

IS Development Issues Understanding - a Condition and an Object of Social Responsibility for IS in Serbia

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The issue of social responsibility for information systems (IS) becomes more and more important. However, it is not easy to determine what a socially responsible IS development is and which responsibilities for IS should be delegated and to whom. Different views on IS nature and on their roles in organizations and society are the basis for different delegation of responsibility for IS. Besides, a permanent improvement of information technology, permanent changes in organizations and society and an increasing IS connectivity make IS development and the problem of ascription of social responsibility for IS ever harder. Understanding of IS development issues can be seen as a condition and as an object of social responsibility for IS. This paper points out that a socially responsible IS development requires an understanding of IS development issues and delegation of responsibility for building that understanding. The issues of a socially responsible IS development are illustrated on the case of the water information system (WIS) development in Serbia. The paper is a contribution to an understanding of IS and information society development issues in Serbia and in that way it is a contribution to a socially responsible development of IS and information society.

1. Demand for social Responsibility for IS in Serbia

Information systems bring changes to both an individual, an organization and a society. Their development gives rise to numerous ethical issues as well. The number and the critical importance of the ethical issues in the information technologies (IT) development, which is the basis of modern IS have led to establishing a specific research area - computer ethics. The computer ethics issues are frequently approached with a presumption that IT are ethically neutral tools and that ethical problems result solely from a wrong use or a misuse of IT. There are, however, arguments that IT are not ethically neutral, that they include the implicit rules of the profession of their creators, the industries that sell, install and support them ([1], [2]). Moreover, the lack of coordination between the presumptions implicitly built into the IT and the IS and those of their users are usually taken to be the causes of numerous failures of IS implementation projects in the developing countries.

There are also arguments, that integrating IT with the systems of human activities is the basic problem in the IT area and that the real cause of a high percentage of failed IS is the neglect of "human environment", that is, of the entire social context ([13]). The direct IS users are usually left out of a decision making process concerning IS development. The information system, apart from having an impact upon its direct users, frequently affects other interested parties (stakeholders), whose interests, however, often fail to be taken into consideration in the IS development process.

There is evidence that the errors related to the IS development tend to be repeated and that many seem to have learned how not to succeed with IS. One reason that the IS fail in a large number of cases is peoples' unwillingness to learn from the errors and take on the responsibility for the failure. To eliminate this irresponsible and unethical behaviour that harms both the society in general and its individual members, it is necessary that a mechanism of social responsibility for IS should be established.

Since in Serbia, despite all the attempts, the IS important for the functioning of the country and its citizens, supposed to be part of the national information infrastructure, i.e., the basics of information society, and recognized as such a decade back, have not yet been developed, it is of critical importance that social responsibility for IS in Serbia should be established.

2. The meaning of social Responsibility for IS - points At issue

For purposes of an easier understanding of the paper, in the following section we offer a short survey of concepts related to responsibility, as well as of problems of responsibility assigning ([Greška: izvor podataka nije nađen], [4], [5], [6]).

2.1. The concept of "responsibility"

In a most general sense, responsibility means the relationship between two parties. By its acting or its failing to act, one party affects the welfare of the other party and hence has to (should) answer for its conduct. Social

responsibility means the responsibility towards the society. It is not an objective in itself, but a means to change the behaviour of people in order that a desired condition of the society be established - a "good life" for all.

There are various dimensions and conditions of responsibility. The dimensions of responsibility are: the subject, the object and the authority of responsibility. The subject of responsibility denotes the one who is responsible, whereas the object denotes what is the subject responsible for. In other words, the responsibility for an object of responsibility is delegated to the subject of responsibility. The objective of delegating responsibility cannot be achieved without the authority of responsibility - an individual or an institution in charge of the rules and the validity of delegating a certain responsibility, nor can it be achieved without the support provided to a socially responsible behaviour.

