

INFORMATION MANAGEMENT ON THE EXAMPLE OF FEATURES OF IT SYSTEM “SINDBAD”

Mariusz Nepelski^(a), Dominik Hryszkiewicz^(b), Grzegorz Gudzbeler^(c)

^{(a),(b),(c)}Affiliation Police Academy in Szczytno

^(a)m.nepelski@wspol.edu.pl, ^(b)d.hryszkiewicz@wspol.edu.pl, ^(c)g.gudzbeler@wspol.edu.pl

ABSTRACT

The aim of the article is to present the results of research on the construction of IT tools as a communication forum for improving information management in hierarchical institutions, especially the Police. The research are carried out as part of the project entitled „Construction of an IT system supporting communication in the Police and in other formations subordinated to the Ministry of the Interior in aspects of internal security – SINDBAD”, No. DOB-BIO7/03/01/2015. The project is co-financed by the National Centre for Research and Development in Warsaw, for which a grant in the amount of 5 million PLN has been obtained. This information exchange platform is being developed by a scientific-research consortium led by the Police Academy in Szczytno. The result of the project will be an anonymous IT modular platform for collecting and analysing data to monitor problem areas and plan for interventions at the organizational level, including organizational and technical solutions that ensure the anonymity of the research participants. Importantly, the developed IT system will allow maximum anonymity of speech and security against unauthorized access of third parties.

Keywords: information management, internal communication, new technologies, security

1. INTRODUCTION

The aim of the article is to present the results of research on the construction of a system supporting information management in the Police and other services responsible for internal security of the state (Hryszkiewicz and Nepelski 2015). SINDBAD System (Information System for Research and Decision Analysis) will be built on the basis of a detailed analysis of the needs of future users and will be equipped with modules for the creation and management of research, legal consultations, crisis analysis and statistical analysis. The system will allow for maximum anonymization, while protecting against unauthorized access. The research are based on a grant obtained for the development of the project entitled “Construction of an IT system supporting communication in the Police and in other formations subordinated to the Ministry of the Interior in aspects of internal security – SINDBAD”, No. DOB-BIO7/03/01/2015. The project is co-financed by the National Centre for Research and Development in Warsaw, for which a grant in the amount of 5 million

PLN has been obtained. The paper presents partial research results, the final form of which will be achieved by the end of 2017. Currently the platform being developed is subject to specialist tests. More specific results cannot be presented at moment of publishing this paper – final results will be available after the project is finished (December 2017).

2. INFORMATION MANAGEMENT

Pondering over the management of information in hierarchical organizations, especially the Police, we shall begin by explaining the concept of communication. The term is derived from the Latin word *communico, communicare, communication*, which means *to consult* (Trzcińska and Wiciak 2011). In modern languages the term appeared in the fourteenth century and meant entering the community or maintaining a relationship with someone. Only in the sixteenth century, as a result of the development of postal services and roads, it was given another meaning – transmission, communication. This dual sense of the concept of communication is still valid. In one situation communication is a synonym of public transport, in another – transmission of information between people (Griffin 2003). Further scientific inquiry must take into account internal communication, which is perceived by the process of exchanging information between participants in the organizational system and linking the various parts of it. Effective communication in an organization occurs when information within an organization reaches the destination efficiently and in a form consistent with the intention of the sender. The way of transmitting the information should allow the recipients to fully accept the content and use it in their daily work (Dobek-Ostrowska 2016).

Therefore, communication is the process of creating, transmitting, receiving and interpreting messages between people – the process of transmitting information between the sender and the receiver. It runs on many levels, some of which are conscious and others are not. In order to communicate information about our beliefs, sensations, feelings, judgments, needs or expectations, we use verbal, nonverbal and vocal forms of communication. The process of communication directly translates into a good corporate image, including a hierarchical one, and starts with the daily professional service of every police officer and is dependent on his/her professional, communicative and narrative competencies (Stawnicka 2015). Practically

every police officer functions within two dimensions – internal and external, and the quality of functioning in each of them depends on constant improvement of internal communication. Research shows that the opinion of the interlocutor is made in the first 10-30 seconds of the meeting/conversation and it has a significant impact on further contact. The first impression may be positive or negative. In the first situation people tend to attribute more positive (rather than actual) characteristics to the person and the case, their place of work and the institution they represent. Negative first impression discourages the interest in the person and the place he/she works at. Undoubtedly, the impression of professionalism during first meeting is influenced by:

