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IT tools in SMEs in selected countries

1. Introduction

The continuously changing electronic technology and the complexity of the new type of society, that uses electronic communication devices, have continuously increased the scope and the diversity of activities and services developed. According to Doukidis [44] and others, today's society is characterized by the boom in the usage of electronic support for communication in all areas of life, and the resulting fundamental changes in organizations and society. The development of computer networks in the entire world, through the Internet, has enabled electronic trade, which offers a large range of services, reducing the time and additional costs related to transportation [44]. In a great deal of these activities SMEs are involved. However, their participation may be much bigger. Cloud computing, virtualization and mobile technology may allow a lot of significant improvements. The report created by EC presents the current results [3] in relation to SMEs.

SMEs may be described as follows:

2. The Definition of SMEs

In the analysis SMEs have been defined referring to the EU, Singapore and Malaysia.

2.1. SMEs in the EU

Small enterprises are defined as enterprises which employ fewer than 50 persons and whose annual turnover or annual balance sheet total does not exceed 10 million euro. Micro enterprises are defined as enterprises which employ fewer than 10 persons and whose annual turnover or annual balance sheet total does not exceed 2 million euro.

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Table 1. SMEs in the EU

Enterprise Category	Headcount: Annual Work Unit (AWU)	Annual turnover	Annual balance sheet total
Medium-sized	< 250	$\leq$ €50 million (in 1996 €40 million)	$\leq$ €43 million (in 1996 €27 million)
Small	< 50	$\leq$ €10 million (in 1996 €7 million)	$\leq$ €10 million (in 1996 €5 million)
Micro	< 10	$\leq$ €2 million (previously not defined)	$\leq$ €2 million (previously not defined)

Source: http://ec.europa.eu/research/sme-techweb/index_en.cfm

A new definition of SMEs in the EU may be found at [31]: The definition is an important tool for implementing efficient measures and programmes to support the development and success of SMEs. Therefore Member States, together with European Investment Bank and the European Investment Fund are invited to apply it as widely as possible [31]. One can see some more information on research in SMEs in research and innovation reports of the European Commission [4]. For comparison, in the next part of the paper, definitions of SMEs in Singapore and Malaysia are presented:

2.2. SMEs in Singapore

From 1 April 2011, small and medium-sized enterprises in Singapore were defined as businesses with annual sales turnover of not more than $100 million, or employing no more than 200 staff. Currently, SMEs are defined as enterprises with fixed asset investments of $15 million and below, for those in manufacturing, and employment of 200 and below for non-manufacturing enterprises [5].

2.3. SMEs in Malaysia

Malaysia adopted a common definition of SMEs to facilitate identification of SMEs in various sectors and sub-sectors. This has facilitated the Government to formulate effective development policies, support programmes, as well as provision of technical and financial assistance.

An enterprise is considered an SME in each of the respective sectors based on the Annual Sales Turnover or Number of Full-Time Employees as shown in the table below.

3. International activity of SMEs

The analysis of IT tools performed for the purpose of this paper focused mainly on e-business, which is strictly related to the international activity of

Table 2. SMEs in Malaysia

	Micro-enterprise	Small enterprise	Medium enterprise
Manufacturing, Manufacturing-Related Services and Agro-based industries	Sales turnover of less than RM250,000 OR full time employees less than 5	Sales turnover between RM250,000 and less than RM10 million OR full time employees between 5 and 50	Sales turnover between RM10 million and RM25 million OR full time employees between 51 and 150
Services, Primary Agriculture and Information & Communication Technology (ICT)	Sales turnover of less than RM200,000 OR full time employees less than 5	Sales turnover between RM200,000 and less than RM1 million OR full time employees between 5 and 19	Sales turnover between RM1 million and RM5 million OR full time employees between 20 and 50

Source: http://www.smecorp.gov.my/node/33 [6]

SMEs. A considerable number of European SMEs are engaged in international activities, yet only a small percentage is involved in internationalisation beyond the Internal Market.

The two most common modes of internationalisation are exports and imports:
- 25% of SMEs within the EU27 export, of which about 50% also go beyond the Internal Market (13%).
- 29% of SMEs within the EU27 import, again 50% import from countries outside the Internal Market (14%).

In addition:
- 7% of SMEs within the EU27 are involved in technological co-operation with a foreign partner.
- 7% are a subcontractor to a foreign partner.
- 7% have foreign subcontractors.
- 2% of SMEs are active in foreign direct investment.

There is a direct correlation between the level of internationalisation and the size of the company. The larger the company, the more it tends to internationalise. This applies to any single mode of internationalisation. For exports, 24% of micro, 38% of small and 53% of medium-sized SMEs are active, for imports, the respective percentages are 28%, 39% and 55%.

The smaller the country, the more internationalised its SMEs are, but the SME's proximity to a national border does not affect its level of internationalization. There is a negative correlation between the size of the SME's home country population and its level of international activity. Countries such as Estonia, Denmark, Sweden, the Czech Republic and Slovenia have a much higher percentage of exporters than the EU average of 25%. Germany, France and the UK score below average. SMEs located close to a border show much higher activity rates with their cross-border regions but this is not followed by being

more internationally active in general.

Trade, manufacturing, transport and communication and research are the most internationalised sectors. Exporting and importing activities increase in intensity with the age of enterprise. Most often SMEs start international activities by importing.

Not many of the internationally inactive SMEs are planning to start international activities in the foreseeable future. Partner countries are mostly other EU countries. Except for imports from China, relations with BRIC countries are generally underdeveloped.

