Management of the Electronic Space as an Essential Element of the Activity of Contemporary Organizations

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Abstract
This paper is composed of four parts. In the first, a short introduction concerning the development of the electronic space is given and the consequences, from the organizations' point of view, are presented. The next two parts form the core of this paper. They relate to the holistic approach to the management of the electronic space. First, an analysis of the preventive and protecting activities which, from the perspective of the organization, are necessary for the management of the electronic space, is provided. Next, the possibilities for active influence on the electronic space are presented and discussed. Finally, the most significant conclusions and suggestions are offered.

Keywords
Internet, electronic space, organization, management.

I. Introduction
The problem of the impact of the Internet on the functioning of business organizations becomes an increasingly greater issue both from the perspective of individual organizations as well as the contemporary economy as a whole. The internet's rapidly growing role and influence on almost every sector of the economy necessitates a better understanding of it by the entities operating in it. In order to compete effectively in the new post-industrial business reality, where the Internet, as the global network infrastructure, plays an increasingly crucial role, organizations have to be well acquainted with it. On the one hand, the Internet is vital for them in order to utilize new chances and often previously unobtainable opportunities; on the other hand, organizations need to fully understand it in order to minimize new and previously unknown threats. In this situation, the increasingly significant element of an organization's skill, is the ability to manage the electronic space, particularly as even routine operations take place there. Hence every company should undertake appropriate and comprehensive actions connected with the planning and organizing of their on-line business activity, directing people working in the electronic space, and controlling every element, including their own operations conducted in this space.
In this context there are two key aspects which should be carefully considered:
• The securing and protecting of on-line operations (preventive and protecting activities).
• The utilization of opportunities of active influence on the electronic space (proactive activities).

II. Activities connected with the securing and protecting of on-line operations
The appointment of a supervising body (e.g. a steering committee) is undoubtedly the first step which should be undertaken in the context of the activities related to both of the above mentioned areas. The committee's fundamental task should be supervising all the issues connected with the management of the electronic space in the context of meeting the goals of the organization. Because of the unique evolution

and impact of the Internet on companies, the committee should be composed of representatives from the top management, including the heads of the IT and marketing departments.
If the issues connected with the preventive and protecting activities are considered, there are two basic areas of activity which should be of interest to the supervising body - the internal and the external ones.
In the case of the first area, it is necessary to define both company-wide as well as individual on-line security policies. These are connected with such activities as the precise determination of the rules of utilization of the electronic space by employees, including the tools used there by them, and the scope of monitoring of these activities. These issues relate both to employee activity within the "physical" infrastructure of the organization, and also to those employees who realize their tasks at home, such as teleworkers, or those who cooperate with the company as freelancers. Simultaneously, a significant element of these activities is those issues connected with assuring the reliable functioning of the IT infrastructure of the organization, and its protection in the context of the security of the company in the electronic space. Hence the next stage of the committee should be the appointment of persons responsible for the realization of the above mentioned tasks and the determination of the scope of their responsibility, in addition to establishing the means and frequency of providing feedback concerning potential problems and the actions being taken to rectify them. The third step should be connected with detailing all the above issues in the organizational dimension with particular reference to the tools and technologies utilized tools.
The second area of activities connected with securing and protecting on-line operations relates directly to the electronic space and its impact. As in the previous area, the basic task of the supervising body is the determination of the organization's policy concerning its monitoring, knowledge management, and reaction to events taking place in this electronic space. In this context, the next stage is, as previously, the determination of the people responsible for the realization of particular tasks, and the scopes of their responsibilities, as well as establishing the means and frequency of providing feedback concerning the actions undertaken, and the problems that occurred. When necessary, inter-departmental teams of experts should also be established. As in the previous case, the third level of activities in this area should be connected with detailing all the issues both in the organizational as well as in the technical dimension.
In this context there are six basic questions which should be answered:
1. Which entities and their activity should be monitored?
2. How can they impact the organization and its functioning?
3. What areas of the electronic space should be monitored?
4. What technical means should be used for this purpose?
5. Who should be responsible for the process of monitoring the electronic space, undertaking decisions concerning

its implementation, reaction to the issues taking place there, and the technical means which should be used for this purpose?

6. What kind of actions may be aimed at entities operating in the electronic space and are acceptable from point of view of the organization and its value system?