- Competence/professionalism – the extent of knowledge and skills, and a well-founded belief in the ability to do something. Professionalism is about developing the skills in which we are the best.
- Credibility – to look and to act as we really mean to do something, to say that we are specialists and to do what we say and we know the conventions of our profession and move freely within them.
- Self-control – proves maturity. By engaging in emotion, we lose control of the situation, and thus lose our competence and credibility. We respond to the situations, but we do not take it out on our interlocutor (abreact).
- Confidence – comes from within, but reveals itself on the outside. We take care of its physical symptoms such as straight posture, eye contact, relaxed breathing. We shape mental symptoms such as positive attitude, awareness of competence, the use of positive language.
- Persistence – the art of building a positive image consists in consistency of behaviour. We take care of physical signs that help to maintain constancy, such as clothing, work pace, standards of conduct, procedures, vocabulary, jokes.

Information management involves both mastering and exiting the difficult situation and preparing for the possibility of its occurrence. Considering potential difficult situations usually allows us to prevent or at least reduce their adverse effects. There is no 100% perfect way to prepare for a difficult situation, because we never know what its course will be. Despite this, we should be prepared and ready to act. It is only after mastering the management of information that an organization can deal with the management of knowledge that arises from structured information, so that it can know what is going on within and around the sector, why it is happening, how it can work, and finally who or what the organization is (Drelichowski, 2004). Information policy is aimed at the environment, both proximate and distant, to provide the user as quickly as

possible with comprehensive, reliable and relevant information, in terms of form and content, answering a given question about details of a given organization. However, the overriding objective is to improve the management of the organization itself (Flakiewicz, 2002). As it has been established above, information is a key tool in every organization and has a major impact on its management.

Issues related to information management and consequently internal communication are difficult to investigate, as participants with no anonymity may tend not to disclose their true views and fail to address important issues. This challenge has been taken up by the project that will develop an IT tool at IX (highest) level of technology readiness – ready to be deployed in practice at any time, which can be developed dynamically, even after the end of the project, wherever updates of its modules are needed. It is worth noting that component techniques used to implement sensitive system modules will allow for easy adaptation and change of functionality. Likewise, components of the external and internal access module will be designed in such a way that the system can continue to evolve irrespective of changes in the structure and content of the previously processed sources. It will be possible to add new, yet unknown sources, and include some of the metadata. In conclusion, the use of components will allow for continuous system development and will allow for easy updating of the system, so that the process of “aging” technology will be significantly reduced.

3. METHODOLOGY OF RESEARCH

The reason for undertaking the research on information management in hierarchical organizations, especially in the Police, was the awareness of the importance of communicating as a management system factor, as poor internal communication has a negative impact on the management system. There are several reasons why these studies have been undertaken. Firstly, internal communication as an element of information management is perceived as a function of modern management in the Police. It was the inspiration for the project’s creators. Secondly, it is no less important to indicate the direction of actions to maintain a positive image of the Police by, among others, properly shaping the organizational culture. These tasks are included in the priorities of the National Police Commander-in-Chief’s activities for 2016-2018, among others:

- Priority 1 – increasing the effectiveness of Police efforts to strengthen cooperation with the public.
- Priority 6 – improving the quality and effectiveness of Police work by successively increasing the professional competence of police officers and employees.
- Priority 7 – improving the quality of work carried out by the Police and police officers by providing optimal conditions of service/work.

The essence of the research is the diagnosis of the area of internal communication within the Police and predictions in this area. The presented research is interdisciplinary with regard to aspects of management, as well as psychological, linguistic, sociological, cultural and historical aspects. They are, among others, the subjects of study in the field of contemporary research on discourse. The starting point is police practice examined through the prism of conversational strategies. Against this backdrop, the research covered, among others, the communication competence of police officers, i.e. the ability of pragmatic communication activities, so the area of interest is the communication behaviours in hierarchical organizations, such as the Police. The research on internal communication covered several areas (Hrystkiewicz and Nepelski 2015, Stawnicka 2015):

- Theoretical background in social communication.
- Analysis of approaches to research on internal communication.
- Determinants of communication behaviour in the organization.
- Strategies of vertical communication in the Police.
- Strategies of horizontal communication in the Police.
- Public relations activities of the Polish Police through the prism of critical discourse analysis.
- The role of internal debates in optimizing the flow of information within police internal communication.
- Signifiers of deontical modality in police acts.
- The authority of the supervisor in the Police.
- The use of narrative marketing and narrative management as part of the communication strategy.
- The importance of internal communication for the effectiveness of preventive actions.