Responsibility can be delegated only if certain conditions are fulfilled - if there is a causality as well as the awareness of the causality, the freedom of will and choice, the power to act and certain personal qualities of the subject. In order that responsibility be delegated to the subject, there must exist a cause-effect relation between the subject and the object of responsibility. The subject has to be aware that his behaviour may have an effect upon the object of responsibility. The subject of responsibility, furthermore, has to be capable of behaving in a responsible manner -he/she/it must have the freedom of will, the freedom of choice and the opportunity to act, as well as the power of controlling what he is responsible for. The greater the subject's power, the greater his/its responsibility.

The subject can be responsible only if he/it has certain qualities. Emotions are an important precondition of responsibility, since a person without feelings for others and without self-respect cannot be a responsible member of a society. Also important in delegating responsibility are the nature of the subject's intention and the extent of that intention, as well as the subject's knowledge of how to anticipate the outcomes of his own behaviour. Hence a socially responsible subject should be capable of learning. He has to observe the events and behaviours in his environment, learn from errors and change his behaviour in accordance with the understanding he achieved.

2.2. The problems in responsibility delegation

The problems in responsibility delegating are those related to identifying the subject and the object of responsibility. The problems of identifying the subject of responsi-

bility arise mainly due to the subject's failure to fulfill the conditions of responsibility. Earlier, the responsibility used to be delegated to an individual, as it was thought that only man, as an ethical being, feels he has to answer for his behaviour. Due to the conditions of an increasing complexity and interrelations, the individual has no knowledge of the cause-effect chain between himself and the object of responsibility, nor does he have the power to control the flow of events in this chain.

In recent years, the social responsibility of organizations has been increasingly debated. In many cases the organizations fulfill their responsibilities more efficiently compared to the individuals. Compared to an individual, the organization has generally more power, it can develop a greater capability of perception, of learning and of making relevant decisions. Besides, organization generally lives longer than an individual. The organizational acceptance of responsibility, that is, group responsibility raised the issue of the opportunity for the responsibility of other, not so well-organized groups.

The basic points of issue of group responsibility are the group member's responsibility (whether it is only the group that is responsible or its member, too) and the relationship between the member's responsibility and the responsibility of the group (whether the group responsibility is greater than the sum of responsibilities of its members). Besides, a serious problem of group responsibility is delegating responsibility for an activity with cumulative effects (effects evolving from a longer period of duration of the activity) since it is very difficult, if not impossible, to specify causality relations for such an activity.

Another problem of specifying the subject of responsibility is the problem of indirect responsibility. The subject is indirectly responsible if he has an indirect impact upon the object of responsibility, e.g., if he tries to change the behaviour of other subjects of responsibility in order to avoid or diminish the undesirable outcome of their actions. For example, indirectly responsible is the consultant who did not inform the decision makers on the possible adverse consequences of their decision.

The points of issue in defining the subject of responsibility are the following: which type of behaviour and which types of outcomes of the subject's behaviour the responsibility should be delegated for. Responsibility is usually delegated for actions, however, there are some who claim that responsibility should be delegated for failing to act as well. Responsibility is usually delegated for planned outcomes. A point of issue, though, is whether the object of responsibility includes the consequences that were not planned, and under which condi-

tions this can be done. Similarly, a point of issue is whether cumulative effects can be taken as the object of responsibility.

The object of responsibility can also be the ability to be the subject of responsibility. Given that education plays a vitally important role in ensuring the development of responsible subjects of a society, raising a responsible subject can be viewed as the object of group responsibility, even the responsibility of the society as a whole. Besides, the very subject of a certain responsibility can be deemed responsible for the development of his own capabilities as the subject of responsibility, e.g., for permanent training in order that should be capable of accomplishing the tasks delegated to him by the society.