When the first question is considered, undoubtedly the key element is the segmentation by the organization of the entities functioning in the electronic space based on their potential impact on that space. It will allow organizations to distinguish those companies, groups, individuals or particular on-line places, whose activity should be monitored, taking into consideration the prevention of unfavorable issues for the company, or if this is impossible, enabling quick reaction to them. This relates to various aspects connected with the "physical" impact on an organization infrastructure, and also the influence on organizational image issues.

In this context, one can distinguish three basic groups of entities operating in the electronic space, important from the point of view of every organization operating there. They include [5]:

• a group of known and identifiable entities operating in the electronic space, affecting an organization,

• a group of unknown and/or difficult to identify entities operating in the electronic space, affecting an organization in a real way,

• a group of identifiable and unidentifiable entities operating in the electronic space neutral from the point of view of an organization.

Theoretically, distinguishing the first group should be a relatively easy issue because of the fact that it generally relates to the "classical" stakeholders of the organization, both internal and external ones. However in the reality of the dynamic development of the post-industrial economy, including its increasingly important on-line function and development, it becomes less obvious. It results from a few important issues.

Firstly, the entities "typically" belonging to this group such as suppliers, business partners or competitors, and even clients to a growing degree, function with increasingly complicated and diverse network connections. Because of this, it becomes harder and harder to unambiguously determine to which specific groups they should be assigned to in order to then be able to monitor their activity, and gather the necessary knowledge about them for a quick and effective reaction.

Secondly, this group should also include entities which emerged as stakeholders of organizations only with the development of digital economy. On one hand, this relates to such entities as influential local and global bloggers, and, in particular, the biggest search engines [7], where the scope of the impact on not only the single organization but also the whole economy has become increasingly significant and multidimensional. Simultaneously, a growing number of companies believe that entities which should be included in this group are such global services as Wikipedia and Wikileaks.

The second group is the most difficult one for organizations to identify and manage knowledge about. As it was mentioned earlier, this group includes all entities, including unknown and difficult to identify ones, which operate in the electronic space and affect the organization in a real and perceptible way. Within this group there are two sets of entities whose activity should be monitored, and where knowledge about them should be gathered and utilized in a proper way.

The first one is connected with issues related to the "physical" security of the IT infrastructure of the organization. This means not only the organization itself, but also its customers and business partners. These issues acquire significance in the context of the dynamic development of the digital economy, and simultaneously become more and more complicated and difficult. The reason is the utilization by entities belonging to this group of increasingly sophisticated technologies, and methods of actions.

The second set of entities belonging to this analyzed group consists of individuals and companies utilizing internet technology-based tools in order to impact on the credibility or reputation of the organization. They are able to very effectively influence both the organization itself, and its "direct" stakeholders, using for this purpose every available tool based on internet and mobile technologies.

The third group includes entities operating and realizing their goals in the electronic space, but recognized as neutral from the point of view of an organization, and its operations. This group can include can be both those entities whose existence the organization is aware of, but also those which are completely unknown to it. It is worth noticing in this context that because of the dynamics of the changes taking place in the electronic space, entities belonging to this group can from one day to the next become a stakeholder of the organization. This relates both to the companies previously operating in a quite different sector of the economy, but also to those individuals who have organizing themselves into ad hoc specific groups of interest.

In the context of the above mentioned segmentation of entities operating in the electronic space, as a result of their potential impact on the organization, the next stage of activities should be their analysis from the point of view of their possible impact on organizations [6]. This is connected with the answer to the second of the above mentioned questions.

The next stage of activity related to the preventive and protecting activities in the external sphere is connected with the possibilities of managing the identified groups of stakeholders functioning in the electronic space to aid realization of the organization's goals. With reference to this aspect it is necessary to detail organizational and technical issues relating to the problems contained in the questions 3, 4 and 5.

On the one hand, it can be difficult to clarify what areas of the electronic space, and the activities of the entities operating there, should be especially carefully monitored. Although for organizations utilizing the Internet in their business activities, potentially everything which takes place there is important, however there are such on-line "places" which are particularly sensitive in the context of achieving their business goals. Very often they include various types of discussion forums, profiles on numerous social networking sites, or other areas where opinions about the organization, and its activity are being discussed and shaped. Their monitoring can be a source of current, trivial, and run-of-the-mill issues, requiring routine reaction as well as untypical and unexpected issues. They can provide an organization with signals about organized actions aimed at the company, or the emergence of new types of threats in a specific sector. In the case of the latter issue, from the point of view organizations such as banks, it is extremely important to monitor specific places in the electronic space in order to acquire, knowledge critical for the security of their customers, with the fastest possible warning. This also helps the organization prepare for emerging threats. Therefore monitoring such services as Wikipedia becomes more and more important for a growing number of companies.

