

# **Possibilities for data management and online business at Small and Midsized Businesses**

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## **1 Introduction / Abstract**

The purpose of the article and the purpose of the related research is to answer the question, whether it is expedient to invest energy, money and a huge amount of time into creating / developing (with the goal as selling it) a not yet existing, fully integrated procedure supporting – specifically aimed at local small and midsized companies.

To give a correct answer, we need to inspect many aspects: what are the average needs (requirements) for an average hungarian SMC? What are the problems with the ongoing solutions? Between these, which ones can be felt by the company leaders? Which ones are hard on employees using the IT solutions? How could a product be made, in a way, to satisfy both the managers and employees? What are the important economical / technological aspects? What are the conventions and practices, and if these could be done better, than how?

## **2 IT requirements**

As for IT requirements: the easiest to satisfy SMCs are located in the retail / commercial sector – IT support here has the longest way back. Keeping records of commercial products in order is one of the most widely supported business need. Of course, e-commerce and web-stores are very well connected - this category is one of the most widely spread open source software type related to internet. The other well-spread online solution related to commerce is CRM (Customer Relationship Management), as well, with many online, working products – some of them are open source, maybe even free products. Another required function is billing. Billing or

creating and maintaining bills as a function can be found in many ERP software. As for commercial companies – maintaining their partners, buyers, suppliers is solved, and supported. TO automatize the ordering processes, EDI (Electronic Data Interchange) solutions are needed, but since every instance is different from the other instances, most likely professional help is needed (the situation is the same with data migration) – the cheapest and the most easy/applicable solution is the Web-EDI, but the same is true for it too.[4]

Physical storage of goods and commercial products is also connected with commerce – so warehousing and controlling the stock (even moving products between warehouses and inside a warehouse), and creating inventory lists, discarding bad products is a business need too. Somehow maintaining the lists of brought devices, and maintaining their amortization connects here too. A bit deeper search is needed if we want to find an online solution for these (All the wide-spread IT solutions are desktop applications – or in a more serious situation using the client/server model).

As for architecture, nearly the same stands for accounting software – it is very hard to find an online (and even harder to find a free) solution. There are a few, which are free – depending on circumstances (for example: strictly commercial activity), but the productive usage of these are very hard; in a more complex situation the only way is to buy a yearly license for the software.

A natural requirement is the storage of business documents – many free solutions are on out there, even online solutions are possible. Nearly the same is the situation with inside and outside communications – many online, free solutions are possible again.

Apart from these functions were developed the CMS (Content Management Systems) solutions. With them it is very easy to create or maintain business webpages, they can easily fit to company images, and they are very easy to learn – many free and online (even open source) solutions are possible.

As for software functionality: supporting a service is very much the same, as supporting a commercial activity (because in many cases the service can be measured and handled as a product). The greatest difference between those two could be mobility: by providing services required personal contact, using mobile devices is highly recommended. This would be (or is) a great advantage for online systems, because providing as many mobile clients, as the variety of mobile devices there are, would be very expensive.[1]

There are very few online systems, specially designed to use with mobile devices, and even fewer, which supports examination on the spot features, fleet management or mobile payment.

### **3 New possibility: Online business procedures**

With a solution outlining from the points mentioned above (as many free partial solution as possible, and integrating these into the business procedures, with a few indispensable bought applications) the problem is, that they consume a lot of energy, which – otherwise – could be useful.

The integrated, online ERP (but in this case ERP is not a good word, because the emphasis is not on the resource management, but no better synonym is widespread enough) system for SMCs is missing from the list above, intentionally. In Hungary this category counts as new, but even in Europe it is hard to find anything, that counts as an integrated, online ERP. The cause of course is the seemingly hard development (and other design questions).[1]

It would be practical, to develop (and design an introductory method) an integrated, online ERP system, which perfectly suits SMCs – includes all the functionality required by these companies, and all the data is kept in safe, in a distant server, on the internet.

