PROBLEMS OF E-BUSINESS IMPLEMENTATION IN SMEs

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Abstract. The rapid growth of electronic business has been evident since the very beginning of the last decade. Nevertheless, so far companies experience many problems related to the implementation of e-business. This article is focused on the analysis of the main problems as well as opportunities of small and medium-sized companies (SMEs) engaged in e-business. However, in the rush to offer e-business applications to beat competition or to respond to client and internal needs, many businesses have developed unfriendly, expensive, limited services of questionable value. This article will present an analysis and some methodological guidelines as to how to solve the problems arising in the implementation of e-business as well as how to best use the offered opportunities.

*The main **goal** of the article is to analyse the problematical issues of implementing e-business in small and medium-sized enterprises.*

*The following **objectives** are set in the article:*

1. To define the main problems and barriers in engaging in e-business faced by small and medium-sized enterprises.

2. Based on the analysis of survey results, to identify the main reasons and opportunities for involvement in e-business.

3. To outline the characteristics that small and medium-sized enterprises should possess in order to be effective in e-business.

The following research methods are applied: theoretical and comparative analysis, an empirical study of SMEs on the issue of e-business.

The SME e-Business Survey 2001 undertaken by the Chambers of Commerce of Ireland demonstrated the level of penetration that e-business has achieved in Irish businesses (http://www.chambersireland.ie): 826 small or medium-sized companies were interviewed in the survey (all with 250 or fewer employees). The respondents all held senior positions in the companies. The survey revealed that while there was a high level of Internet access among Irish SMEs (over 81%), the use of the Internet tended to be in large part limited to marketing and sourcing material (82%) and e-mailing customers (73%), and there was a low level

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of transference of general business processes to the Internet – with 45% of companies having a website. The survey also revealed that Irish business felt that not enough was being done to inform them about e-business or in providing practical help for companies to become involved in e-business.

Similar practice is common in other developed countries as well, particularly as regards SMEs. Here it should be pointed out that SMEs are to be better informed on the benefits and opportunities of e-business. SMEs need also to learn to evaluate their particular business activities with respect to their compatibility in the e-business sphere.

The perceived main obstacles to e-business (Feuer, et al. 2002) are the lack of technical skills, security issues, and the cost of hardware/ computer equipment. The cost of specialist technical skills in computers/e-business can be regarded as the greatest obstacle, with 40% of respondents saying that this was a major problem, while one third of the businesses surveyed perceived the lack of security as a major problem. Similar obstacles were highlighted in the Enterprise Ireland survey of its client base, where organizational culture, cost and training the existing staff were noted as the greatest barriers.

In order to ensure the effective establishment of e-business in a company, it (Messanarz, 2000) must be developed and implemented from the business but not from the technological point of view. Although technology can play a very important role, it is a tool for obtaining results but never an aim in itself.

Despite the fact that technology is very important in an e-business project, it should be taken into account that the company culture and the staff are the "engines" of the organisation. The reasons for failure of e-business projects as commented by the Irish Chambers of Commerce in 2002 were as follows:

- Companies ignore, totally or in part, the important opportunities offered by Information and Communication Technologies (ICT). Therefore company management does not support these projects.
- E-business is often confused with having a web page.
- The opportunities offered by ICT are underestimated.
- There is a lack of professionals that have a general overview of the e-business project, from both the management and the technological points of view.
- Organisation processes are not re-oriented when they go digital, in order to adapt businesses correctly.
- Internet communication actions are not correctly developed.
- No methodology exists for the development of an e-business project.
- It is not considered a priority, and SMEs are quite reluctant to changes.

Summarizing the above, we can conclude that SMEs (as well as many large enterprises) need to be trained and educated more on the issues of e-business. This can be achieved through governmental support and should be initiated by private sectors with the highest interest in e-business development and expansion of the Internet. According to Kadlec and Mares (2002), the presently existing specific barriers for SME entry to business-to-business (B2B) e-commerce can be outlined as follows:

- SMEs have a more restrained approach to new and unproven concepts due to their higher vulnerability. They cannot afford to experiment too much.
- SMEs have a different business style based much more on personal relations and community links.
- SMEs have a considerably higher cost awareness: one failure might be the last

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one (which is not the case for large corporations).