Barriers for internationalisation are perceived by SMEs. The awareness of public support programmes among SMEs is low, also the use of public support is rather low. Companies involved in E-commerce are more internationally active. Having the possibility to sell products or services on-line is positively correlated with being active in export or import markets (also when controlled for other effects such as the size of the firm).

The conclusion would be that the Internet has made it easier for SMEs of all sizes to overcome some of the barriers to internationalisation. In fact, the relationship between certain barriers and the size of the firm has weakened because of the Internet [3]. The information presented above shows that business IT systems are the key to the success in this field.

4. Business IT systems in Poland and in Romania

Defining an adequate technology infrastructure is vital for all companies to adopt e-business, e-commerce and Global Information Systems[1] The infrastructure directly affects the quality of service experienced by users of the systems in terms of speed and responsiveness, as well as security. E-business infrastructure refers to the combination of hardware, such as servers and client PCs in an organization, the network used to link this hardware and the software applications used to deliver services to workers within the e-business and also to its partners and customers.

The technologies such as the Internet, Intranet and Extranet are the main medium of information transfer.

5. The Internet

The Internet enables communication between millions of connected computers worldwide. In the last couple of years e-business and e-commerce have evolved

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[1] Global Information Systems can be defined as information systems designed to collect, process, integrate, evaluate, and communicate the entire "body of knowledge" pertaining to a field and to support any application requiring this knowledge in an "on-demand" mode with definitive information quality assessments [46].

a lot in Romania and Poland, and so have the Internet applications and uses that come with them. Requests for information are transmitted from client computers and mobile devices whose users request services to server computers that hold information and host business applications that deliver the services in response to requests. Thus, the Internet is a large-scale client-server system. The client computers within homes and business are connected to the Internet via local Internet service providers (ISPs) which, in turn, are linked to larger ISPs with connection to the major national and international infrastructure, or backbones, which are managed by commercial organizations such as TP S. A., Dialog, Netia in Poland while in Romania there are AT&T, UUNET and Verizon [42].

The infrastructures for the needs of the Internet, and thus for e-commerce, differ significantly in Poland, Romania and other EU countries. It is reflected among others in the number of Internet users, which is shown in Table 3.
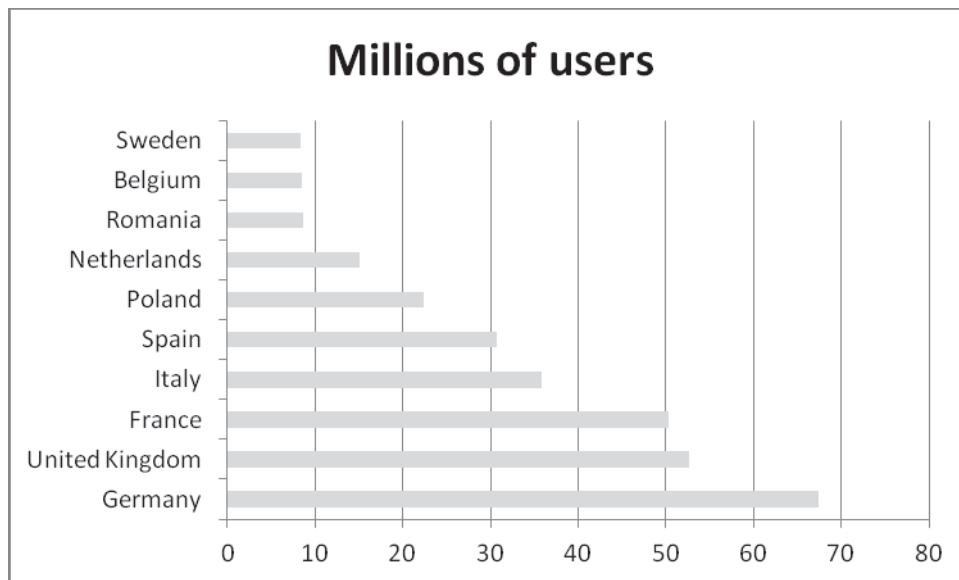

Fig. 1. European Union- Top 10 Internet Countries, March 31, 2011 [7]

The diagram above shows the top 10 countries of the EU with the respective numbers of Internet users. In some countries with a smaller population the number of Internet users is bigger than in countries with more citizens.

E-commerce is known as the most important facet of internet technologies nowadays. B2B e-commerce (Business to Business), which is one of business models, varies business over the Internet. B2B e-commerce is the exchange of products and services between businesses rather than between businesses and consumers. Its competitive advantages not only in local and international markets are recognized in the recent time and are believed to increase more rapidly in the next several years. More and more businesses are turned into B2B e-

Table 3. Internet users in the European Union

EUROPEAN UNION	Population (2011 Est., mln.)	Internet Users (mln.) Latest Data	Penetration (% Population)	User Growth (2000-2011)	Users %
Austria	8.217	6.143	74.8%	192.6%	1.8%
Belgium	10.431	8.113	77.8%	305.7%	2.4%
Bulgaria	7.093	3.395	47.9%	689.5%	1.0%
Cyprus	1.12	0.433	38.7%	261.6%	0.1%
Czech Republic	10.19	6.68	65.6%	568.1%	2.0%
Denmark	5.529	4.75	85.9%	143.6%	1.4%
Estonia	1.282	0.971	75.7%	165.1%	0.3%
Finland	5.259	4.48	85.2%	132.5%	1.3%
France	62.102	45.262	69.5%	432.5%	13.4%
Germany	81.471	65.125	79.9%	171.4%	19.2%
Greece	10.76	4.97	46.2%	397.1%	1.5%
Hungary	9.973	6.176	61.9%	763.8%	1.8%
Ireland	4.67	3.042	65.1%	288.1%	0.9%
Italy	61.016	30.026	49.2%	127.5%	8.9%
Latvia	2.204	1.503	68.2%	902.3%	0.4%
Lithuania	3.535	2.103	59.5%	834.9%	0.6%
Luxembourg	0.503	0.424	84.3%	324.5%	0.1%
Malta	0.408	0.24	58.9%	501.5%	0.1%
Netherlands	16.847	14.872	88.3%	281.3%	4.4%
Poland	38.441	22.452	58.4%	701.9%	**6.6%**
Portugal	10.76	5.168	48.0%	106.8%	1.5%
Romania	21.904	7.786	35.5%	873.3%	**2.3%**
Slovakia	5.477	4.063	74.2%	525.2%	1.2%
Slovenia	2	1.298	64.9%	332.8%	0.4%
Spain	46.754	29.093	62.2%	440.0%	8.6%
Sweden	9.088	8.397	92.4%	107.5%	2.5%
United Kingdom	62.698	51.442	82.0%	234.0%	15.2%
European Union	502.748	338.42	67.3%	258.5%	100.0%

