

# Personal Information Management in the Cyber Defence

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## Abstract

The personal information management area is addressed by each of us. Any organisation or company addresses the issues of access to information. For each of us it is important to sort, organize, find, acquire and maintain information, as appropriate, among them the search of mutual respect. Information has a key role in our decision making, especially due to the fact, that the human capacity to process all of the available information is limited by the capacity and time demands.

*Key words:* Knowledge system, Learning Management system, Fragmentation, Personal information management

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## 1. Introduction

The current society is known as the information society and the knowledge society. Information (knowledge) is a crucial factor in the success of an individual, organization or country. Barriers of time and space were removed thanks to the deployment of information systems. Information and communication technologies provide a lot of benefits. Bring along lots of newly emerging problems, connected with the protection of information and also of ICT as a whole.

## 2. Preparation of the personnel

We have to use all the available countermeasures to protect our assets. We need to protect not only the possessions or the staff. We have to protect also information, because it can decide about our success or failure. For this reason we have to control the whole system of protection so, that the system is complex. Protection must be directed to ensure the completeness, balance and coherence of security countermeasures. One of these measures is cyber protection. This is a form of protection information on the logical level. Part of this protection is to use encryption in the transmission of classified information through an unsecured, public network transmission.

Area of cyber security requires technical and legislative-procedural knowledge. For the preparation of personnel in this very specific and technically challenging area is necessary to ensure the quality of the education system. The system must be realigned due to the access to information and especially classified information. Preparation of experts for this area brings many problems relating to fragmentation of information, holding of information and the re-fragmentation of information. We can talk about intentional fragmentation of information, because the system is intentionally set up. First, the staff must be famil-

iar with the information of a general nature, and subsequently with classified information. In this case it is about intentional fragmentation information. The organization provides access to information in parts, depending on the requirements for their protection:

- Some information is expressed as publicly available-legal standards.
- Some information is available and available to specific group of people belonging to a single group – can be identified only for business use, for the purposes of the profession (for official use only). They have access only to the organization where employees are.
- Some information is only available to a limited number of persons – mainly due to the fact that the requirement of a legal norm has been established for their protection, for example classified information, special considerations, etc.

Persons and organisations that ensure the preparation must carefully distinguish what information they work and what information will be conveyed by whom. An organization must have rules on how to deal with the above mentioned classes. The teacher is required to provide information to the students as far as possible in the most compact form. The teacher, as the person which mediates information, must be aware of the risks associated with the provision of information to any unauthorized person. We can state that the teacher made intentional fragmentation of information. The aim of the preparation is to make the student able to accept the information provided, memorize them, and subsequently to use on the appropriate level in the integrated form.

If teachers and also students realize fact, that it is essential to understand the security management of the organization within the coherency, accept the security management which is focused on ensuring completeness, balance and coherence of security countermeasures. Students must understand the importance of each of the classes of infor-

mation. The understanding will help them in orientation in issues of protection of information. It is required during the period of student preparation to choose any means of support, which will assist the student to decrease his unintentionally fragmentation to minimum. We can perceive the unintentional fragmentation as a potential risk from the student. We have to accept the fact, that each student has their own unique system of learning and memorizing information.

If we take into consideration that the student is from the beginning acquainted with the general unclassified information gradually he is familiarized with information that requires protection. Student is familiarized with the basic concepts from publicly available sources (laws). This phase must be accompanied by a teacher's interpretation, which must point to the link between those resources. In the next stage, the student is familiar with internal documents that clarify the issue of the protection of the information in this or that specific organization or company. Organization for these needs creates own decree, the internal rules of the organization.

The student must acquire completely specific procedures gradually on the basis of familiarity with these documents. These procedures must accept all the obligations that are raised by the legislative requirements on their security (classified exact procedures). Information is provided to the student gradually according to topics, respectively, according to the sources. Organization will provide publicly available information and then classified information. The student must be able to distinguish what information has been given to him. He has to know the system of handling with information. The student has to be able to retroactively distinguish, what is ever learned. The student must be able to distinguish what and to whom he can tell information.

The person, that is responsible for the preparation of the students, must very carefully distinguished within the preparation of study materials for students fact, what resources and what information will be accessed to students Teachers must adhere to the system of classes providing information when teaching. They have to clearly define the information according to the used resources. One of the factors the success of teaching is suitably chosen system interpretation of the issue. This will assist the student in his own system for the management of information so called personal information management (PIM).

It is important recall the fact to students, that all provided information were deliberately fragmented. Teachers must emphasize the essence of this deliberation of information, it is necessary to proceed from general concepts to those detailed classified information. It is useful to recall the fact, that some of the concepts can be interpreted more accurately when a detailed description of the classified information is used. Student has learnt by using of the classified information how to understand the non-classified information area.

### 3. Effective tools for preparation

For comprehensive teaching is very efficient to involve all the available types of training and resources. It is very useful to take advantage of the opportunities of knowledge-based systems (Knowledge management system – KMS) or e-learning (Learning Management System). Both of these systems are for the wide availability. They offer options for training students from anywhere, but only for available general information. Extension of publicly available unclassified information is the initial phase. Subsequently, the exposure is made with teaching of classified information. This procedure will help fix the issues with the already studied non-classified then using and pointing out the context of how to work with classified information.

