

Internet Strategy As An Opportunity And Challenge For Small And Medium-Sized Enterprises

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Abstract – Small and medium-sized enterprises play a decisive role in increasing the competitiveness of the economy. The European Union strives to create a favorable business environment for them. Considering either Romania or Hungary, more than 94% of the entire corporate sector is made up of small and medium-sized enterprises. In our century, computer technology seeped into the Internet almost unnoticed. The innovations brought by computer technology have a great impact on businesses as well. The focus of the study is an (internet) strategy that provides new opportunities for small and medium-sized enterprises. Today, we can almost say that there is no separate "Internet strategy", just simply strategy, since computing technology is everywhere, it is difficult to separate it from sales, marketing and other company functions. The corporate strategy defines the company's (organization, enterprise) long-term (shorter-term, depending on market conditions) goals, the methods, tools, and opportunities necessary to achieve them, which determine its scope of operation. Related to this is the process of strategic planning, which considers, evaluates and decides on the programs and projects that must be implemented in order to achieve the set goals.

The corporate strategy is the set of concepts that designate the company's long-term goals, allocate resources to the goals to the extent necessary to achieve them, determine the directions of development, and the framework for the realization of the goals. In a fortunate case, the strategy is based on the company's core values, it is in line with the company's mission, i.e. the mission, the company's self-definition in the present, and the company's vision, the company's future self-definition.

The majority of company managers do not see the different cloud services as well-founded and risk-free enough to use them to meet the company's needs. In the study, we review the various cloud services, as well as their challenges and opportunities for small and medium-sized enterprises.

Keywords – Cloud Computing, SME, Cloud, Business, Risk-Free Strategy.

I. INTRODUCTION

In the last half of the XX. century and in the XXI. century, we witnessed the unexpected development of computer technology. In addition to its other social effects, this explosive development also had a great impact on economic processes. The creation of the Internet, which can be considered a network of networks, has brought new opportunities and challenges to commerce and businesses. It is indisputable that with the creation of the Internet, a worldwide commercial and advertising tool became available and usable. By ensuring the exchange of information, the network conveys human, economic and commercial relations and values.

Things are a little different for companies. Most of them spend large sums of money to set up their own servers in order to operate the resource risk-free [1]. Since the heroic age of computer technology, most business leaders start with the idea of having to buy their own server and the special applications and programs that go with it. In the last decade, however, a lot has changed and businesses have to rethink their strategy regarding individual resources. Is it really necessary to invest heavily in the latest hardware and software tools for a successful business [2]?

The emergence of cloud computing has forced company managers to rethink their strategy regarding IT investments [3]. It is then possible for most businesses to subscribe to various online services for the cheapest possible monthly fee. In addition to cloud computing, the Internet enables the creation of virtual commercial marketplaces, which helps suppliers and buyers of a given industry to meet and find partners offering or looking for the right service and product. On the virtual marketplace, individual businesses can conduct electronic commerce.

In addition to the risks and challenges, the leakage of computer technology onto the Internet represents a strategic opportunity for small and medium-sized companies [4][5].

In light of the above, we note that in the case of a small and medium-sized company, the internet strategy is necessary for the following reasons [6][7]:

- the pulling effect of computer technology and other industries is appreciated

- the emergence and spread of cloud computing enables the emergence of new business models
- innovative and commercially efficient applications improve the company's competitiveness
- the use of computing devices has become embedded and almost inseparable from the actors.

In this study, we will examine what aspects of the topic have been examined in the literature so far. We define the concept of cloud computing, review cloud services and types. Finally, we make a proposal for small and medium-sized companies on how to develop a risk-free strategy for the use of cloud computing.

II. MATERIALS AND METHOD

A. *The concept and characteristics of cloud computing*

Cloud computing, or Cloud Computing in English, is one of the new concepts of computer technology. Its essence is that it is possible to work with programs and applications that are not physically located on the company's server or on our own computer, but in an unknown location, somewhere in the "cloud". These programs and applications can be accessed from anywhere with the help of our own computer or mobile phone, provided there is an Internet connection.

One of the most common definitions of cloud computing comes from the National Institute of Standards and Technology (NIST), which states: "The cloud computing model allows users to conveniently and on-demand access to shared, configurable IT resources that can be deployed quickly and with minimal administrative effort." It can be made available and freed under load or service provider intervention." [8]

We would define cloud computing as follows: cloud computing is a model that enables convenient and widespread access to configurable, sharable resources over a network.

One of the biggest advantages of storing data and applications on the Internet is that they are easily accessible from anywhere and are not lost even if our own laptop or phone breaks down. The legal background must also be taken into account [9]. Basic characteristics of cloud computing [10]:

- wide network access: it means that we can access it from anywhere with a browser
- service measurement: we can determine the number of impressions, downloads, etc.
- great flexibility: the model can adapt to meet different needs
- resource sharing: cloud computing provides an opportunity for optimal sharing of resources
- on-demand self-service: cloud computing provides, controls and manages self-service.

We distinguish several types of cloud computing-based services. What these services have in common is that they are not operated on a dedicated hardware device, but distributed on the service provider's device, hiding the operational details of the service from the user.

Cloud computing offers businesses as a service [7]:

- the infrastructure (Infrastructure as a Service - IaaS),
- the development platform (Platform as a Service - PaaS) or
- applications (Software as a Service – SaaS).

Infrastructure as a Service (IaaS) is a solution where the user only receives raw hardware resources, i.e. a virtual machine. Table 1 clearly shows that computing resources, data storage and communication services can form an infrastructure together.

The most well-known example is Amazon Web Services, which offers computing servers the Elastic Compute Cloud (EC2).