The problems related to the authority of responsibility are also numerous. The authority of responsibility should accept to take care of responsibility. He has to have the power of improving responsibility. In the process of improvement of the socially responsible behaviour he is in charge of, the authority of responsibility is faced with the problem of acceptability of universal rules of a socially responsible behaviour. One problem of authority is also the problem of the validity of the estimate of responsibility. Responsibility depends on the extent to which the conditions for responsibility are fulfilled, which is interpreted by this authority. The interpretation of the authority, as an external observer, may differ from the feeling of the subject of responsibility. For example, if the authority perceives a larger number of possible actions compared to the subject, his estimate of the freedom of choice will be higher compared to the freedom of choice the subject really felt. On the other hand, the subject may feel free to choose the actions, while the authority, who finds it easy to predict his actions, assumes that he has no freedom of choice.

2.3. Responsibility for IS

The problems in delegating responsibility in general are present in the case of delegating responsibility for IS, too. Due to a continual development of IT, the permanent organizational and social change and increasing interrelations between IS, the development of the IS and the problem of delegating responsibility for IS become ever more difficult.

The responsibility for IS is most often delegated to the IS designer/developer, despite the fact that such approach is wrong. The director of the organization, who is often found responsible for the work of the organization, cannot be delegated responsibility for IS since he does not fulfill all the conditions of responsibility - he

has no necessary knowledge of IS. Other individuals, participants in its development, e.g., programmers, hardware experts, system analysts, individuals from the IS user organization that define the requirements for IS can also be deemed responsible for IS. An individual, however, cannot understand all the relations between IS and other systems, be knowledgeable of all the consequences of his decisions, nor does he have the power to control all the events vital in the IS development and operation. Furthermore, the individual, in the organization in which he is employed, is not always free to take the action he finds desirable. The individual's freedom of choice and power of action are even smaller when he develops IS for the organization he is not employed in, since the rules of work in the organization and the expectations of its members mean an additional limitation to his activities.

Given that technology is often understood as the application of science, the responsibility for IS can be delegated primarily to researchers, and then to the experts in the IT and IS areas. Due to the fact, however, that human knowledge is limited, the researches cannot be responsible for all the results of their work either. Moreover, practice is usually ahead of theory in the IS area - experts invent and develop new practical possibilities, without waiting for the results of respective research.

In other words, having in mind the nature of modern IS, no individual can fulfill all the conditions of responsibility for the entire IS. The individual can be deemed responsible for only certain aspects of IS. For example, a software engineer can be responsible for the quality of software, not for the entire IS.

Organizational responsibility for IS can be delegated to the organizations engaged in certain activities in the IS area, e.g., in the delivery of services or in software or hardware supply. They certainly do have an impact upon the events on the market, can develop an understanding of the IS development and operation on the basis of the accumulated experience, as well as understand the importance and relevance of new IT. The prospective candidates for the subjects of group responsibility for IS can be various user groups or professional groups interested in IS since they can have an impact upon some aspects of IS. The organization for which an IS is developed can also be deemed responsible for IS.

In order that the problem of delegating responsibility for IS be overcome, a reflective responsibility for IS, e.g., a responsible process of delegating responsibility for IS is proposed. The reflective responsibility assumes that the process of delegating responsibility it-

self is open to change, that is, that all the stakeholders should be involved, as well as that problems should be discussed freely and the existing decisions on assigned responsibilities can be changed if necessary. In other words, reflective responsibility for IS means permanent negotiations of all interested in IS. In practice, it looks like a discourse on the current state of affairs and the norms implemented, in which all the interested parties are in a position to express their standpoint. The discourse starts the moment the responsibility problem is perceived. The goal of the discourse is the development of a common understanding of cause-effect chains of responsibility and an explicit delegation of responsibility on the basis of so developed understanding, agreed upon by all the parties interested in IS. In case new knowledge gained by those interested in IS endanger the agreement reached, a new discourse begins.

3. Understanding of IS Development issues - condition of responsibility for IS

The common understanding of reality is an element of a universal basis of responsibility for IS ([2]). Since knowledge is one condition of responsibility, the common understanding of the IS development issues shared by all the IS stakeholders can be regarded as a universal condition of responsibility for IS.