The problem of information management, including internal communication in hierarchical formations, especially in the Police, has not been a subject of interdisciplinary research so far, including pragmalinguistics. Emerging monographs on information management about the principles of effective communication are theoretical, scientific or popular science.

These studies are both theoretical and empirical. The first dimension manifests itself in a number of multidisciplinary analyses in the fields of communication, management, risk management, new and best IT solutions, to name the few. At the same time, experimental and development research are being carried out. The undertaken research is intended to enable the creation of an optimal IT tool for the formation of an intra-organizational forum. As a

consequence, it will improve internal communication in such formations as the Police, and thus its functioning.

4. DESCRIPTION OF THE PROJECT – OUTCOMES OF THE RESEARCH

The main objective of the project is to create a system to support research in the population of police officers and workers of hierarchical formation, to monitor and predict threats, improve communication efficiency, consult and analyse crisis situations in the scope important to formations subordinate to or supervised by the minister responsible for internal affairs (formations responsible for internal security of the state). The system must be equipped with diagnostic and analytical tools enabling the design of research, data collection and analysis of results. Specific objectives have been defined as follows (Hrystkiewicz and Nepelski 2015):

- Defining the technical and substantive assumptions of the system, defining the critical functions of the system and thus providing effective methods of obtaining data useful for ensuring internal security by improving communication between the Police and other services subordinate to the minister competent for internal affairs.
- Clarification of areas of diagnosis of risk factors and their conditions, monitoring and minimization, elaboration of crisis analysis tools, review of internal risk factors, legal consultations and improvement of internal communication skills in hierarchical formations.
- Development of modular tools for legal consultations and reporting of innovative solutions.
- Development of algorithms for analysis of data collected with the use of diagnostic tools, supporting problem solving in the area of risk management, internal communication, crisis analysis and prediction of hazards in hierarchical formations.
- Development of a set of training scenarios for the use of the system, based on actual actions of the services subordinated to the Ministry of Interior, deemed as controversial. Based on the data from the system, it will be possible to collect data, formulate guidelines, integrate information between departments, eliminate language errors – communication misunderstandings, e.g. when issuing commands resulting, for example, from the specificity of the service. The developed scenarios will demonstrate the ability of the system to analyse the so-called difficult/problematic situations.
- Implementation and verification of developed tools. Diagnostic tools should be implemented in the form of an application – a network platform running in a secure Internet

connection. The platform should provide users with comfortable anonymous logins and unfettered expressions of feedback. Analytical tools should be implemented in the form of software that works with the diagnostic tool platform. They will serve as a tool to optimize the flow of information and decision-making processes in the areas described above. Ultimately, a tool should be created to optimize the course of information flow processes in the execution of tasks in the Police structures.

- Optimization of diagnostic and analytical tools, completed with demonstration of full functionality and realization of design assumptions in real conditions (network implementation). Development of a detailed recommendation to increase communication efficiency with the use of the proposed system. It must be demonstrated to be ready to install in a secure Internet connection.

This information system supporting communication in the Police and other forms subordinated to or supervised by the minister competent for internal affairs will be an innovative solution on a national scale. At present, any similar system does not function in any formation subordinate to or supervised by the minister responsible for internal affairs. The essence of the solution is to create it in such a way to meet the expectations and capabilities of the particular formations. The more technologically advanced the scope of information systems applications, the more difficult it is to implement them, taking into account the specific needs of the users and their real competencies (Drelichowski 2005). Therefore expectations are high. During the construction of the indicated system, innovative IT solutions will be necessary. Implementation of the project will significantly improve the process of information management. The proposed system will be used to carry out investigations into important internal issues of an organization, identification and monitoring of threats (which may be concealed in traditional reporting systems), as well as consultations on draft legislation from the point of view of officers at various levels. It also aims to support free expression of opinions on the cooperation of various services. Different solutions to improve communication efficiency will be implemented. The system will include ready-made diagnostic tools for research, hazard monitoring, consultation and crisis analysis. The system will feature openness and the ability to attach new measuring tools in the future as needed. Diagnostic tools will allow anonymous logins and therefore will have individual logins for users. The analytical module will be the software that performs data-processing functions to support the decision-making process associated with creating and improving the flow of information in the service hierarchy, both in crisis and routine situations.