- SMEs have a more difficult access to verified success-story information.
- SMEs have different characteristics of competitive pressure (large enterprises are expected to be at the forefront).
- SMEs lack confidence and trust in new technologies.
- SMEs usually have low bandwidth Internet dial-up connections, as their understanding of the connectivity value does not justify a more expensive fixed line or broadband technologies.
- SMEs face little pressure to drive down their operational costs (typically reasonably low), but show a more careful approach to investments.
- SMEs lack experience/education/understanding of e-business possibilities.

The most important of the above-stated barriers are the lack of confidence and knowledge of new technologies and their applications, their contribution to SME business and increase in added value. SMEs must be clearly aware of the economic effectiveness they can achieve by involving themselves in e-business.

On the other hand, there are many cogent arguments why SMEs could be in fact ideal participants in electronic trading and have numerous opportunities there. The experience of Economy.cz (2002), a web based Czech business portal, reveals several specific reasons for SMEs to become motivated participants in B2B e-business. They are as follows:

- SMEs typically endeavour to expand beyond the territory currently limited by their inherited business activity (municipal or district) – the majority of them wish to break the barriers.
- SMEs can usually react and make decisions quickly; this makes any new quicker and more flexible way of doing business very attractive for them.
- SMEs show a significant lack of qualified sales resources to generate a continuous flow of new business opportunities.
- SMEs have poorly defined sales processes, usually with no technological support.
- SMEs show a much higher appreciation for any support that would introduce fully developed business relations and help keep them stable.
- SMEs suffer from insufficient knowledge of marketing principles but show a rather careful spending for consulting or guidance that could increase their marketing impact.

Figure 1 summarizes some of the drivers for e-business and several other aspects typical for SMEs.

Driven on by consultants, larger companies made high investments into information systems based on "new advanced concepts" and standards to manage their operations better. Most of these concepts were replaced by completely new ones (Kadlec and Mares, 2002), but those companies that were able to distinguish between the hype and business reality, based their strategic thinking on the following cornerstones of the IT/IS business benefits:

- Information technology is not more than a technology for efficient sharing, processing and managing of information, and currently it can neither become a new sales channel nor a vehicle for completely changed business principles.
- The latest technology is not the key driver of success in itself (especially in terms of return on investment), but it can definitely inspire innovative business ideas. The Internet is an extremely powerful

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marketing channel only in cases where customers recognise and appreciate the benefits of the services provided.

In other words, the core decision concerning e-business implementation is about setting up a business model that adds the highest value to the company and its stakeholders. The technology is only the enabler of the right business model. Besides, as Cattaneo (2002) points out, in choosing the right e-business model and supporting technology, one of the key factors is asset specificity. Where the value chain is oriented to products with a relatively fixed degree of added value – as in automobiles, – the value chain is highly integrated, and the scope of evolution in the business models tends to be limited. Whereas there is a greater scope for new types of products and services to appear in the tiers of the value chain, as in publishing and food industries firms have an opportunity to adopt a correspondingly greater range of e-business models.

The method that business can use to iden-tify e-business opportunities is to focus on the 'Critical to Quality' (or CTQs) factors for each step of the buyer experience. These steps in the buyer experience (Chan Kim and Mauborgne, 2000) can be broadly defined as follows:

1. Purchase experience (information gathering, interaction with company representatives, the actual buying process and mechanics).
2. Delivery and installation of the product or service.
3. Usage of the product or service (How easy or self-explanatory is it? Are the benefits immediate? How powerful is its functionality?).
4. Supplements (What is needed to extend the value of the product or service?).
5. Maintenance and repair of the product (How simple is it? How fast? How much disruption does it cause to existing business?).
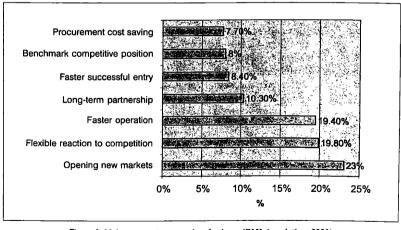6. Disposal (Are there waste or legal issues of product disposal?).

Figure 1. Main reasons to engage in e-business (BMI Association, 2001)

These six phases of the buying experience can be analysed with a view towards determining the customer approach to quality-creating features within each of the phases. Quality can be defined in a number of different ways. The useful way for managers to think about how new products or services may enhance quality is to address the following issues (Caroll et al. 2002) that the customer faces:

- Customer productivity (Does the product enable the customer to do more in less time with fewer resources?)
- Simplicity (Is the product or service simple to buy, use, maintain?)
- Convenience (Is the product / service easy to obtain, convenient to use?)
- Risk (Does the product reduce the financial, physical, legal risk of the buyer?)
- Fun and Image (Can this product introduce an element of fun that did not exist before?)
- Environmental friendliness (Does the product address a previously frustrating issue in usage or disposal?)