commerce. Buying and selling of goods is done through digital communication which offers a lot of benefits for business organization over a traditional way of making transactions [8].

6. Intranet

An Intranet is a network built within a corporation, using World Wide Web standards and software. The Intranet is connected to the Internet and to networks called Extranets that provide an electronic connection to business partners.

Intranets are designed to be open and secure internal networks with web browsing software that provides easy point-and-click access by end users on internal web sites. The Intranet is a secure and internal implementation of the Internet. All Internet technologies, including the Internet Protocol (IP)[2], the World Wide Web, and the browsers, are protected by corporate firewalls. A firewall is a collection of computers, software, routers and services that enable the connection of a network to other networks, while maintaining its security and integrity. Intranets offer the most innovative, cost-effective way of freeing the corporate information from the inaccessibility of complex informational systems.

The main benefits of an intranet are:
- better internal communication – corporate information can be stored centrally and accessed at any time
- sharing resources and best practice – a virtual community can be created to facilitate information sharing and collaborative working
- improved customer service – better access to accurate and consistent information by the staff leads to enhanced levels of customer service
- reduction in paperwork – forms can be accessed and completed on the desktop, and then forwarded as appropriate for approval, without ever having to be printed out, and with the benefit of an audit trail [10].

Intranet is a good tool for facilitating functioning of e-shops and auction systems to reduce the cost of e-commerce activities, to increase the level of security, which improves effectiveness.

7. Extranet

An Extranet uses the Internet / Intranet technology to serve an extended enterprise, including customers, suppliers, partners, and other businesses that share a common goal. An important feature of Extranets is that they are typically behind firewalls, therefore inaccessible to the general public. Security is the main

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[2] Definition: The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet [9].
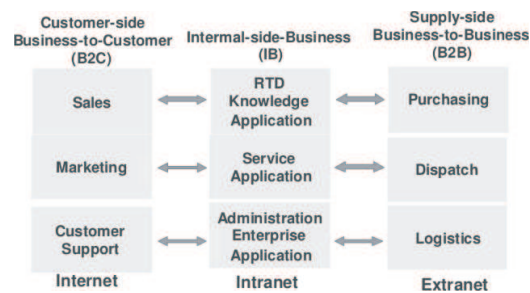
Fig. 2. Corporate networks management as support for virtual teams work S.M. Rosu, M.M. Popescu, E. Sofron University Of Pitesti p.34.

concern of their infrastructure [11]. An extranet can offer a range of benefits to a business from lowering costs, to producing faster results and improving the quality of service to customers.

Benefits can depend much on the reasons for introducing the extranet in the first place. However, the types of benefits that organisations using extranets typically experience include:

- more integrated supply chains through the use of on-line ordering, order tracking and inventory management
- reduced costs by making manuals and technical documentation available on-line to trading partners and customers
- more effective collaboration between business partners – perhaps members of a project team – by enabling them to work on-line on common documentation
- improved business relationships with key trading partners because of the close collaborative working that extranets support
- improved customer service by giving customers direct access to information and enabling them to resolve their own queries
- a single user interface between you and your business partners
- improving the security of communications between you and your business partners, since exchanges can take place under a controlled and secure environment
- shared news of product development exclusively with partner companies
- flexible working for your own staff, as an extranet allows remote and mobile staff to access core business information 24 hours a day, irrespective of location.

For business, e-service is going be a new way to save money, to revenue growth, and a faster development model. For end-users, e-services increase productivity and simplify life, take advantage of more sophisticated and specialized services.

The Internet, Intranet and Extranet apply web browsers. The selection of the most appropriate web browsers is a complex process because it involves the necessity to adopt them according to the conditions in specific SMEs. That choice is facilitated by research which is presented online.

8. Web browsers

Web browsers consist in software such as Microsoft Internet Explorer, Google Chrome or Mozilla Firefox which is used to access the information on the World Wide Web that is stored on web servers. A request from the client PC is executed when the user types in a web address, clicks on a hyperlink or file in an on-line form such as a search. This request is then sent to the ISP and rounded across the Internet. The server then returns to the requested web page if it is a static web page, or, if it requires reference to a database, such as a request for the product information, it will pass the query on to a database server and will then return this to the customer as a dynamically created web page [12]. Web browsers have become increasingly important to the enterprise with the advent of cloud computing [13]. With all of the major Web browser makers releasing new versions of their wares in the last year, there are several very good and innovative choices out there. eWEEK Labs recommends ways to pick the best browser for accessing enterprise applications and general Web browsing [14].