The project promotes the use of new technologies in information management. The new system will improve the effectiveness of monitoring of social security expectations and needs as it is dedicated to uniformed, hierarchical formations. The need to ensure data security will also be ensured respecting the environment through the use of database solutions that support automatic backup or replication without the need to store large amounts of documents. Developing new methods of effective internal communication for hierarchical formations can help to rationalize resources, in line with the principles of human capital management, that is, to make more effective use of organizational resources being also in line with the postulates of sustainable socio-economic development. In practice, this means more efficient planning of human and material resources in hierarchical formations, including primarily in-house training and retraining systems, and employee competence management. Newly identified areas of organizational activity in hierarchical formations may also determine the need to create new jobs and improve the quality of work in the future. What is more, the rationalized system of effective internal communication in the future will emerge to improve the quality of work of police officers. The new information management system will improve the exchange of knowledge and experience in hierarchical formations. This in turn will enrich the pragmatism of prosecuting and detecting crimes and offenses. In principle, an information campaign should be developed and implemented, disseminating knowledge among the officers about the project, its security and its use.

Within the framework of the project a tool will be developed, which will be on the IX (highest) level of technological readiness, ready to be implemented in practice at all times. However, it seems expedient to implement it as quickly as possible in order to improve the management of information, including internal communication in hierarchical formations.

The system will include ready-made diagnostic tools for research, hazard monitoring, consultation, and crisis analysis. The system should also be "open" and allow the inclusion of new measuring tools as needed in the future. It is assumed that in the described system it will not be possible to express opinions on personal matters. Diagnostic tools should enable anonymous logging and therefore individual logins should be provided for officers and staff members of formations supervised by the minister responsible for internal affairs, and the distribution method of logins will be developed. The system will be provided with a number of cooperating modules. The crisis analysis module will be used to obtain information from many formations, enabling analysis and improvement of the algorithms for interoperability. The analytical module should be the software that performs data-processing functions to support the decision-making process associated with creating and improving information flow in the service hierarchy, both in crisis and routine situations. Training

scenarios will be developed, based on the actual activities of formations subordinate to or supervised by the minister in charge of internal affairs, considered as controversial and difficult. On the basis of data from the system it will be possible to collect data, formulate guidelines, integrate information between the particular formations. The developed scenarios will demonstrate the ability of the system to analyse difficult situations.

Documentation of the system will consist of two parts: technical information and a part concerning the substantial information about the system. The technical part should describe how the system is built, installed and used. In particular, it will include the description of the method of anonymous data input and how it should be designed and implemented, a part of which will be the user manual (for persons taking the test) introducing the system. The part concerning the substance of the system should be a description of the theoretical basis for the construction of the implemented measuring tools (including the scientific data obtained in the process of developing the system).

The development of a variant based on an independent secure network connection, as well as the development of final decision on location of the system, will be undertaken by the end-user (compliance with the standard called Police Network of Data Transmission – PSTD, will be required). The police should be able to implement the system both in the internal network (PSTD) as well as in the external secure Internet connection. Other users should be able to use the system in a secure Internet connection, which will be limited. The system should provide the ability to integrate databases and reports from all users. System users will be:

- the structures of the interested formations subordinate to or supervised by the minister responsible for internal affairs, which scope of activities requires decision-making based on studies of officials and employees, as well as elaboration and implementation of strategic decisions.
- Research units carrying out research for services subordinated to the minister in charge of internal affairs.

The implementation of the system may also be potentially desired by all organizations responsible for internal security of the country, whose actions are necessary to gather honest and credible statements among their members (employees). The capabilities of anonymous threat reporting can also be useful for airlines, railways and large industrial plants. Therefore, the system can be used according to the project assumptions, i.e. by the state services, and it is possible to be used for future commercialization for other organizations.

5. ADDITIONAL POSSIBILITIES OF THE USE OF “SINDBAD” SYSTEM’S FEATURES IN THE POLICE

Another area of SINDBAD’s functionality is the diagnosis and forecasting of training opportunities in Poland’s largest uniformed formation, namely the Police.

According to the Directive of the Minister of Interior and Administration of 19 June 2007 on detailed conditions for vocational training and further training at the Police, it includes, in particular, vocational trainings and further trainings. Both identified forms of training are centrally implemented according to training and in-service training programmes approved by the Police Commander-in-Chief. As part of the further training in the Police, the adopted range of specialist courses and other undertakings is complementary to the knowledge and professional skills, in particular to acquire, update, extend or deepen the knowledge and professional skills of police officers required to perform their tasks and duties within the framework of individual Specialties, such as training programmes in the area of combating economic, drug or computer crimes, human trafficking, criminal investigation, forensic techniques, police operations and many others. There are currently three kinds of vocational trainings in the Police, i.e. central, local and external. The first one, is organized and implemented in the police schools and the Police Academy in Szczytno in the form of specialized courses – the programmes of which are introduced into service by decisions of the Police Commander-in-Chief, and also in the form of other ventures. Local trainings, the so-called “field trainings” are organized and implemented by police units, allowing for the free formulation of training contents, and consequently smooth modifications of programming content in response to quality changes in crime. The last type of training – external training, is organized by non-police entities, especially when the diagnosed training needs for various reasons cannot be delivered in the framework of central or local trainings.