Deciding the development, and voting yes is not quite so easy: beside the usual economical and technological questions, the willingness of the target buyers – the SMCs – must be investigated. Would they be willing to use such a service?

### **4 Economical considerations**

The main reasons behind the introduction (or the cancellation) of an IT system are the economical measures.

Since the bespoke product is an online ERP system, it can be named a service, so the SaaS (Software as a Service) sales model can be used for it.[5]

From a technical viewpoint the end user does not have to install any software in the desktops or servers, only a web browser and internet connection is required; all the

data will be kept in distant servers. As for user experience: the functionality and feel can be nearly the same as a desktop application.

From the economical viewpoint: the model can be described with the subscription method, the user pays monthly (or custom modified time period) fee for using the service, to the service provider. Opinions vary on the base for calculating the monthly fee, but usage dependent (the usage is monitored, and the costing is based on measures – the more usage, the higher the fee) costing and fixed (same cost for every month, independent from usage) costing can be distinguished. For the usage dependent pricing model, the advantage for the user is the very low starting fee (can even be zero), but this can turn into a disadvantage, when the business spins up, and more and more usage is needed. The fixed price model has the advantage of predictability, but with the disadvantage of the constant monthly fee (beside zero usage as well). Beside these two the price cap tariff is possible (that means a base price – which can even be used down – and a usage dependent pricing, until it reaches the price cap, and then the fee will not change). In other areas, where this pricing model is used (for example telecommunications), the price cap is higher – the average is +15% price to the monthly fee pricing model. [2]

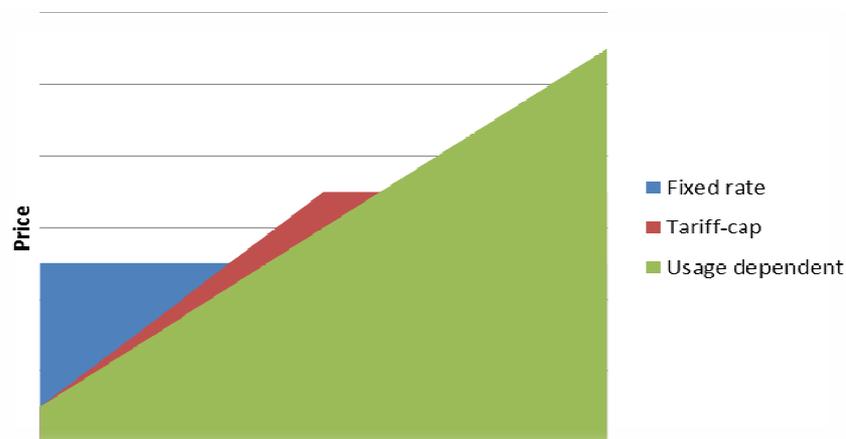


Figure 1.:

The relation between the usual pricing methods and the monthly prices

Again, from a technical viewpoint, but from the service providers perspective two things need to be considered: hardware utilization, and their utility prices (including

the network availability prices). The ideal utilization value is a stabilized 70%, in many aspects.[1]

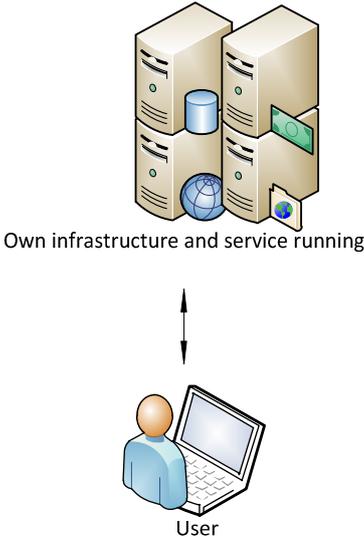


Figure 2.:

The provider uses own infrastructure; the user is connected

As for predictability: For the service provider, it is better, if the users choose the monthly fee pricing model. But, if the deployment involves cloud computing (for this the service provider needs to use and pay for a service – the cloud computing service), it is much better, if the users choose the usage dependent model (because their usage strongly reflects the cloud usage).[3]