The second aspect relates to the technical means utilized by the organization, assisting with the managing of both the electronic space and entities operating there. It relates to the tools and solutions supporting such important issues as the monitoring of the certain areas of the electronic space, managing knowledge about it, and undertaking reaction to the events taking place. If the first aspect is explored, there are numerous possibilities which are available. On the one hand, it is a case of the manual control of specific places in the electronic space (blogs, social networking Web sites etc.) carried out by people responsible for these issues [2]. It also relates to searching the content of the deep or invisible Web, through the utilization of specialized search engines [3]. In addition, there is available an increasing number of tools supporting the process of monitoring the electronic space. There are free solutions such as Google Alerts, which allow for the automatic conduction of these processes, paying special attention to the topic, or topics as chosen by the user. On the other hand there are specialist commercial services which support the processes of monitoring and reporting with reference to the electronic space as a whole, or to its specific parts such as blogs or social networking sites, taking into consideration defined key words or expressions.

The tools by themselves are not enough, taking into consideration the amount of data and information which is being generated in the electronic space. In order to effectively manage this and the stakeholders operating there, it is necessary to have analytical systems to process the gathered data, and easily disseminating the generated information and knowledge to all entities in the organization responsible for managing the electronic space, making them able to take the required decisions and action in a quicker and more effective way. Hence, the emergence of such solutions as Buzzient Enterprise, which provides users with various types of analytical possibilities [1]. They allow for the direct integration of various types of CRM applications, feeding business intelligence systems, or the analysis and visualization of data by Web applications. If the platform integrating information, the knowledge of the electronic space and the entities operating there as well as the applications supporting the management of it is considered, undoubtedly such systems as corporate portals are useful [9].

Generally solutions supporting managing the electronic space should include such elements as:

• document management system, allowing for the storage, classification, and finding of documents concerning particular entities functioning in the electronic space,
• workflow systems, supporting every type of process, taking place both within the organization, but also within the frames of its network connections, related to the managing of the electronic space,
• groupware systems, ensuring the proper exchange of information and knowledge within the organization, relevant for managing the electronic space and stimulating and supporting the organizing of the inter-organizational cooperation,
• a system based on the utilization of the internet and mobile technologies, allowing for the quick and easy sharing of information and knowledge, or the exchange of opinions concerning the electronic space and entities operating there,
• business intelligence systems allowing for the multidimensional analysis of the gathered data relating to the electronic space and the entities operating there,
• Web mining solutions, allowing for the automatic extraction

of information and knowledge, concerning the behavior of users visiting Web sites,
• e-learning systems supporting the development of skills and qualifications as well as acquiring and expanding employees' knowledge essential in the context of managing electronic space,
• an intranet or another inter-organizational network allowing workers access to information and knowledge concerning the electronic space and entities operating the there,
• technologies for searching for information and knowledge such as tools supporting categorization and making taxonomies, ontologies, or search engines.

Apart from the above mentioned technical tools and solutions, a significant element, as in the case of the internal area, is the detailing of all activities in the organizational dimension.

If the last of the earlier formulated questions is considered, it relates to determining what sorts of actions in the electronic space, undertaken within the scope of the preventive and protecting activities, and aimed at the stakeholders of the organizations, are permissible and acceptable, and which ones are absolutely not. This problem is an issue which should definitely be determined by the steering committee.

III. Opportunities connected with an active influence on the electronic space

Apart from undertaking preventive and protecting activities relating to its presence and functioning in the electronic space, every organization has numerous possibilities to actively influence and shaping that space. And it can take place on five basic levels i.e. organizational, sectoral, national, regional, and global [8].

If the first one is considered, it is connected with such issues as the introduction of their own products, systems or solutions that affect the shape and functioning of the electronic space, and also the creation and implementation of diverse types of policies relating to various aspects of on-line functioning (e.g. privacy policies). The legal actions aimed at other entities functioning on-line are the third important area of impact of companies on the electronic space at the organizational level. It mainly relates to those among them which have a significant impact on the shape and order of the on-line reality (e.g. Google).

If the sectoral level of the impact is considered, it mainly relates to such aspects as developing, even together with competitors, solutions supporting and stimulating the utilization of the electronic space for a particular sector of the market (e.g. the security protocol, Secure Electronic Transaction, created by Visa and MasterCard). The second widely utilized method of influencing the electronic space and its functioning by enterprises at the sectoral level are legal actions. They are mainly undertaken by organizations operating in a particular industry (e.g. the legal action undertaken in the music industry or legal action against Google undertaken by the publishing industry).

