta albă și poza (încă) pătată*”, article in eWeek Romania, No. 188, 2007, p. 23