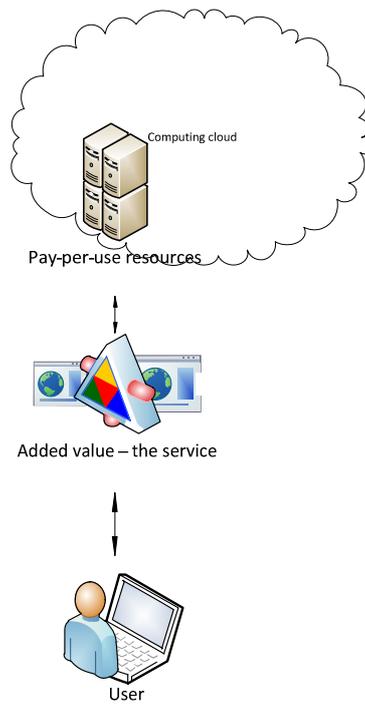


Figure 3.:  
Using cloud computing: the added value is the service itself

## 5 Emerging problems and willingness

The possibility to introduce online ERP is not enough to the success of the new category, since the fact that such a system would be really cheaper to use is not enough, other factors must be considered.

The first problem is due to complexity: how can the potential customers be persuaded, that this one is the right product / solution for them? Do they really need this?

Another problem is (even with a free and long, fully functional) in the test phase (test time period) the company has to do double administration: the usual administration for

everything, and the test administration for the new system. That probably causes the employees to feel against the new system (because of the extra work they have to put down), which will be mediated to the leadership – and it makes even harder to sell the service. To avoid this, on one hand the service has to prove itself in costs and in functionality to the management (this is a marketing challenge); on the other hand it has to prove itself with the simplicity, automation and speed of tasks to the employees (this is a design challenge).

The greatest challenge is to think out a testing method so, to make the advantages visible. The main problem is, that an universal solution needs to be created, which can be customized freely, to adopt to any company. The customization (which by an online system means, it has to be set up correctly) has to be easy, so it would not require professional help (at least not from the development party). Based on user and professional opinions the following customization method would be expedient: originated from the management, and as the first step they decide, on which areas would the enable the services – and where they would like to use it, a responsible person must be named. Ideally from then, the management has only to do the monitoring. Later, the persons, who have the responsibilities of different departments, can fine-tune their modules.