The use of this approach can help companies to focus on the development of strategies for the most critical stages of the buyer experience, and ultimately create exceptional value for the customer. Another important step in the successful implementation of any e-business initiative is the development of a strategy to overcome adoption difficulties. Obstacles of acceptance can come from a number of key groups including employees, business partners, and customers. The potential for buyer frustration in business could originate from the following types of issues: unanswered phone calls to the Order Handling department; inaccurate, or incomplete deliveries; little visibility on order delivery status; an outdated product catalogue, etc.

The business should have an appropriate profile of e-business and certain characteristics that lend themselves to web-based transactions (Caroll et al. 2002). Some of these features can be the following:

- A high percentage of all transactions conducted via the phone.
- A high number of relatively small-sized transactions (e. g., average order value less than 200 EUR, meaning high administrative costs per EUR sold).
- Average transaction size being low (e. g., less than 200 EUR).
- Average unit product value being low (e. g., less than 100 EUR).
- Many small clients disbursed throughout a large geographic area (e. g., all of EU).
- Large product catalogue (e. g., more than 1000 product references).

According to the survey of companies involved in e-business (Lilischkis, 2002), the majority of establishments procuring online reported that internal processes became more efficient: 16% answered "significantly" and 41% "somewhat", as shown in Figure 2. The majority of 52% also found that productivity increased (12% – "significantly" and 40% – "somewhat"). Reduced procuring costs were stated by 47% of the establishments (7% – "significantly" and 40% – "somewhat"). Only 37% reported that the relations with suppliers improved significantly or somewhat. The lowest impact was reported for the number of suppliers: only 21% (5% – "significantly" and 16% – "somewhat") of the establishments agreed.

In comparing the impact of online sales and online procurement, the impact of online selling appears to be larger. This is a bit surprising, because the share of companies procuring online is much higher than the share of companies selling online. One could have expected that the high share of establishments

procuring online is due to the fact that the companies see many positive impacts of this practice. Several reasons can explain the relatively low level of online procurement impacts: for example, dissatisfaction may be due to the thinking that online procurement does not require a refined business model, so that the establishments do not really exploit the benefits of online procurement.

Companies from the USA and to a minor degree from Germany reported largely positive impacts of online sales, while those from the UK and Finland appeared to be rather unsatisfied. Italian enterprises often stated moderate impacts. Companies from the USA and from Italy reported largely positive impacts of online procurement, while those from the UK and Finland appear to be rather unsatisfied. German firms are in between. It remains unclear to what extent these differences are due to sample effects. It may also be that coun-

try differences are influenced by cultural peculiarities – e. g., Finnish modesty, British understatement or American effusiveness (Lilischkis, 2002).

Some industries appear to benefit more from selling online than others: while "public administration and other personal or social services" are among the sectors reporting largely positive impacts, "manufacturing and construction" appears to be less successful. Almost no relationship between industry and the impacts of online procurement is found. "Manufacturing and construction" companies tend to report fewer impacts of online procurement than companies from the service sectors.

Successful online selling does not really seem to depend on a company size, but among larger companies the share of positive impacts tends to be higher. Establishments with more than 200 employees appear to benefit most from online procurement, while those between
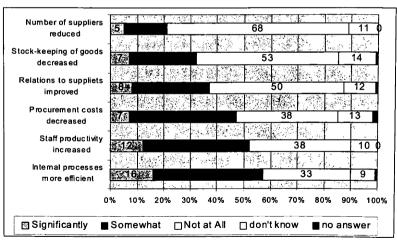

Figure 2: Impact of procuring online at establishments in Germany, Finland, Italy, the United Kingdom and the USA (all countries together), % of establishments procuring online, of 930 surveyed companies (Lilischkis, 2002).

10 and 49 reported the worst results. Considering the finding that multi-practitioners tend to be the most successful establishments, the message is: though small companies in general lag behind online sales application, they can perform successfully once they apply e-business comprehensively.