During the preparation of the security personnel for the cyber protection, you can keep track of possible deviations from the normal curriculum process:

- The teaching material is classified – information is provided on a particular place and in a particular time, information is provided by the teacher.
- Students are restricted in the formation of their comments regarding the presented issues-information protection requirements define the conditions allowing the record to the media and that it is very limited.
- Teachers are limited in the formation of didactic aid - obstruction in record creation and the place of processing are laid down in legislative terms.

The exchange of information between teacher and a student is limited. General information can be consulted at any time and over anything. We have to always apply the principle that the party providing the information must be certain, that provides general information. In case of ensuring of the secure communication link we can be more detailed in the description of the problem. Consultation of classified information after completion of education is limited, because it is limited to the place.

After graduating of the special training it is entirely desirable, that the graduate student will realize his knowledge in practice. It is more than useful, if graduate students could begin with in practice with colleagues. It will help them with deeper fixation of knowledge. A colleague, who is an expert in this area, can help him by methodically. Gradually, there must be a greater independence in decision-making, the student and the containment of an experienced colleague. This practice has a positive influence on the decision-making process. At the beginning student will not be exposed to the solution of many stressful situations, which would have to handle. This is an important time for the extension of the initial knowledge about the issue; it is useful if he or she has the option to exchange the information with some experienced colleague. It is important that they may have the ability to compare solutions to different situations in practice on a specific situation or problem. Actual situation is different thanks to a narrow professional specialization. Graduate student may not have in your neighbourhood similarly focused colleague (colleagues) for consultation and decision-making processes may not be adequate.

It is very important to establish and implement the volume and form of the preparation of the student in the course. This task is based on the decision of the teacher. Sometimes it's for a very long time the last educational student activity in this area. It is very effective use various tools and combines them to each other during the process of the student preparation. Lessons in a classroom involve lectures, presentations, practical demonstrations, discussions, working with the students. Training outside the classroom usually includes a separate study from textbooks and made notes. This part of the training can be supplemented with an interactive or repeat study new knowledge using the LMS. It is appropriate to use the LMS for the unclassified part of the training for the initial stage of preparation of the students, because they can meet with the public information. IT specialist and an expert on the specific security issue will participate on the preparation of the e-learning education. IT specialist will ensure the implementation of an LMS into the information system of the organisation. IT specialist must perform the initial training of the guarantor (teacher) of security education. Consequently the teacher will be responsible for the formation of the course with using LMS. Both experts together must help to students to exceed their concerns about the use of LMS.

If an organization can build a system of training using the LMS, it is highly likely that students will use in the course of and after it too. The teacher's goal must be, that he will create an interesting system of the preparation with the help of the LMS. This preparation should be accepted and used by the professional public. The usage of the LMS is very convenient. We can use the open source system in most cases. It is important stress fact, that with the acquisition of LMS are not primarily linked financial costs. We have to ensure the installation of LMS on the information system of the organization and we have to create a timeframe for the creation of training programs on the LMS. In the frame of preparation for education by using of the LMS, it is important to create a working group involving experts of IT expertise and experts from the field of the protection of information.

The initiation phase of the preparation of the students usually ends with training on specialized workplace. The training is aimed at putting the student into the issue. In a short period of time the student is exposed to enormous amounts of information. The organization did intentionally fragmentation of information. The student was acquainted with lots of important information and he tried to remember, write down or save. From the student's position is good to have information in mind, work with information and learn to understand in depth. The student subsequently determined and looking for context of information. KMS may play a big role in the maintenance phase. Using KMS will help to the specialist to think in a wider context. KMS will help to professionals who already know the basic facts about the specific issues, and also help understand the broader context of the whole problem. It is also thanks to the fact that it is necessary to have an expert on the issue, and an expert on the problems of KMS. The acquisition of KMS requires finance to purchase the license and then to update it or hire.

KMS and the LMS can help students to quality fulfillment of the tasks. These systems can complement each other. Students will more easily and comprehensively get to recognize that the protection of the information with their help. The protection of information is the question which is characterized as very complex and strategic. Threats, associated with the information systems, can have devastating effects on human society or to its order. Students as future professionals on cyber protection must be able to respond most effectively.

Personal information management begins already at an early stage of preparation of experts. Training department has set up a system of training that is focused on the average of a group of students. Not everyone complies with the manner in which lectures and seminars are held. It depends on the way in which the teacher presents. The success of the training is dependent on how to create materials for training in written or electronic form. Finally, it depends on what kind of tools is provided for the support of teaching.

#### 4. Conclusion

The aim of the training is to prepare the student for highly skilled jobs. The preparation is focused on the individual, for it to be able to fulfill tasks arising from the position held by him. It needs to convey the information during preparation, and in such a way to understand the need for fragmentation of information provided to him. It is important that student understood fragmentation of information. It is important that information is memorized. Only in this way can lead to knit together the information, when the student integrates the acquired knowledge. The aim is fulfilled if the student understood correctly and adequately. The final phase is when the student is able to fragment information based on their exposure to why it happened and is able to carry out the information separately to colleagues.

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