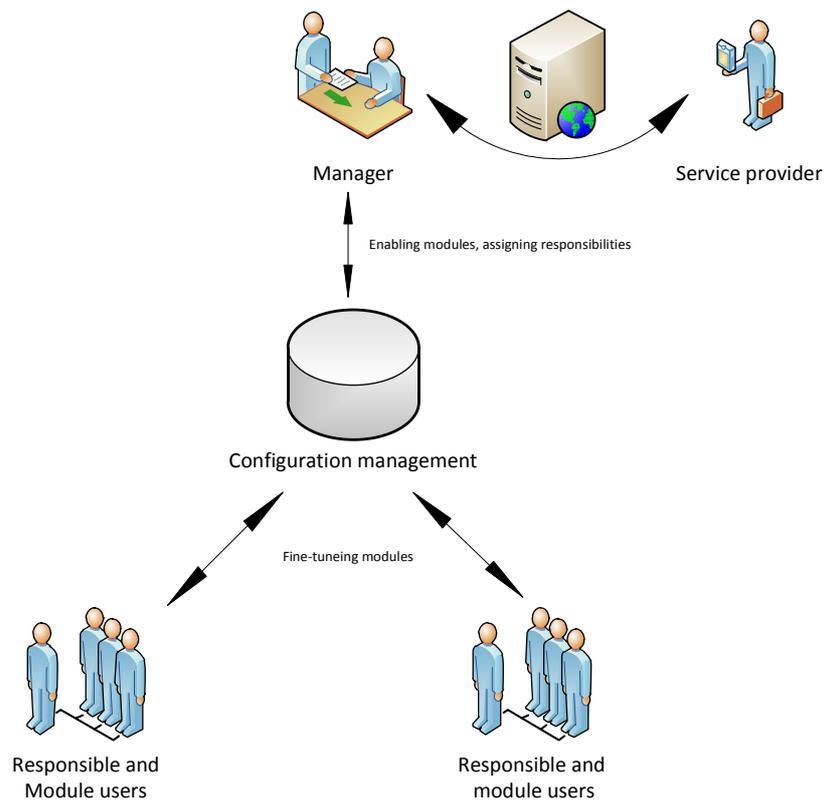


Figure 4.:

The suggestible customization model

With a customization method as this (especially when every setting can be modified later) the feeling of testing the new system is a huge extra workload, can be avoided.

The other source of the feeling of extra workload comes from filling up the new / tests system with company data. The compatibility with as many data sources as possible takes place on a high rank between the requirements. From a design perspective that means two things: the need to support as many standard formats as possible (not only file formats, but database connections as well), and, beside that, the whole procedure ideally should not require professional help from the developers. This is the hardest part – if the clients data is kept digitally in some database (or just parts of it) – is the



data migration. There are some quasi-standard table hierarchies, which can be found in many company-related systems, but in this sector there is so many custom software development projects, that it is likely that a diverse table hierarchy is used – many of those only used in one solution. The appropriate tool for this problem would be a migration tool (or migration module for the system), but this would only solve the need for developer help – designing and initiating a migration (with even a well designed and clear user interface) need professional help, and since it very unlikely, to find two similar source systems, it will be a hard-to-automate task. A helpful tool would be a repository for already done migration tasks, so later, when a similar migration problem emerges, the solution would be at hand.

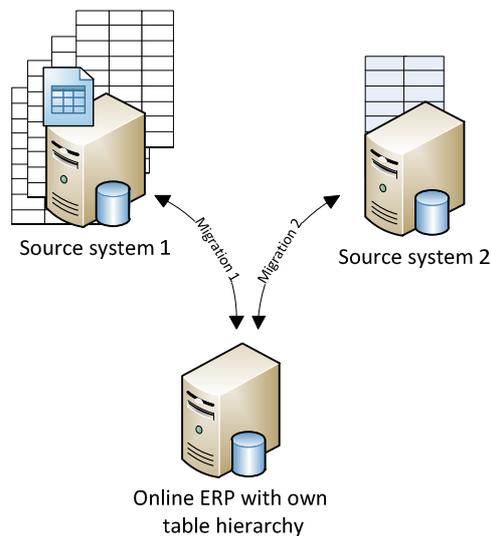


Figure 5.:

Migration problem: many different source systems

According to the management serious trust issues are involved (specially in the SMC sector) in the decision (about the new IT systems) – a significant amount of them had negative experience with new system introduction (These were mostly installed systems, with expensive yearly licenses): after a few years the support stopped for the product (in multiple cases the developer company ceased to exist, and purchasing a complementary product would meant a new system introduction), or the support fees got way higher. Negative advertisement also works well: the contracts for these kind of software systems got much stricter; the developer has to oblige to support these

systems for years. The cancellation of updates / support is a major threat for accounting modules.

Another major and actual issue is the physical data safety. The “standard” procedure involves third-site offline data storage, with daily updates. That usually means periodical (usually daily, or two times a week) offline data transfer (physical hard drive movement). The offline copy is usually accessible for the company, and for the service provider (who actually uses it), and is stored in an encrypted format. That typically provides some protection against serious data loss (the service provider has also to use some kind of data replication, on site), even if the service provider cannot access those data momentarily (The contract between the company and service provider usually involves the definitions for responsibilities for both parties).