Overall, the findings presented by Lilischkis (2002) give the impression that it is beneficial for selling and procuring online to apply ICTs and e-business practices jointly: use as many ICTs as possible, target both businesses and consumers for online sales; procure and sell online simultaneously; use the Internet not only for information presentation, but also for data exchange and joint business processes; make use of intranets, EDI and call centres. While there is no extremely strong relationship between any innovation indicators and the impact indicators (the largest coefficient was 0.475), there is at least, no "negative" relation: establishments without a certain ICT or e-business practice do not perform better than those having this practice. The conclusion is that the "winners" of e-business appear to be the multi-practitioners.

This finding has implications to practical policy. Above all, the companies themselves should re-consider their business models: e-business should not be regarded as an additional practice parallel to "business as usual." Companies should rather integrate ICT use as well as selling and procuring online in all business processes.

SMEs did not report significantly fewer positive impacts of online sales and online procurement than large companies. However, the share of e-business practitioners among SMEs remains smaller than among large companies, so that the "digital division" between small and big businesses still should have a place on political agendas.

We can summarise the situation for small businesses as follows. SMEs want to use ICT solutions as tools, but they would like these products to be intuitive for the user, instead of being highly complex and requiring specialists to administer these products. The training necessary to generate the expertise indispensable for SMEs results in exorbitant costs and a long-timed investment, both of which impact heavily on the limited resources available in these companies. SMEs prefer buying packages to components, because the customisation of such components when combined to produce a specially tailored system is often more time-consuming and complex than simply purchasing a ready-made solution. The implementation of ICT systems demands that SMEs focus on long-term returns – a way of thinking that is foreign to many fledgling businesses. The use of new ICTs will be the key for these SMEs to expand into new markets; they will build on and drive their future competitiveness (Weiss, 2002). An important aim is to emphasize the role that novel innovative ICT solutions, especially groupware systems and strategic business development applications, play in the emerging global Internet economy.

- SMEs must become web-enabled if they want to be able or continue to be able to supply large firms (i.e. allow buying and selling to be done via processes with web interfaces).
- More support must be made available to successfully create and manage business via the Internet.
- Cost-effective packages (in terms of money and training time) to get SMEs up and running quickly and with minimal resource commitments must be found.
- New software should be deployed in small companies in order to establish reciprocal links with each other, building

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smart organisations that encapsulate the basic concepts, which would transform SMEs towards virtual organizations.

For an ever-increasing number of enterprises, the creation of knowledge is the core of their value-added services. The use of ICT to improve products and services by providing an increased access to knowledge and information should contribute notably to the competitiveness and success of SMEs. IT offers an infrastructure for companies that provide content, knowledge-intensive services and traditional products. They must be able to process huge amounts of information and be useful in establishing and automating business processes. The costs for SMEs in implementing these technologies are a big prohibitive factor (Weiss, 2002). Most of these enterprises try to keep down expenditures on software administration.

Due to the complexity of these systems they must adopt long-term visions in terms of return-on-investment and abandon their short-term, cost-trimming measures in these crucial areas where it has been proven that the investment will bear fruit (EITO, 2002).

To implement a successful e-business strategy, SMEs have to provide interfaces to link to larger companies – suppliers and customers alike (see Figure 3). The actually implemented ICT infrastructure normally is based on individually tailored ICT systems and solutions grown with the years. Last but not least, SMEs face problems to keep up with rapidly changing technology cycles due to missing financial resources and ICT skills. The growing application of outsourcing market (e. g., in Germany) will increase collaborative work (especially across enterprise borders) in the coming years and will determine their business. Small businesses must be aware of the true value of how the internet and e-business can contribute to their specific needs and requirements. Therefore excellent showcases and best practices are necessary to encourage invest-
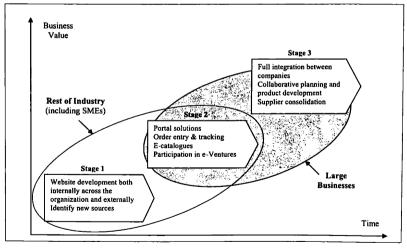

Figure 3: Stages of E-business Development (EITO, 2002)

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ment in e-business applications and technologies. Nevertheless, e-business is not going to replace the existing ways of doing business, but must co-exist and be integrated with the overall business strategy (EITO, 2002). To successfully implement their own e-business strategies, European companies are searching for what their needs are, where Internet technologies/e-business can be of benefit to them in their external relationships with customers and suppliers, and internally with their employees.