In the context of affecting the electronic space at the national level the most important elements include: the creation of domestic products typically intended for utilization at the national level, participation in various types of domestic bodies working on improving the functioning of the electronic space, undertaking various types of activities (e.g. publicly exposing certain e-related issues) aimed against those situations which can, from an organizational point of view, have a significantly adverse influence on them and their functioning at the domestic

level, and undertaking lawsuits aimed at other entities operating at the national level.

If the regional level of impact of organizations on the electronic space is considered, the most significant possibilities include: direct participation in the work and activities of various bodies (e.g. working groups) or through agencies representing companies in the creation of and providing feedback on key legal regulations affecting functioning the electronic space (e.g. such as directives in the case of European Union), legal action (e.g. undertaken by the European Commission on the basis of the plaint notes of companies), or undertaking lobbying actions promoting the solutions desired by the company (this mainly relates to the bigger ones).

In the case of the global level two key types of influence can be seen. The first one is connected with the participation of companies in the work of organizations supervising the development of the Internet as a whole, and consequently of the electronic space, and creating favorable conditions and solutions for it (e.g. The Internet Society, The World Wide Web Consortium). The second area of impact on the form and functioning of the electronic space on the global level is the participation of companies, along with other entities, in creating products which affect the Internet on a global scale (e.g. Linux, Firefox, the Open Compute Project).

As in the case of the preventive and protecting activities, the basic task of the steering committee in this area is defining the policy of the organization with reference to the above mentioned issues. So in this context it is essential to answer to two key questions:

- does the organization have plans to undertake any activity in this area?
- if so, on which level, or levels will it be conducted?

In this context, it is necessary to undertake analysis of existing possibilities, and the choice of methods for actions which will be utilized by the organization. The next element should be the appointment of persons responsible for the realization of the particular tasks, and determination of the scopes of their responsibilities. As in the previous cases, an important issue is defining the ways and frequency of transmitting the feedback concerning the undertaken actions, and the problems that occurred. The third level of activities is connected with detailing all issues both in the organizational and technical dimension.

There is one more issue which is connected with the active influence on the electronic space, and entities operating there by the organization. It is a normative dimension i.e. the determination of norms which will form the basis for the undertaken actions, describing what kinds are acceptable within the scope of the organization's policy, and which are not. This issue is largely connected with various types of marketing activities, but it also relates to other ones such as legal.

In the first case it is the issue connected with the acceptability of such activities as the utilization of hired persons in order to impersonate satisfied customers of the company on various types of discussion forums, or social networking Web sites, or generating fake opinions about competitors. In the case of search engines it relates to attempts to manipulate search rank results as displayed by a search engine, or generating so called "click frauds" [7].

On the other hand this aspect is connected with consent to undertake such kinds of actions which took place in the music sector at the beginning of the new millennium. They included: suing own stakeholders, the quiet financing of the creation of particular programs by small software companies which, if implemented, could sabotage the computers and Internet connections of people who downloaded pirated songs, or the utilization of specialized computer viruses in order to randomly remove some of the music files from a computer's hard disk [4]. This aspect undoubtedly belongs to the sphere of responsibility of the steering committee.

IV. Conclusions

All organizations deciding to use the Internet in their business activities, and thereby to access the electronic space, have made a decision about entering a completely different environment compared to those experienced so far. This environment provides them with numerous new opportunities, but it is also a source of various, and constantly changing, challenges. In this situation in order to effectively utilize the opportunities, both current and future, connected with the new on-line environment, organizations have to create a holistic approach to their own presence there. In practice it means the need for careful design of their own functioning in the electronic space, and the continual management of it in the context of the realization of business goals. It relates both to the securing and protecting of an organization's own business activity in the internal as well as external dimensions, and also to the utilization of the opportunities of active influence on the electronic space, in order to shape its development in the most friendly and favorable way to the organization, and to the tasks being realized by it.

The above mentioned issues require well-thought-out activities connected with the management, in the widest sense, of the electronic space, taking into consideration all issues, both organizational and technical, and the broad engagement of both management staff at all levels as well as all other employees.

Focusing the organization solely on the utilization of new opportunities emerging as a result of the development of the Internet, and electronic space, without appropriate preparation of a company's own on-line presence, and effective management of it, can consequently lead to completely different from expected results. This relates to all sorts of organizations utilizing this global network structure in their business activity, but particularly to those whose activities are moving from being predominantly off-line to being mostly on-line.

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