The other – equally important - trust issue from management side is that by using an online system their data would not be kept at the company, but some outside (probably a server farm) location. According to the interviews this issue emerges even if the data is kept in an encrypted form. This is especially true for accounting information and customer data. (The same problem arises involving taxation information – all the answering manager agreed, that all the data, not kept in the company, has to be stored as heavily encrypted. That pulls the requirement for data storage in the online ERP system: every company has to have its own encryption key – only known by the responsible person – which applies for every copy: offline/online. That protects the interests of the company even in official investigation cases – on the other hand the law applies: passwords for encrypted data must be provided to authority.)

## **6 Measurement**

With taking every mentioned factor into consideration a series of interviews were conducted, and beside that (with a greater sample) questionnaires were used. The goal was, to interview at least 60 managers, and at their companies as many administrative worker (who has everyday work with computers). Only 37 of the contacted 60 contacted companies answered – but counting the partial sensitivity of the issue, that actually counts as a fair ratio – and in 8 cases had risen the opportunity for a deeper, ~30 minute long interview. All the companies, whose managers allowed the interviews, let also their employees give short interviews or fill out the questionnaire. Beside these, the questionnaire was also posted on a specific internet, and e-mails were sent out, asking the fill out. The ratio between the sent out e-mails, and the online filled form topped only at 15%.

The questions during the interview were similar to questionnaire, with the focus on the causation regarding management decisions. In every case, only companies qualifying the official definition for SMC (regarding employee number, income) were taken into consideration on administration and management sides.

A group of questions regarded to determine the profile of the company; the goal was to establish connections between required (IT) functionality and company profile. Here took place the question regarding the already / frequently used functionality; as well as the nice-to-have and would-use functions. What are those functionalities, which are not integrated, but would be good have those; What are the used free functionalities, and what are the commercial (payable) ones? What are the usual / recurring hardships? Does the company employ IT technicians, and if yes, how many – and what are their usual tasks?

The other group of questions were more technical – to determine the hardships on migrating from an already introduced system to the new online one. The focus was on the used information sources, their nature, their number. The expected availability was an issue too (with explanation).

Regarding the trust issues, managers were asked, what would be the acceptable monthly fee for them; what kind of contract would be favorable for them; What is the amount of monthly spending at their company.

The employees were asked (too), what they think is important about using a company system every day.

## **7 Conclusions**

The summary is the following: None the less, the IT needs of an average SMC can be satisfied with mostly free products (and in some rare cases even with online solutions), introduction of a fully integrated online ERP system worth the while. It can be sad, that such a solution can not be free to use (or only with so limited functionality, that would press the users towards paying), but the monthly fees would be far less, than an average SMC spending on its business procedure support (monthly IT expenditure on software side). As it revealed from the measurements, the average SMC expenditure on business process supporting software (the software product itself, installing and support fees, updates and consultancy) is between 45 and 220 thousand forints every year. This – relative high – price is the result of two things: the high price of SMC ERP systems, and the high cost of workforce supporting the collaboration of these

systems. In the case, if a solution with the same functionality existed – an online, integrated ERP system specially designed for the SMC sector, 85% of the asked managers would seriously think of using it as a service, in case of a new company establishment. As for the managers of ongoing businesses: 55% would go for it, if the viability of the solution could be proven (in a testing phase).

After taking the situation of the European economy, the mentioned market opportunity (no similar products) and the research results into consideration, it is still hard to decide, whether it is risk-free (or at least low risk) to develop such a service / product. As it turns out from the interviews (and software development experience) the market opportunity is real (the technology and knowledge is available), and the need exists, but the merchantability heavily depends on the preceding marketing activity. The solution should be marketed as a free-to-test system with a trial period, or a free-to-use system with some limitations.

Giving the opportunity to test the fully functioning system worth the while for the provider, because it gives the chance for proving a longtime fulfilling partnership. During the test period ensuring the availability, the quality of service and the support (even implementing requests – the SaaS model has the advantage in new functionality distribution) has to come first, but then, the probability of purchasing the service will rise.

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