A platform as a service (PaaS) is a development environment accessible via the Internet and located in the computing cloud. The user can only use the development tools, he does not have access to the infrastructure [6].

Examples include Microsoft's Azure, Google App Engine and Amazon Web Services. Software as a service (PaaS) is not installed on a computer, but can be accessed via a network. This type is most typical of today's cloud services.

Currently, hundreds of SaaS providers provide services for a wide variety of applications. Good examples of SaaS services are Google Apps, Salesforce CRM, LotusLive, Microsoft Business Productivity Online Suite (BPOS).

Table 1. Services provided by cloud computing

Application SaaS		
Software environment / platform PaaS		
Computing resource IaaS	Data storage DaaS	Communication CaaS
Kernel of Software		
Firmware / Hardware HaaS		

More and more companies realize that IT investments tie up a lot of resources and do not always bring the expected increase in revenue.

From a strategic point of view, the use of cloud computing poses a serious dilemma for individual small and medium-sized companies. In these types of IT models, security, personal rights and reliability, which promote the efficient operation of the company, and play a significant role [7].

B. The possibilities of cloud computing for small and medium-sized companies

In general, small and medium-sized enterprises invest less money in learning about new Internet technologies and methods that appear almost every month, and in choosing the ones that are useful for them [11]. One of the means of maintaining competitiveness can be the implementation or utilization of the latest technologies. In specific cases, the existing infrastructure is developed, a new competitive application is developed, or the old one is transformed. Cloud computing offers the opportunity for managers of small and medium-sized enterprises to shape IT into a much more efficient and useful business service and a source of corporate innovation [12].

With its model based on on-demand access to reliable infrastructures and services, cloud computing decouples business initiatives from the IT capabilities needed to implement them [7].

During the strategic planning of a small and medium-sized enterprise, you can use the SWOT analysis to assess the possibility to what extent cloud computing would improve the situation of the enterprise.

Table 1. Results of SWOT

Strengths	Opportunities
<ul style="list-style-type: none"> • cost savings • payment depending on use • availability • no own infrastructure is required • fixed costs • software update options • use of company-specific products • use of open source technologies 	<ul style="list-style-type: none"> • future integration • flexibility • quick adaptation in case of fusion • the growth of the company • rapid innovation • agility
Weaknesses	Threats
<ul style="list-style-type: none"> • security issues • reputation sharing • technical limitations • lack of modifiability • lack of adequate bandwidth 	<ul style="list-style-type: none"> • data entry • lack of personalization • lack of service providers • undervalued technological development

The main advantages provided by the strengths: cost savings, usage-based payment, availability from anywhere in the world, use of company-specific products. Managers of small and medium-sized companies determine the cloud model they want to use.

Weaknesses of cloud computing include issues of security, sharing of reputation, technical limitations, lack of modifiability and possibly lack of necessary bandwidth.

Possibilities include future integration, flexibility, rapid innovation, agility, which the manager of a small and medium-sized company can take advantage of in a way that is favorable to his business.

As a threat, we can mention data entrapment, which means that the company cannot transfer its data and programs from one place to another without them working. Another threat is the lack of personalization, possible lack of service providers, etc.

Cloud computing can overcome many obstacles of traditional computing. New initiatives of companies do not depend on adaptation and installed systems,

which would take months or even years to build and implement. Cloud services can be easily provided according to the needs of small and medium-sized companies, when and in what quantity they are needed. For example, if a small and medium-sized company needs a storage space to store data, it can be rented, or if it does not have a large data traffic, it can also be solved with virtual technology at any service provider.

III. RESULTS

As a summary of our research, we will briefly summarize what aspects the manager of a small and medium-sized enterprise must take into account when using a cloud computing service.

When using a cloud service, the following must be taken into account:

- it is necessary to determine which cloud service best fits the strategy of the small and medium-sized enterprise
- the management of the small and medium-sized enterprise must select the service provider with which it will cooperate;
- a SWOT analysis should be used to examine the advantages, opportunities, disadvantages and threats of moving to the cloud
- it is necessary to calculate the specific costs of switching to the cloud and how this affects the company's budget
- it is very important to get to know the service provider's security policy, regulations and certification
- the management makes sure that the service provider guarantees the security and data protection requirements in the contract
- together with the cloud service provider, it is necessary to examine how the audit of the compliance criteria applicable to small and medium-sized enterprises can be carried out in the cloud environment and how the service provider can or wants to contribute. [7]

Cloud computing has the potential to become a new and significant service industry that would provide excellent opportunities for small and medium-sized businesses.

IV. DISCUSSION AND CONCLUSION

Cloud computing enables small and medium-sized companies to use the Internet in such a way that their data and possible web stores are not stored on their

own servers, but in the cloud computing they choose.

A significant number of small and medium-sized company managers are still unsure about the security of cloud-based services. In both Romania and Hungary, one of the main obstacles to the introduction of cloud services is the lack of related knowledge.

Returning to the question posed in the title of the study, we can say that cloud computing is both a challenge and an opportunity for small and medium-sized businesses. It is not possible to propose a unified strategy, but the situation of each enterprise must first be assessed and the best solution developed in order to increase competitiveness.

Today, cloud-based services are increasingly popular for drone work [13],[14]. It provides a good solution for the storage and processing of data collected by drones in the case of inventory control [15],[16]. A huge amount of data is also generated in agriculture, which must be accessed quickly and reliably in agricultural areas. Cloud-based services also provide a good solution for these [17]. Furthermore, it can also provide a solution in the case of cultural heritage preservation [18]. With the help of cloud-based services, it is also possible to quickly recognize shapes from the data provided by drones [19],[20].

The rise of artificial intelligence is a big step forward, even in industry and therefore also in education [21]. There will be an increasing demand for the technological development of cloud-based services.

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