Net Market Share's recent web browser statistics show Internet Explorer as remaining the most popular, with 60 percent of the market share, which includes versions 6, 7, 8 and 9. Firefox 5.0 comes in second at 24 percent, and Google's Chrome 5.0 takes the third place at 7 per cent [53].

Enterprises will most likely want to standardize on one or maybe two browsers that are acceptable for company use. By doing this, companies can ease support and development issues centered on corporate Web applications and general browser use [14].

On the website: http://www.eweek.com/c/a/Web-Services-Web-20-and-SOA/How-To-Pick-the-Best-Web-Browser-for-Your-Business-623718/ one can find a report with more information on what is the best to use in business.

9. Server software

Another important category of software that helps people to do business, not only in Poland and Romania, but all over the world, is server software. A web server (sometimes called an HTTP server or application server) is a program that serves its content using the HTTP protocol. This content is frequently in the form of HTML documents, images, and other web resources, but can include any type of file. The content served by the web server can be pre-existing (static content) or generated on the fly (dynamic content). In order to be considered a web server, an application must implement the HTTP protocol[3]. Applications

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[3] Definition: Short for HyperText Transfer Protocol, the underlying protocol used by the World Wide Web. HTTP defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands. For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page [15].

built on top of web servers (such as blogging software, forums, or wiki's) belong to the separate web software category. Server software is divided in two major subcategories: free web server software and web server management software [16].

Running a business on-line means that your business needs to have an effective website, but the importance of the Web server is often overlooked by businesses. The Web server that houses the website is as important as the look and feel of the website [55].

At present many companies in Romania and Poland, and all over the world, hire web servers, which as a rule function in cloud computing systems. This influences the cost, reliability, security of web servers. It also makes it easy to manage and update the server.

Web server enables the users (companies) not only to access web sites but also to use sophisticated and useful software tailored for specific needs. Very often the software functions in cloud computing technology, as mentioned before.

10. Cloud computing

Definition: Cloud computing is a general term for anything that involves delivering hosted services over the Internet. These services are broadly divided into three categories: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS). The name *cloud computing* was inspired by the cloud symbol that is often used to represent the Internet in flowcharts and diagrams. A cloud service has three distinct characteristics that differentiate it from traditional hosting. It is sold on demand, typically by the minute or the hour; it is elastic – users can have as much or as little of a service as they want at any given time; and the service is fully managed by the provider (the consumer needs nothing but a personal computer and Internet access). Significant innovations in virtualization and distributed computing, as well as improved access to high-speed Internet and a weak economy, have accelerated the interest in cloud computing [13].

In the term 'cloud computing', the cloud referred to is the Internet. Thus, for example, if you are accessing your Google Docs then they will be stored somewhere 'in the cloud' without any knowledge of where it is or how it is managed since Google stores data on many servers. And, of course, you can access the document from any location. But there are issues to consider about data stored and served from the cloud: 'is it secure, is it backed up, is it always available?' [43, p. 171].

The American National Institute of Standards and Technology (NIST) offers a simple definition of different types of cloud computing. On the one hand, there is a public cloud, where the services are available for external service providers through the Internet. On the private cloud, however, the data and processes are

managed within the organization, so they are not affected by the security risks, bandwidth or legal restrictions that appear on the public cloud. There is also the community cloud for organizations that work together, sharing access to data and applications on the cloud. Finally, there is the hybrid cloud, which is a mix of both public and private interacting together [17]. All definitions, in the end, highlight that clouds are dynamic, flexible, customizable and cost-based efficient [47]. These aspects make the cloud phenomenon spread more and more each day. IDC predicts that in 2013, worldwide cloud services will reach to $44.2 bn with a European market of €6,005m (Gorniak, 2009) [49].

Cloud Computing (CC) has been attracting a huge amount of interest in the post- dotcom boom and bust and the current web 2.0 information technology world. More recently, the momentum gained by the technology has been so significant that GSA (General Services Administration) in the USA has announced a Federal Cloud Computing Initiative (FedComp, 2009) [48]. Issues related to cloud computing are treated very seriously by the EU [18].
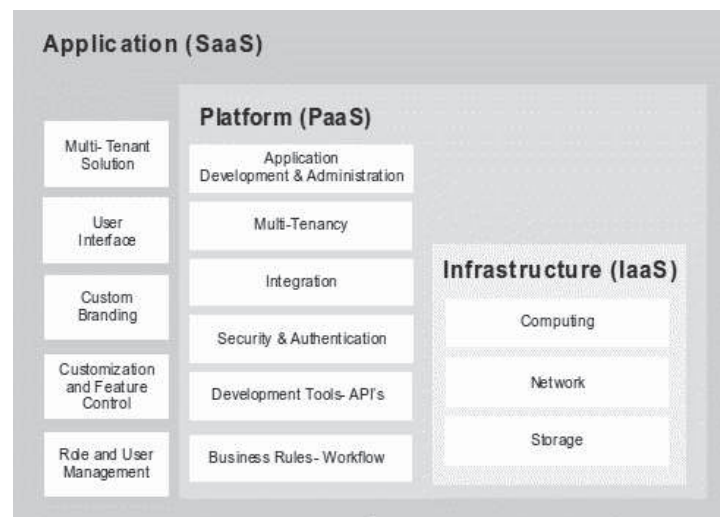

Fig. 3. Cloud Computing. Source: http://technofriends.in/2011/04/08/platform-as-a-service-cloud-computing-delivery-model/.

Infrastructure as a Service (IaaS) is a provision model in which organizations outsource their IT (storage and compute) hardware to a service provider that owns the equipment and is responsible for housing, running and maintaining it with the client typically paying on a per-use basis. The IaaS market is witnessing increasing traction as the delivery model offers lower total cost of ownership and it is fast to implement. The research study covers the Asia Pacific IaaS market, examining drivers and restraints for growth, exploring trends that are impacting the market and the key market participants in the region. Forecasts and market sizing is included in this study with the base year of 2010 with

forecasts running through 2017 [19].

