

INFLUENCE OF MODERN TECHNOLOGIES ON INTERNATIONALIZATION OF SMALL AND MEDIUM ENTERPRISES

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This paper describes ways in which small and medium enterprises (SME) can apply modern information and communication technologies, threats and chances connected to such application, potential barriers stopping use of modern technology and ways such solutions may be used during internationalization of SMEs.

Keywords: small and medium enterprises, SME, Internet, modern technology, internationalization

1. Introduction

Internationalization steadily becomes an important factor in competitiveness of enterprises, regardless of their size and area of interest. Small and medium enterprises (commonly abbreviated to SME) often begin their business with their eyes set on global market and utilizing global-oriented strategies. They often see – and take advantage of – opportunities to work across political borders, resulting in not only significant increases in revenues, but in exchange of knowledge and know-how. Such exchanges invariably prove profitable to all parties involved, increasing their ability to compete with companies not involved in the network.

Internationalization of SME can take various forms: it often involves export of goods, creation of international alliances and development of company branches abroad.

Information and communication technologies simplify and boost development for all kinds of enterprises, yet in case of small and medium enterprises, the influence is far better visible. Activities such as searching for new markets become easy, companies find various economical barriers reduced, which in turn decreases costs of international operations. It is a subject of vital importance for both companies that can increase their competitive ability, as well as for the consumers, who gain access to wider array of products, services and information – all due to Internet access. It is also worth mentioning that in spite of significant advantages that new technologies provide for SME, those solutions are not free of flaws and they do have their own barriers and limitations [1].

2. The process of internationalization of SME

Internationalization of an enterprise is a gradual process. The company actions and activities becomes more and more international, knowledge of external markets grows, as does its experience in conducting deals abroad. Cultural barriers become less problematic and cause fewer problems as experience grows, leading to lower risks – both real and perceived – associated with the process of internationalization [1].

Definitions of internationalization of a company differ between various publications, but they all have a common trait: most authors see it as gradual process, progressing in discernable steps. Example of such step-based model could be a situation where company progresses from selling on its own marked, then moves to taking minor orders from abroad, then starts taking on major orders from other countries and finally ends up as experienced exporter on large scale [2]. Current version of Uppsala model (the 2009 revision) emphasizes importance of cooperation and creation of a network between companies in order to facilitate exchange of experiences, reduce physical distance to new markets, lower the risks associated with entering new markets and increase chances of success for cooperating companies [3]. A common issue, often mentioned in professional literature, is the significant difference between high-tech SME (HTSME) and SME in traditional branches of industry. HTSME operate on very fast-changing, turbulent and unstable markets, where windows of opportunity are usually very short and require significant flexibility to take advantage of. Considering factors common to high-tech markets, like narrow specialization, short-lived products and low internal demand (especially significant in case of small courtiers), HTSME should focus on international markets – or even the global market – from the start (the so-called “born global” concept) [4, 5].

There are four paths of access to international markets [6]:

- penetration into international markets through practicalities (for example by extending connections already present),

- gradual entering to markets that are closest in geographical sense,
- dynamic penetration when market conditions become convenient,
- dynamic penetration by early adaptation of new technologies.

Two former approaches are examples of gradual approach, whilst two latter are more organic and are most useful in companies that utilize e-commerce solutions [7].

When it comes to discussing the issue of internationalization of SME, it is very important to remember that SME are not small version of corporations. There is a significant difference in available resources, fields of activity, methods of management and overall abilities between an SME and a corporation. Those differences result in a different way internationalization will progress in both cases. Of course, there is no reason the process may not be similar – depending on approach the owner or managers (in case the owner is not actively managing the company) take, the internationalization of SME might be as complicated as internationalization of a corporation. The inherent weaknesses of SME are – in the first place – inability to gather experience and develop in any significant way on the primary market before expansion and difficulties in identification of possible expansion targets and choice between markets to expand to. The greatest advantages SME have over the corporations in the process of internalization are: ability to quickly react to market changes and customers demands, greater flexibility and closer relations to customers – which in the end translates to better handling of niche markets and competitive advantage in comparison to larger companies [8]. The main barriers that make SME internationalization difficult are, among others:

- high cost of internationalization, including analysis of new markets, legal consultation cost, cost of translating documentation, adaptation of the products to market requirements, travel costs,
- higher business and financial risk,
- existing regulations and legal limitations, bureaucracy,
- difficulties in capital acquisition, payment delays,
- tariffs,
- insufficient management and marketing skills,
- difficulties in accessing necessary information and knowledge,
- difficulties in finding partners and representatives on the new markets

The aforementioned difficulties, often encountered by SME during the process of internationalization can vary in intensity and specifics, depending on company's country of origin. Differences can manifest due to variety in size of the market of origin (large vs. small) and its degree of development (developing vs. developed) [9]. It is important to remember that the Internet by itself does not provide any universal solution to aforementioned barriers in internationalization. Nonetheless, with proper application, the Internet becomes a useful tool, allowing many barriers to be reduced or removed, speeding up the process considerably.

3. Modern technologies in hands of SME

SME existing in turbulent and ever-changing economical environment can gain substantial advantage with implementation of modern information and communication solutions. Globalization and technological progress cause change in expectation of both the customers and business partners and force the introduction of modern technology in daily work of the company. One of the main advantages SME gain due to implementation of modern information and communication technology is the access to information infrastructure that could be compared to infrastructure normally available only to large enterprises. Application of modern technology increases company's capability of both internal and external communication in the degree available only to large companies – until recently. Improved communication with recipients, suppliers, business partners, even rivals, can result in adding new value to products and services and, what is even more important in age of information, allows trade of concepts and intellectual property. The small businesses, due to their size, are extremely adaptable. This attribute results in ability to gain a competitive advantage due to being able to apply the Internet as a tool faster and more flexible than a large company would be able to. The increasing range of available solutions gives SME a chance to make use the opportunities offered by information systems[10].

Most commercial applications of the internet consist of information exchange tools (ie. e-mail, chat, videoconference, EDI systems), WWW sites used for information acquisition or transaction facilitation and creation of company's own WWW site. Application of the Internet in enterprise's daily work will be dependant of company's area of expertise and the product it is manufacturing: it can be expected that IT companies will be far more willing and able to use the Internet than their non-IT counterparts. Least degree of application of e-business solutions can be seen in public sector, education and non-profit sector. The most popular and commonly used Internet tool is the website, a tool of great information capacity and a platform allowing use of other communication tools[11]. The website is most often a base for marketing communication, a tool for on-line promotion and a way to present the company on the outside. It is often a way to show plans, goals and ideas that should be associated with the company [12].

The Internet-based tools, such as aforementioned websites and communication tools, can be used to achieve various goals, such as [13]:

- Increase in efficiency of company's activities:
 - Promotion of the products,
 - Creation of new selling channels,
 - Reduction of costs,
 - Decrease in distribution time,
 - Simplification and improvement of customer service,

- Shaping and perfecting image of the company and the brand,
- Creation and upkeep relationships with business partners,
- Acquisition of market data,
- Transformation of company’s organization schema:
 - Learning the new technologies and their applications,
 - Experimentation with new organizational structures,
 - Customer relations management
- Redefinition of the way organization works:
 - Availability of new possibilities regarding the products,
 - Ability to apply new business models

The research shows that the Internet and Internet-based technologies are of great importance to development of SME in countries both developed and developing. Table 1 shows most commonly encountered uses of the Internet by Australian SME, according to annual Sensis report [14], along with results of research done by McKinsey Institute, concerning use of Internet by SME in developing countries with special emphasis on the technologies that have the greatest influence on increase of SME revenue [15].