Conclusions

Based on the analysis presented in this article, the following conclusions can be drawn:

1. The main barrier to e-business for SMEs is the lack of understanding about how their products or services may be traded online or supported by Internet technologies. In most cases SMEs are missing technical knowledge, and the cost of engagement in e-business is too high for them. One of the major problems encountered by SMEs is the security issue of e-business systems. Small companies are short of know-how and are not aware of methodologies for correctly developing e-business models. Generally, there is a lack of confidence and knowledge about new technologies and

how technology can stimulate SME business to increase the added value.

2. Upon summarizing the analysed surveys, we can conclude that the main reasons for SMEs to become involved in e-business are improved service, procurement cost saving and cost efficiency in general, improved relations with suppliers, lower stock volumes, a more flexible reaction to competition, easier attraction of resources, and, finally, the opening of new markets.

3. In order to become successful in e-business, SMEs should review their business processes and identify the elements within their business that are the most suitable for online operations. Examples of such operations can be the high percentage of transactions conducted via mail or telephone, large quantities of small-sized transactions that can be processed by computer systems online with greater efficiency instead of being handled manually, the large range of products traded, and the like. SMEs going online should focus on operations that are critical to service quality so that the client can clearly see the benefits of accepting these services and would be motivated to use e-business solutions applied by the SME.

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PROBLEMINIAI ELEKTRONINIO VERSLO ĮGYVENDINIMO ASPEKTAI SMULKIOSE IR VIDUTINĖSE ĮMONĖSE

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Santrauka

Pagrindinis straipsnio tikslas – išnagrinėti elektroninio verslo įgyvendinimo problemas smulkiose ir vidutinėse įmonėse. Darbo uždaviniai: išryškinti pagrindines problemas ir kliūtis, su kuriomis susiduria smulkios ir vidutinės įmonės, plėtojančios elektroninį verslą; remiantis analizuojamų tyrimų rezultatais, identifikuoti esmines priežastis, motyvus ir galimybes dalyvauti elektroniniame versle; nustatyti pagrindinius požymius, kurie turėtų būti būdingi smulkiai ar vidutinei įmonei, siekiančiai elektroninio verslo efektyvumo.

Straipsnyje naudoti teoriniai ir lyginamosios analizės metodai, taip pat analizuoti tyrimai ir apklausos elektroninio verslo tematika. Atlikus analizę nustatyta, kad pagrindinė kliūtis smulkioms ir vidutinėms įmonėms yra šių įmonių vadovų nepakankamas supratimas, kokiais būdais jų produktai ar paslaugos gali būti pateikiamos internete arba kaip jų verslo procesai gali būti susieti su internetu ar informacinėmis technologijomis. Dažniausiai smulkioms įmonėms trūksta techninių žinių arba per dideli su elektroninio verslo įdiegimu susiję kaštai. Taip pat viena iš esminių problemų, kurią nurodo smulkios įmonės, yra verslo operacijų internete saugumo aspektai. Šio tipo įmonėms trūksta know-how, taip pat jos nežino metodų, kaip sukurti efektyvius elektroninio verslo modelius

ir juos pritaikyti savo verslui. Kita vertus, remiantis atliktais tyrimais, galima teigti, kad pagrindiniai motyvai smulkioms ir vidutinėms įmonėms pradėti elektroninį verslą yra tokie: klientų aptarnavimas gali tapti efektyvesnis, mažesni veiklos kaštai, operatyvesnės, greitesnės tiekimo procedūros, mažesnės produktų sandėliavimo apimtys ir tam reikalingas plotas, lankstesnės pozicijos konkurentų atžvilgiu, didesnis rinkos plėtros potencialas.

Smulkios ir vidutinės įmonės, siekiančios sėkmingos elektroninio verslo plėtros, pirmiausia turėtų išanalizuoti savo verslo procesus ir nustatyti, kurie tų procesų elementai gali būti geriausiai pritaikyti operacijoms internete. Tokių verslo proceso elementų pavyzdžiais gali būti didelis užsakymų arba transakcijų kiekis, vykdomas telefonu arba paštu, dideli kiekiai mažos apimties sandorių, kurie informacinių technologijų ir kompiuterių pagalba gali būti apdorojami efektyviau, negu tai darytų darbuotojai ir pan. Smulkios ir vidutinės įmonės, pradėdamos elektroninį verslą, pirmiausia turėtų atkreipti dėmesį į tas operacijas ar veiksmus, kurie nulemia paslaugos kokybę. Elektroninio verslo modelis turėtų būti suprojektuotas taip, kad klientas pastebėtų aiškią naudą ir kad tai jį motyvuotų naudotis įmonės teikiamomis paslaugomis internetu.

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