A set of low-level services such as an operating system or computer language interpreter or web server offered by a cloud provider, on which developers can build custom applications- PaaS . Microsoft Windows Azure and Google App Engine are examples of PaaS [20].

Let us say a small company deploys an e-mail service for its employees but its e-mail service is hosted by a software as a service (SaaS) provider. The service is provided on a subscription basis, as a monthly fee per user. It is subject to certain limitations like storage capacity per e-mail account. The service is also bound by a service level agreement (SLA) where the service provider guarantees such aspects like speed, security, bandwidth, maximum downtime, software updates and help desk response time. That is a traditional SaaS service that many SMEs are already applying [21].

Infradapt noted that its new offer enables businesses to move towards a cloud-based utility model, from traditional technology services, and meets the customer's IT needs with a built-in software and hardware refresh schedule [22].

Cloud computing phenomenon appears to be one of the most promising economic recovery tools. Cloud hype seen among the big companies becomes also visible among SMEs that see cloud computing as a means of cost reduction and technology adaptation. Even though there are numerous projects for clouds, still there is a lack of effective and efficient cloud computing policy that would stimulate SME competitiveness and facilitate migration to clouds [49].

11. Predicting Effect of Cloud Computing on E-commerce

Armando Roggio in Practical Ecommerce admitted that at least 90 percent of e-commerce businesses will be using some form of cloud computing in the next five years. The move to cloud computing will simply mean that more and more e-commerce businesses will offload infrastructure, development, and software to the cloud. In some ways, cloud computing is just a new way to describe what e-commerce businesses have already been doing [52]. While using Cloud Computing technology it is important to take into account its implications for Construction IT in SMEs [48]. Relevant aspects are described on:

http://cordis.europa.eu/fp7/ict/ssai/docs/cloud-report-final.pdf

http://www.crosstalkonline.org/storage/issue-archives/2011/201101/201101 - Hassan.pdf

Cloud computing technology drew the attention of ENISA[4] the result of which

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[4] The European Network and Information Security Agency, ENISA is helping the European Commission, the Member States and the business community to address, respond and especially to prevent Network and Information Security problems.ENISA is as a body of expertise, set up by the EU to carry out very specific technical, scientific tasks in the field of Information Security, working as a "European Community Agency".The Agency also assists the European Commission in the technical preparatory work for updating and developing Community legislation in the

are recommendations for using Cloud Computing technology. Details may be found on:
http://www.coe.int/t/dghl/cooperation/economiccrime/cybercrime/cy-activity-interface-2010/presentations/Outlook/Udo Helmbrecht_ENISA_Cloud Computing_Outlook.pdf

12. Virtualization

Some researchers argue that many companies and strategic business units operate today in an economic structure, that is neither market nor a hierarchy. In this network economic structure, companies coordinate their strategies, resources, and skill sets by establishing long-term, stable relationships with other companies and individuals based on shared purposes. These relationships are often called strategic alliances or strategic partnerships, and when they occur between or among companies operating on the Internet, these relationships are also called virtual companies [54].

However, traditional organizational forms exhibit many of the characteristics of VCs. Virtuality seems to be a strategic characteristics applicable to every company – virtual versus non-virtual should be replaced by a concept of gradual virtualization. The measurement of current degree of virtuality can be based on instruments that integrate the characteristics of collaborating companies and those of their relationships [57].

In today's dynamic global business environment, forming a virtual company can be one of the most important strategic uses of information technology. A virtual company (also called
a virtual corporation and virtual organization) is an organization that uses information technology to link people, organizations, assets, and ideas.

Figure 3 shows that virtual companies typically form virtual workgroups and alliances with business partners that are interlinked by the Internet, intranets, and extranets. It is worth noticing that this company has organized internally into clusters of process and cross-functional teams linked by intranets. It has also developed alliances and extranet links that form interenterprise information system with suppliers, customers, subcontractors, and competitors. Thus, virtual companies create flexible and adaptable virtual workgroup and alliances keyed to exploit fast-changing business opportunities [50].

Virtualization is another approach to managing IT resources more effectively. However, it is mainly deployed within an organization. VMware was one of the forerunners offering virtualization services.

The VMware approach to virtualization inserts a thin layer of software directly on the computer hardware or on a host operating system. This software layer creates virtual machines and contains a virtual machine monitor or "hypervisor"
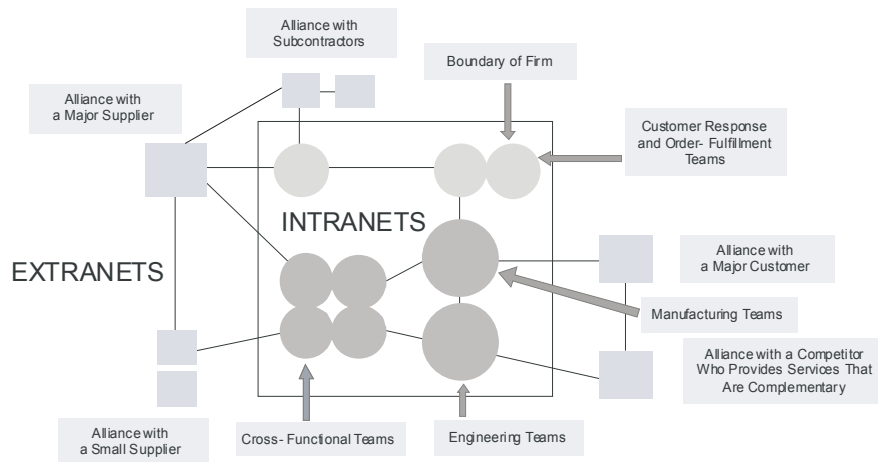
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field of Network and Information Security.