Table 1. Internet usage by SMEs

Current uses of the Internet by SMEs (Australia)*	Benefits of Internet for entrepreneurs (aspiring countries)	Technologies leading to higher revenue and lower cost of goods sold (aspiring countries)
<ul style="list-style-type: none"> - Communication via email - Searching for information about products and services, reference information or research data - Internet banking - Searching for suppliers of products or services - Promotion of the company - Streamlining communications with customers and staff 	<ul style="list-style-type: none"> - Increased reach to more customers - Ease of doing business-related research online - Reduced cost of doing business - Increased access to investors - Ability to register business online - Increased access to loans 	<ul style="list-style-type: none"> - Electronic messaging - Social networks - Web site - Online marketing - Cloud - E-business solutions - Extranet

* Includes only activities reported by more than 60% SME

Source: Based on *The Online Experience of Small and Medium Enterprises*, 2012, Sensis e-Business Report, p. 14, O. Nottebohm, J. Manyika, J. Bughin, M. Chui, A. Syed, *Online and Upcoming: The Internet’s Impact on Aspiring Countries*, McKinsey&Company, 2012, p. 46, 52

Introduction of information and communication solutions in SME is not a simple and risk-free process. SME encounter numerous difficulties, barriers and

limitations in introduction of e-business solution in their business model. Table 2 presents some of the problems SME might encounter in an attempt to introduce information technologies in their operations [16].

Table 2. Barriers for application of internet technologies

Category	Barriers
Cultural	<ul style="list-style-type: none"> - Fear of IT and resistance to change - Trust and quality of support to companies - Commitment of time by SMEs
Financial	<ul style="list-style-type: none"> - High initial set-up cost - Additional cost due to the change
Technical	<ul style="list-style-type: none"> - Weak skills base - Security/privacy issues
Access	<ul style="list-style-type: none"> - Lack of training opportunities and networking
Knowledge sharing	<ul style="list-style-type: none"> - Ownership of data, intellectual property
Awareness	<ul style="list-style-type: none"> - Lack of awareness of potential of ICT - Lack of proven best practice examples

Source: R. Marasini, K. Ions, M. Ahmad, *Assessment of e-business adoption in SMEs – A study of manufacturing industry in the UK North East region*, Journal of Manufacturing Technology Management, Volume 19, Number 5, 2008, s. 636, www.emeraldsight.com/1741-038X.htm

SME that become early adopters of information technologies have a significant chance of gaining great competitive advantage comparable to advantage gained by companies that enter a given market first. The basic incentives to implement information technology early are, among others: lower costs and comparatively low risk, improvement of relations with providers and recipients, better control over distribution process and improvement of products' marketing.

4. Modern technologies and SME internationalization

Internet and modern communication and information technologies connected to it should be of great interest to enterprises that are planning to internationalize their business. The geographical distances and political borders steadily become of less importance due widespread Internet accessibility, mainly due to simplifying the contact between organizations and making it far faster than it has ever been in history. Using the Internet to communicate is a significant asset to an SME that is trying to become an international company; it is not only a way to lower – or even eliminate – traditional barriers SME face in entering external markets, it is also a signal to potential partners that the company is both modern and flexible.

Using both Internet and e-commerce, SME can comparatively easily access new customers and external markets while still maintaining a presence on company's market of origin, even in absence of any significant knowledge about the external markets. Another factor that makes the internationalization process easier is the adaptation of real-time communication over the Internet in the form of Voice over IP (VoIP), often extending to videoconferences. This manner of communication has a significantly lower cost than traditional forms of long-distance communication and adds to elimination of geographical barriers between the company and its customers and providers.

A research conducted among British industrial SME allowed for mapping of areas in which the Internet can simplify the process of internationalization of a company. The researchers analyzed three groups of SME; the selection was based on Research & Development spending, the groups were named low-tech, medium-tech and high-tech. The main subject of the research was the degree the Internet was used in the company and how big is its influence on the internationalization process. The results are shown in Table 3. The research has clearly shown that the Internet has the greatest value for high-tech SME, especially in the area of market research, customer relation management and increasing company's share in worldwide business networks, a process which results in acquisition of new business partners and providers. In case of low-tech and medium-tech enterprises, the Internet is mainly used to maintain existing business relations and reduction of cultural barriers in acquisition of new customers and agents. In conclusion, the more the SME utilizes the Internet and associated modern technology – including the communication and presentation tools – the greater the influence on the internationalization process. In other words, the more tech-savvy the company is, the greater role the Internet plays in both its daily operations and long-term plans – including plans of internationalization [17].