The IS area is a new scientific discipline with a plethora of problems to solve. We have various attitudes as to the nature of IS, the role they play in both the organization and the society, the approach to their development, the roles of individual participants in their development, the factors of their success. In dependence of these attitudes, the responsibility for IS is delegated in different ways.

Information systems are generally regarded as technical systems. At times they are equalled to IT. The problems in the use of IS made researchers conclude that IS are technical systems with social consequences. The attitude that is increasingly prevailing is, however, that IS are not technical, but social systems. An information system is viewed as a concrete sample of IT in an organization or a society, as a system evolving out of the interactions between IT and the organization, that is, in the interactions among the social, the technical and the knowledge systems. IS are not merely a tool of a modern organization; they are an information infrastructure, that is, the organization itself ([3], [7], [8]).

The modern IS cannot be imagined without IT, however, to understand the issues of IS development and discuss a responsible development of IS, it is necessary that those definitions should be analysed that do not assume that IS is based on IT. These definitions point to certain elements which are usually neglected, due to our infatuation with what modern IT can do. For example, according to one definition, the key IS element is an individual who, in order to solve the problems in an organizational context, needs the files to be presented in the way that corresponds to his/her psychological type ([9]).

Different attitudes of the nature of IS brought forth the development of different paradigms and approaches to the IS development. The majority of conventional approaches to the development of IS do not include the tools and the knowledge for working with social processes. The majority of technologies highlights only the technical and rational issues. The use of the paradigm of natural sciences often results in neglecting the key elements, that is, man and his life. Man is regarded as a machine, as one of operative components of the system that needs to be tuned, adjusted to IT, not as a human being with a purpose, a will, one to whom IS should serve instead of him being adjusted (serving) to them. The designer often develops an IS that corresponds to his own psychological type, not to the psychological type of the IS users. Such approaches prevent us from understanding the phenomenon of the encounter between the technology and the organization; i.e., understanding that the organization, a host, and the IT, a guest, enter the process of mutual formation ([3], [9], [10], [11], [12]).

Neglect of the lack of understanding of the human environment, that is, the full social context of IS which includes the organizational, social, political and ethical aspects important in accepting and implementation of IT, is considered to be an important cause of IS failure ([3]). The conventional, non-system approaches recognize neither contradicting interests, information policies that result from the behaviour of the members of the organization for the purpose of maintaining their own power, nor the emergence of unpredicted events and consequences.

The IS development method often defines the role, the liabilities and the responsibilities of the participants in the IS development. For example, according to the method that assumes that there is an objective reality characterised by order, the designer is an expert that analyses the problem, finds the proper answer and offers a solution, namely, he is responsible for IS. The methods that deal with human environment and understand IS as organizational intervention, assume the role of the designer in a different way - for example, together with the

future users of IS, he tests the needs and possibilities to improve the organization by IT implementation. A socially responsible IS expert abandons the insignia of "the priest of high technology" as well as an unintelligible technical vocabulary. He digs into the users business operations and his needs for the purpose of building mutual/common understanding of the situation and finding out what kind of IS is required and which changes it can bring. Such approaches, however, require a non-engineering view of the world and a change in behaviour. These changes are by no means easy to achieve. It is necessary that the designers and the users work together as partners, not as providers and clients for the technology. These relations of mutual partnership are built in time. This, of course, requires that the role of the users change and that they should be largely engaged in cultivating the human environment ([3],[11]).

4. Understanding of IS Development issues - object Of responsibility for IS

Knowledge for life and work is becoming increasingly important, hence knowledge is considered to be a must, the object of social responsibility ([13]). Therefore, knowledge of the IS development issues, as a precondition of a socially responsible IS development, should be the object of social responsibility. It is necessary to determine who is responsible and which responsibilities he has in building the understanding of the IS development issues. Since knowledge is achieved through formal education, through research processes and through permanent learning, it is necessary that responsibilities for these processes be delegated.