Fig. 4. A virtual company uses the Internet, intranets, and extranets to form virtual workgroups and support alliances with business partners [50].

that allocates hardware resources dynamically and transparently so that multiple operating system can run concurrently on a single physical computer without even being aware of it.

However, virtualizing a single physical computer is just the beginning. VMware offers a robust virtualization platform that can scale across hundreds of interconnected physical computers and storage devices to form an entire virtual infrastructure.

They also explain that virtualization essentially enables one computer to do the job of multiple computers, by sharing the resources of a single computer across multiple environments. Virtual servers and virtual desktops let you host multiple operating systems and multiple applications. Thus, virtualization has these benefits:

- Lower hardware costs through consolidation of servers (see mini case below).
- Lower maintenance and support costs.
- Lower energy costs.
- Scalability to add more resource more easily.
- Standardized, personalized desktops can be accessed from the user's location, so users are not tied to an individual physical computer.
- Improved business continuity.

The mini case study gives an example of these benefits [43, p. 172]. For organizations with large server farms, the savings in acquisition and ongoing maintenance costs make an investment in virtualization worthwhile. For SMEs, with only a few physical servers, the technology's capacity to improve disaster recovery planning (DRP) and business continuity (BC) are the true benefits. Going forward, Info-Tech predicts several trends will emerge:

1. Although the consolidation of servers will continue to be a key driver for

implementing virtualization, the benefits of high availability and low cost failover will be more publicized and increasingly integrated in the cost-benefit analysis for virtualizing. These benefits will be especially appealing to SMEs who are looking to develop and enhance their disaster recovery plans.

2. iSCSI SANs make it possible to implement DRP using virtualization. At the end of 2008, more than half of iSCSI SAN deployments in SMEs were forecast to support virtual infrastructures.

3. As organizations realize that virtualization improves the agility of their IT operations, desktop virtualization will be implemented to enhance DRP and business continuity.

4. Virtualization vendors will step up their courting of SMEs. VMware but also competing solutions from Microsoft, Citrix Xen, and other smaller vendors such as Virtual Iron will continue to vigorously pursue the SME focusing not only on consolidation but improved availability / recoverability features.

5. Storage vendors will highlight virtualization support to SMEs. Storage vendors will also be pursuing SMEs that will need networked – in most cases iSCSI-based – storage to support virtual infrastructures. Storage vendors will highlight how their products can enable improved availability and recovery of virtual infrastructures. This will include direct partnerships with virtualization software vendors [23].

More information may be found on:

http://salamanderit.com/?p=26

http://www.processor.com/editorial/article.asp?article=articles/P3204/33p04/33p04.asp&guid=

13. Useful IT tools for business [24]

13.1. Social networks

Online or virtual communities have become very popular recently with the rapid use of the World Wide Web for social computing applications. Words such as 'blogging', 'wikis', MySpace, Facebook and ITToolBox as used in the context of virtual or online communities did not exist five years ago. These new concepts and words may suggest that virtual communities are a very recent phenomenon. However, the notion of virtual community existed even in the early days of e-mail when researchers used the online medium to exchange ideas and information and to collaborate on research projects [40, p. 79].

13.2. Blogs, e-mails and news feed

Blogs provide an easy method of regularly publishing web pages which are best described as online journals, diaries or news or events listings. Many blogs provide commentary or news on a particular subject; others function as more

personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to the topic. An example of a useful blog which can keep marketing professionals up-to-date about e-business developments is the E-consultancy blog. Business blogs are created by people within an organization and they can be useful in showing the expertise of those within the organization, but need to be carefully controlled to avoid releasing damaging information [43].

E-mail has become essential in establishing proper communication in e-business. The popularity of e-mail as a communication tool has resulted in billions of messages being sent each day. Some companies have even chosen electronic mail as their main or only source of communicating with clients or other business people [25].

A web feed (or news feed) is a data format used for providing users with frequently updated content. The way a feed works is simple: information is regularly exchanged between a server and another server or a client using a standardized XML format enabling the latest version of the information to be exchanged. One example of a use of feeds to exchange information between databases on two servers is uploading product details and prices to a price comparison site such as Google product search which is facilitated through Google base (http://base.google.com) [26].

13.3. IPTV in Business and the Corporate World

The growth in popularity of IPTV or 'Internet TV' where TV and video are steamed via broadband cross the Internet, is one of the most exciting developments in recent years. In 2007 services offering streamed viewing of hundreds of channels from providers such as the Europe-based Joost and the US service Hulu (www.hulu.com) were launched, and there are many competitors such as Bebelugm, Buze and Veoh. IPTV is sometimes referred to as non-linear TV or on-demand broadcasting to contrast it with the traditional broadcasting to schedule.

It will be essentials for marketers and ad agencies to learn how to exploit the New IPTV in order to reach these audiences online who may be forsaking traditional media for ever – delivered via Internet Protocol [43, p. 133] .

Internet Protocol television (IPTV) is a system through which Internet television services are delivered using the architecture and networking methods of the Internet Protocol Suite over a packet-switched network infrastructure. IPTV services may be classified into three main groups: live television, with or without interactivity related to the current TV show; time- shifted programming: catch-up TV (replays a TV show that was broadcast hours or days ago), start-over TV (replays the current TV show from its beginning), and video on demand (VOD): browse a catalogue of videos, not related to TV programming [27].