Despite of the obvious advantages the application of Internet grants in the process of internationalization of SME, there are several potential problems and disadvantages that must be considered before drawing final conclusions. Utilizing the Internet as distribution and marketing channel (replacing traditional export) will not increase the sales by itself. The company must conduct normal marketing activity at the same time – of course, those activities can be conducted using the Internet channels as well – and provide post-selling services (service that normally – in the classic, non-Internet model – would be rendered by the agent or trade office). Replacing the agents entirely by Internet-based trade may result in increase of distance between the customer and company, in worst case – disassociation of the product and the company in the eyes of the customers. Such situation may result in loss of customers, lessened knowledge about markets and – in the end – incomplete or erroneous picture of the target market [18].

Table 3. Internet usage and the influence of the Internet on internationalization

Level of technology of SMEs	Internet usage	Influence of internet usage on internationalization
High-technology SMEs	Web site E-mail Video-conferencing Search Facility	Supporting communication with Worldwide customers Intelligence gathering Making new personal customer contacts Providing product information for customers Responding to pre-sales customer information requests and pre-sales production consultation for customized offerings Communication with agents/distributors Investigating potential foreign suppliers
Medium-technology SMEs	Web site E-mail Online technical support Online tracking order Advertising and promotion Search facility Video-conferencing Newsletters	Supporting communication with international customers Product promotion Making direct contact with prospective customers Providing product information for customers Responding to pre-sales customer information requests and pre-sales production consultation Reducing communication barriers and social and cultural distance with international customers Communication with agents Cost savings in travelling
Low-technology SMEs	Web site E-mail Online product catalogue Online ordering system Announcements Newsletters Customer satisfaction feedback	Supporting communication with customers in Europe Providing online marketing material Providing pre-sales product information

Source: K. Tseng, R. Johnsen, *Internationalisation and the internet in UK manufacturing SMEs*, Journal of Small Business and Enterprise Development, Vol. 18, No. 3, 2011, p. 583, www.emeraldinsight.com/1462-6004.htm

Many businesses tend not to include in their estimates that using Internet to compete on new market means that they will encounter a whole new group of companies that already use Internet and that competition may be even greater that

on their domestic market. SME should take into consideration an uneven availability of the Internet in various countries – obviously, the Internet has the greatest presence in developed countries, while in their developing counterparts, access is often limited both in quantity (to urban areas or even to the wealthy minority) and quality (due to weak connections or governmental control). This factor heavily influences the applications of Internet in expansion to developing countries.

Taking the above mentioned issues into account, SME that choose to apply modern technology in the process of internationalization must carefully consider the pros and cons, deciding in which degree are they going to use traditional methods of internationalization, and in which degree will they support – or replace – them with the Internet-based tools, moving their activity to the virtual world.

5. Conclusion

The internationalization processes of SME and large corporations are significantly different. Nonetheless, the SME version can be complicated as well, and encounters many difficulties typical for the SME sector, like limited access to resources and financing, lack of proper qualifications, etc. Implementation of modern information and communication technology can simplify the process to a great degree, but not without inherent risk. SME accessing the modern markets with application of new technologies must be aware of larger competition and change of conditions defining the company behavior. Research mentioned in this paper show that SME apply the Internet and associated technology to varying degree. The variety is often based on their market of origin and area of industry they operate in. The area in which SME apply the new technologies – with special regard to the Internet – is obviously wider in case of high-tech companies. Application of information and communication technology in the process of internationalization is prevalent in such areas as customer service, business-to-business relations, creation of new relations, acquisition of market information and online sales. New technologies simplify the process of SME internationalization, nonetheless the enterprises must be aware of limitations and risk connected to different market conditions and increased global competition coming from other companies.

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