The formal education for IS often offers only technical knowledge which does not meet all the needs of an IS expert ([14]). In his practice, the socially responsible IS expert encounters the questions the answers to which are not always known, therefore it is necessary that the education system should develop a competence in an individual to find answers to such questions and to be able to ask similar questions himself ([15]).

To meet the criteria for getting higher degrees and titles in the field of research and science, many IS researchers often choose to deal with simple issues, even in cases when they are aware that it is necessary to conduct more difficult and more complex research ([16]). The consequence is that the society is left not only without proper solutions to real problems, but is often quite unaware that these problems are present.

Fast changes in IT demand that the IS experts continually upgrade their technical knowledge. When they realize that mere technical knowledge is not a qualification enough to work in the field, they resist to acquiring other necessary knowledge for fear they will lose their technological competence ([3]).

Understanding of IS issues, therefore, is an important object of social competence.

5. Wis development in serbia and social responsibility

Social responsibility is, by a rule, delegated in advance. The responsibility for the consequences of the actions or the consequences of failing to take action may, however, be discussed backwards, in order to clarify the current situations and improve the effects of future actions ([2]). This paper deals with the social responsibility aspects of the development of water supply information system (WIS) in Serbia, for the purpose of clarifying the IS development issues.

The Water power resources management of Serbia does not have an IS established, although much has been done on its development. This paper presents a short review of the WIS development. The review is more detailed for more recent activities in which the author participated in person (which allowed for a more profound understanding of the gravity of the problems in WIS development). Each group of activities described is followed by the issues of IS development viewed from the aspect of socially responsible behaviour (related to achieving goals, dimensions and/or conditions of social responsibility for IS) for the purpose of encouraging speculations which, according to the author, are necessary in building the awareness of the problems in WIS (and other IS) development as well as for a more responsible approach to IS development in Serbia.

5.1. Software for hydrological modelling

The software for hydrological modelling was introduced by the 1990's, in accordance with the best practices in the U.S.A. Numerous modules were developed, however, only one was used in Serbia. Its only direct user, a trainee engineer at the time of its introduction, has used it for years to base the forecasts for the needs of the electric power supplies of Serbia.

The basic idea of the technology transfer and the knowledge built into it is the creation of a "better life" using the technology that has already been successful-

ly used elsewhere. Failing to implement the software for hydrological modelling in Serbia (with the exemption of one case only), however, poses a large number of questions: Is the understanding of a better life universal - do both people in the U.S.A. and people in Serbia equally feel that hydrological modelling contributes to a better life? Are there only one or more ideas of a better life in one country? Can one and the same idea of a better life be created in the same way and by the same software in different social environments? Are there any obstacles, which are they and how can they be overcome?

Why was there only one young engineer who thought that the software offers a better life and that there are no obstacles that this "proven" better life be achieved? Did he, compared to other potential users of the software, have a greater freedom of choice, more knowledge and/or was he more willing to build his own responsibility?

Implementing the software daily, this engineer appreciated its role in his work, found out in which cases he can rely on the software generated forecasts. His work has an impact upon the quality of forecast-based decision making. When making decisions, indirect software users consult the forecast and will find it difficult to decide in the absence of the forecaster. The question is: why is there only one software user and does the lack of a decision to change this state of affairs affect the quality of managing hydro- and electrical power potential? Is there anybody (and who) in charge of such issues?

5.2. Studies and general designs

The studies and general designs of the development of WIS (Vojvodina, Serbia) and the Hydro-meteorological information system of the basin of the river Drina (HISD) were made in the 1990's. The review of the General design of WIS Vojvodina has shown that it was well done, but that it was devised on the basis of a poorly set project task, which cannot be taken as the designer's responsibility. This triggers a number of questions: Did the vision of good life of those who formulated the project task differ from that of the reviewers? Should the reviewers have been included into the IS development in an earlier stage? In which way would the participants with different visions of a better life create a mutual vision? Would such a vision have changed from the moment the task was set to the moment the task was accomplished? Who was in charge of the IS boundaries and their potential change?