The corporate IPTV system allows for the delivery of company information,

training programmes, internal company broadcasts, news feeds and other video media via IP streams. The information can be sent directly to staff desktop PCs and various other individually chosen points of display. Any TV or PC attached to the IPTV network is accessible.

TV Over LAN provides a complete turnkey corporate IPTV solution, enabling rapid installation of internal and external communication systems.

TV Over LAN's IPTV network system allows complete control from a single PC either remotely or in-house.

13.4. IPTV in a Corporate Environment

IPTV:
- Delivers live TV and radio to staff desktops or screens around the building
- Provides live news and information feeds to decision makers
- Keeps staff up-to-date in common areas
- Provides entertainment in staff break area [28]

More information about IPTV may be found on http://www.eurosatellites.com/what-is-iptv.php website.

13.5. VoIP

Voice over IP (VoIP) is a relatively new approach in Romanian and Polish e-business and can be used for transmitting voice over a LAN or on a wider scale. Voice data is transferred across the Internet – it enables phone calls to be made over the Internet [29]. Widgets are different forms of tools made available on a user's desktop or on a web site. They either provide some functionality, like a calculator, or they provide real-time information, for example on news or weather. A widget is actually a mini-software application, a badge or button incorporated into a site or social network space by its owner, with content or services typically served from another site. The content can be uploaded in real time since the widget interacts with the server each time it loads [30].

The following are the benefits of VoIP communications:
- Allows chief information offers to explore different deployment options for company's communications needs
- Lowers the total cost of ownership through voice/data convergence
- Lowers operational costs through a use of integrated applications
- Reduces hardware requirements on the server side for certain applications (e.g., VoIP)
- Provides a holistic approach to security, enhanced by encryption and identity management
- Helps streamline workflows by empowering companies to communications – enables different business processes
- Enables optimized conferencing tools to replace business travel [51].

An example of VoIP system is the FreecoNet system. In this case you can use hardware a VoIP gate or software for communication. There are many software solutions such as Xlite, skype and others.

14. Mobile Commerce[5]

In this paper it is explained that e-commerce refers to both international and financial transactions through digital media. Similarly, mobile commerce (m-commerce) refers to the use of wireless devices such as mobile phones for both informational and monetary transactions

While fixed Access to the Internet has dominated to-date in many developed countries, in the future this situation will change due to the ubiquity of the mobile phone and the adoption of higher-speed services and more sophisticated handsets. In some countries, such as Japan and China, the majority of Web Access is via mobile phone and we can expect to see increased mobile use in all countries. In China there are more mobile subscribers (over half a billion) than the whole US population (Belic, 2007) and according to the regularly updated Comscore panel data (www.comscore.com), the use of the Web by mobile devices in Japan is equal to that of traditional computer access [43, p. 177]. 2010 has widely been dubbed the year of mobile so it's not surprising that mobile scores highly on the list of challenges for this year. Travel brands are at hugely varying stages of preparing themselves for mobile engagement. From the initial stages of designing a mobile friendly website to the launch of mobile applications, innovation (and very insightful case studies) is widespread but so are the questions [34].

An increase in smart phone adoption helped the year of 2011 to be the year when mobile commerce gained significance. Not only more consumers picked up smart phones like the iPhone and Blackberry, but they also picked up tablets like the iPad. The iPad can utilize 3G, which means it is as much a device to partake in mobile commerce as a smart phone. Therefore the combination of these devices in consumers hands, made 2011 a year where people became more comfortable with the concept of mobile commerce. Additionally, more online retailers are stepping up their game and offering mobile friendly sites, or dedicated applications that provide a custom mobile commerce experience [35].

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[5] Deinition: Mobile commerce, or m-commerce, is the buying and selling of goods and services through the use of hand-held devices such as mobile phones or PDAs. This form of buying is known as next generation e-commerce and it's conducted by allowing users to access the Internet without a computer connection [32]. According to GS1, an international standard organization, there are over 3 billion mobile phone users worldwide. Many people throughout the globe own mobile phones that are designed to interconnect business and consumers to develop m-commerce and business relationships. Read more: [33].

14.1. Strategies for mobile commerce

Different types of strategies can be identified for two different main types of players. The BBC offers a standard (WAP) version which can be used on all mobile devices, and is the fast test and cheapest option, and an Enhanced (XHTML) version has been designed for the use on 3G phones which includes both video and audio download. There is also a PDA version and the standard desktop version, so there are four different version that have to be supported.

Mobile sites can also be made available through a .mobi domain where a WAP site is available for download of content. Alternatively, an organization may decide the cost of re-purposing is too high and they may wait for users to access the web with 3G devices, which will require less re-purposing since the screen resolution is higher. A stylesheet may be defined to simplify the design of visitors to the web site who are accessing the web through a mobile device.

For destination sites such as retailers, banks travel companies, mobile marketing options include:

- Marketing communications (to support purchase and support) using banner advertising e-commerce (sale of products o-site)
- brand building-improving brand image by being one of the first suppliers to offer innovative service [43, p. 186].

Ubiquity	
Reachability	**Today**
Security	
Convenience	

Localisation	
Instatn Connectivity	**Tomorow**
Personalisation	

Fig. 5. Attributes of mobile communication [45]

15. Conclusions

The main objective of this article is to present the current state in the development and implementation of IT tools in Small Medium Enterprises (SMEs) in Romania and in Poland. The function environment of SMEs is very complex, highly dynamic and with many constraints and law-related problems.