The Directive of the Minister of Interior of 16 April 2015 amending the regulation on detailed conditions for vocational training and further training in the Police indicates that the Police Academy in Szczytno takes over the task of recognizing training needs, which before was the responsibility of the National Police Headquarters. Previously, recognition of training needs was held twice a year, which resulted in the situation when the same police officers were being directed for each course and training, and this did not reflect the actual needs. Currently, the diagnosis of needs is held once a year, i.e. by 20 October each year, taking into account the needs identified by 30 September this same year. After this date, only adjustments to current demands are possible.

A well-conducted training needs assessment allows us to decide on which training area to focus, how long the training should last for participants to acquire new competences, learn motivations, attitudes and

behaviours of participants, explore current knowledge and skills of future participants, so the training is most effective (e.g. by selecting the appropriate methods).

The process of diagnosing training needs should first of all enable problems to be identified, of course from the point of view of the purpose of the formation, to indicate whether they can be removed (solved) through training. The simplest way of identifying problems is to study the accomplished tasks (error identification), examine new tasks/challenges the particular formation is facing at the moment, e.g. due to new legal regulations (identification of necessary competences), and the gathering of opinions of executives and officers themselves.

The described objectives of SINDBAD system are directly embedded in the area of diagnosing training needs for individual types of services, individuals, but also the entire formations. This is enabled by functionalities such as intra-organizational research and legal consultations, i.e. the main features of the system. The appropriate development of research tools (questionnaires) and directing them to the target group of respondents, coupled with the provision of anonymous research, will be an excellent support, for instance for the Police Academy in Szczytno to fulfil the provisions of the above-mentioned regulation, i.e. the diagnosis of training needs at the central level. It is also possible to use the built-in solutions for diagnosing and forecasting training needs in individual units or types of services, by commissioning appropriate research.

The use of SINDBAD system to diagnose, but also to forecast training needs can be implemented in two dimensions:

- Complementary
- Target.

The first dimension would only be the completion of the already implemented diagnostic process, and on this basis forecasting the training needs of the Police. The other one would replace the current mechanism (current collection of training needs via email/fax/written form) through appropriately designed tools (questionnaire surveys) distributed among, for example, targeted units/cells responsible for the training process in each police unit. On the basis of the collected data, the system would generate the required training needs lists for the current training offer and would suggest training areas not included in the training offer as well.

6. CONCLUSION

The SINDBAD project will enable the creation of an IT tool that will shape the discussion forum within hierarchical organizations, especially in the Police. This will improve the management of information and internal communication in such security-conscious formations as the aforementioned Police service. It will enable the speed, reliability and adequacy of conveying information. It will undoubtedly improve the

communication skills of executives at all levels of management. This in turn will ensure consistency in the transfer of information within the organization. This is linked to feedback that is reflected in improving the quality of the work of officers. The final form – the discussed IT system – will be developed and implemented by the end of 2017.

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AUTHORS BIOGRAPHY

Mariusz Nepelski, PhD, Dr habil. – Associate Professor specializing in the field of security sciences, professor extraordinary of the Police Academy in Szczytno. He carries out works related to the development project entitled „Construction of an IT system supporting communication in the Police and in other formations subordinated to the Ministry of the Interior in aspects of internal security”, No. DOB-BIO7/03/01/2015.

Dominik Hryszkiewicz, PhD – specializes in the field of security sciences, he is the Director of the Institute of Social Sciences of the Department of Administration of the Police Academy in Szczytno. He is the manager of the development project entitled „Construction of an IT

system supporting communication in the Police and in other formations subordinated to the Ministry of the Interior in aspects of internal security”, No. DOB-BIO7/03/01/2015.

Grzegorz Gudzbeler, PhD – specializes in the field of security sciences, he is the Director of the Institute for Coordination of Research and External Funds of the Police Academy in Szczytno. He carries out works related to the development project entitled „Construction of an IT system supporting communication in the Police and in other formations subordinated to the Ministry of the Interior in aspects of internal security”, No. DOB-BIO7/03/01/2015.