The main point of issue the people responsible for the management in the basin had in the HISD review was in which republic of the former Yugoslavia the head information centre would be located. Does it mean that the location of the centre on one's own territory was considered to be a quality of a better life? Which are the causes of such a desire (power, perhaps?) and which are the ways to fight them? How can IS be developed in such adverse conditions, how can its functioning be ensured and how can the resistance of those whose life will be deprived of the quality they favour be prevented?

5.3. The Modules

The studies and modules mentioned above were not further developed. Some modules were developed without any coordination. Others, revised, accepted and highly assessed by the users, were never employed, while others still were not as much as installed. One module was not used because the input data could not be entered (in a way specified by the Water Act). Another was developed in collaboration with a university professor who was interested in the field covered by the module. As long as his interest lasted, the values of the data were supplied and the module database was kept updated. In the later review of the chances that the module could be re-employed, the potential user assessed the module as very functional, however, he requested that a new module be developed using more modern IT. One implemented module had only one user, while potential, even highly interested users had no idea it even existed ([17],[18]).

Whether the developed modules are or are not implemented, a number of questions remains: Is anyone granted the power not to act properly (not to install the software, not to supply the necessary resources) and by (not) doing this deprive somebody else of a better life? Why should he be granted that power and what is his right to behave so? Does the developer have to check all the presumptions, especially those which are supposed to have been fulfilled, such as observing the law? What knowledge should he have, in which way can he achieve it, if he can achieve it at all? Whose knowledge can he or should he rely on? How are the responsibilities determined in this network of relationships?

Is everybody ready to participate to make his life better? Does better life require most recent IT, or the prospective "better life" is not wanted at all, which is then concealed and justified by the need for most recent IT? Which are the reasons that force one to publicly accept something one does not seek for? Who is to be in charge of such issues, and in which way can he do it?

5.4. System approach to WIS development

In 2001, the development of WIS was approached in a systemic manner. The need for a change in the approach was understood on the project of integral IS development for the environment. The traditional approach to IS development was impossible to be implemented in this project - an important future user, who ordered the project, was of the opinion that the IS development was the responsibility of the developer and was unwilling to participate in setting the requirements for IS ([19]). On the basis of the results obtained in this project, a Planning basis of the WIS development in Serbia. This document maintains that WIS should be in the function of a system of integral management of water resources (IMWR) and has to be developed simultaneously with the IMWR. The new approach adopted marked the change in the fundamental presumptions on the reality, on the organization needs, on the method of decision making, people/human resources, responsibility, and on the development process. A system approach to IS development was adopted, the need was recognized that IS should be developed in the process of permanent learning, with all the stakeholders of WIS participating ([20]).

Putting this document into practice started with the creation of a strategic plan of the development of WIS in Vojvodina. In the process, however, the project started was found to be rather too difficult. Hence the project was discontinued, and, for the purpose of creating conditions for the project to be resumed, a decision was made that an IS be designed for the needs of drainage system implementing the system approach. Problems appeared with this IS, too. The basic causes were a resistance to change and a lack of understanding of the adopted planning basis and the set project tasks ([21]).

Although the basic presumptions were often repeated along the work, the participants were not willing to accept them because they were unfamiliar, different from expected and usual ones, adopted in the course of education. They expected that the state would stipulate the necessary changes in the water resources management, independently from them. Besides, they pointed out a plethora of operational problems due to which the IMWR concept could not be paid the attention it deserved. On the other hand, probably for the reasons of justifying the previous decisions on the WIS development, the proposition made by the designer and some other participants from the organization itself, that the project scope should temporarily be altered and adjusted to the identified organizational needs, was rejected.