It is the numerous technologies being developed that underlie the above described situation. Within the scope of the presented work, definitions of

SMEs are presented, as well as the IT environment for SMEs and finally some programs and hardware tools are characterized that can be used in business. Among many tools the following were selected: web browsers, server software, blogs, social media, IPTV, VoIP also attention is drawn to the growing role of cloud-computing, virtualization and mobile technology in business. The results of the presented analysis may be valuable for both academia and real SME. More specifically, the work is dedicated to applying new techniques to solve and optimization of problems in using IT tools in business, which is an open issue within the research community. Nowadays, small enterprises are looking for implementing such IT systems to run their businesses. Moreover, various techniques for SMEs in the context of dynamic competitive environments are explored. Apart from the mentioned e-business area, the reader should expect further development e-technology, especially in: e-commerce, m-commerce, s-commerce, e-government, e-learning, e-payment, e-democracy, e-administration, e-procurement, e-supply chain, e-health, e-society and others.

To summarize, it may be concluded that the issues described in the article may be useful elements in the strategy of development of the EU. The aim is to strengthen the 'innovation capacity' of small and medium-sized enterprises (SMEs) in Europe and their contribution to the development of new technology based products and markets. The programmes will help them outsource research, increase their research efforts, extend their networks, better exploit research results and acquire technological know-how, bridging the gap between research and innovation [36].

Currently, there are many opportunities for the development and implementation of new IT tools. There are funds that allow the implementation of projects in the field of innovation. There are also projects in which SMEs can take part, for instance in Romania and Poland. Details may be found: ftp://ftp.cordis.europa.eu/pub/fp7/docs/research_smes_en.pdf [37].

Romanian and Polish entrepreneurs can count on some funds, training and high-class consulting support for free [38]. In the EU's innovation ranking for the year 2010 (EU-27), Poland was in the 22nd place and Romania in the 24th. A report created by a team of university experts Vistula states that innovation in Poland is falling, and one of the negative factors affecting it are European funds [39]. Many entrepreneurs do not know how much is being done in the development of SMEs. This follows from the fact that many entrepreneurs focus their attention on current activities and spend time, money and activity only in areas that bring immediate profit [41]. It is noted that IT activities in most cases may cause great benefit in the long run. Most companies focus their actions on the use of modern IT techniques only to implement the website and e-mails [56]. Occasionally, some companies are implementing e-commerce techniques.

The article is to identify the opportunities and benefits of information technology in SMEs, which may affect their growth, increase profits and competitiveness in relation to companies from countries where ICT is treated as a key to success.

Summary

IT tools in SMEs in selected countries

Electronic communications are technologies that have caused major changes in industry structure, marketplace structure and business models. Current economy or digital economy is driven by modern information and new IT tools, which offer organizations or companies access to almost any type of information, regardless of its form of existence, storage type or geographical location.

These tools encourage the development of new activities, services and products. All developed countries have issued and implemented government policies supporting the evolution and the adoption of new technology for Small and Medium Enterprises, the training and the attraction of new technology experts, education of employers and employees, and the cooperation with the private sector to encourage investment in this new economic branch, and promoting government projects to demonstrate the benefits for the SMEs [1].

This work aims at highlighting the pattern of activities using the convenience of IT tools, with emphasis on sophisticated instruments in hardware and software. Also, the present study summarizes current definitions of SMEs, the existing problems in the international activity of SMEs, business IT systems in Poland and in Romania, and new recommended tools. The aspects considered in this paper include: cloud computing, virtualization and mobile technology. These technologies have contributed to developing new IT tools that are a perfect support for businesses.

A case study was performed to highlight the current state of using IT tools in Romania and Poland, in e-business in particular [2]. Romania and Poland are considered, in the authors' opinion, to be good examples of applying IT tools to support SMEs.

Streszczenie

Narzędzia informatyczne w małych i średnich przedsiębiorstwach na przykładzie wybranych krajów.

Komunikacja elektroniczna jest technologią, która spowodowała istotne zmiany w strukturze przemysłu, rynku i modeli biznesowych. Aktualna gospodarka lub gospodarka cyfrowa jest napędzana przez nowe narzędzia informatyczne, które oferują organizacjom i firmom dostęp do prawie każdego typu informacji, niezależnie od jej formy istnienia, przechowywania, rodzaju lub położenia geograficznego.

Narzędzia te wspierają rozwój nowych działalności, usług oraz produktów. Wszystkie rozwinięte kraje opracowały i realizują politykę wspierania rozwoju i implementowania nowych technologii dla MŚP. Szkolenia, przyciąganie nowych ekspertów, edukacja pracodawców i pracowników, a także współpraca z sektorem prywatnym ma na celu wspieranie inwestycji związanych z technologiami informacyjnymi oraz promowanie projektów rządowych w celu wykazania korzyści w MŚP.

Niniejszy artykuł ma na celu pokazanie korzyści wynikających z działań związanych z wykorzystaniem wyrafinowanych narzędzi informatycznych w biznesie. Ponadto

niniejsze opracowanie zawiera aktualne definicje MŚP, charakterystykę problemów w międzynarodowej działalności małych i średnich przedsiębiorstw, biznes systemów informatycznych w Polsce i Rumunii, a także zalecane nowe narzędzia IT. Znaczące aspekty wymienione w niniejszym dokumencie dotyczą takich technologii, jak: cloud computing, wirtualizacja oraz technologia mobilna. Technologie te przyczyniły się do opracowania nowych rozwiązań informatycznych, które stanowią doskonałe wsparcie dla przedsiębiorstw.

Opracowanie to zostało wykonane w celu uwidocznienia obecnego stanu wykorzystania narzędzi IT w Polsce i Rumunii w e-biznesie. Rumunia i Polska są w opinii autorów dobrymi przykładami prawidłowego zastosowania narzędzi informatycznych wspierających MŚP.

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