The work in the WIS development work group meant an additional obligation, without any reward granted for performance. In such a situation, some participants expected the designer to provide the solution and considered him responsible, others insisted on the necessity of the solution to be worked out and were ready to actively take part (which never happened). Some participants wanted the designer to be their partner in search of a better life for the organization.

It was difficult to explain to the engineers that the WIS development process could not be fully planned ahead, that it had to be iterative. The planning problem appeared even in the process of gathering the requirements for the development of the technical characteristics module for the drainage system, that is, when it was agreed that the requirements were known, and that they could be easily and promptly defined. In 1990's, however, the water resources experts changed their attitudes to these systems, in an attempt to preserve both the drainage systems and themselves. This required that, prior to the development of an appropriate IT solution, a thorough work should be done in building a mutual understanding of the importance of drainage systems as well as in defining the types of data for which values could be gathered. Due to the presence of a large number of values for technical data, often collected for a single occasion, i.e., for one single case, their validity had to be proven.

The system approach to WIS development brings forth new questions in the issue of IS development: What knowledge, which freedom of choice and which power of action were used in proposing and adopting the IS development plans? Why do people adopt the propositions they do not understand, they do not know the consequences of or which do not meet the needs of the organization according to some future IS users? How can the set objectives be achieved at all when the participants are not introduced to them and when some managers even claim that the set objectives are inappropriate to the organization?

How can the inborn attitudes of men be changed? What should be done to convert the observers of the change into the supporters of them? How can they be freed from fear of being blamed, how can the conditions be created in which there is readiness to learn from one's errors, to correct wrong decisions?

How difficult is it to work on the IS development if one's beliefs differ from those of the majority of experts? To what extent do those beliefs limit the participants' freedom? How much effort does it need that the approach

itself be explained to both the participants in the development and the external observers. How risky and demanding is that approach given that there is a high probability that the external observers, knowledgeable of only traditional IS approaches, decide that it is not expertly enough?

Does the lack of accurate values for the data mean that the prospective IS users do not make decisions on the basis of facts? What type of IS do they need? In which way will IS meet the needs of different psychological types of users?

Who is responsible for failing to ensure the conditions for a steady, continual work of all the participants in the IS development? Who is responsible for cumulative effects of a legitimate absence of a future IS user in the development of the system?

Who is to be in charge of these difficult, but important issues? How can he do it?

5.5. New HISD development project

Simultaneously with the attempt to implement a different approach to the WIS development, efforts were made to develop a new HISD. The two projects were not related. The HISD approach did not correspond to the new approach to the WIS development. Furthermore, the HISD development was commenced without taking into account that a project under the same title had already been developed once, that the planned software was already developed, but was not implemented, although it was highly appreciated by the prospective users, on occasions of its presentations.

The HISD development commenced with the development of the simulation model for the purposes of management in the river Drina basin, although one such model is already in use in the basin (the only model out of many developed that has for years been in use in the basin - see 5.1.). Nobody bothered to enter into analysis as to why there is a need for a new model, nor which are the flaws of the old one, nor whether conditions allow for the implementation of that new one.

Despite an evident conflict of interests of various institutions, the software for the management logistics in the river Drina basin was developed. The development of the planned software was continued even when the key institutions from the Republic of Srpska and Montenegro waived participation. Besides, the prospective user from Serbia claimed that they had no need for the newly-developed software.

In the review of the project, the key decision makers were in a dilemma about what was being done on the project and why. They, however, were not willing to start a debate on serious problems highlighted in the preliminary statement of the organization-participant in the project execution ([18]). In spite of all these, the project was continued.

The problems mentioned above point to serious problems in the approach to IS development: Can the goals of the development projects of related IS be achieved through uncoordinated work? What are the reasons to forget the past, to not even mention it? Why is there no desire to learn from one's own errors? Is there an awareness that such unwillingness only hinders achievement of the desired goals? Is the existing knowledge an obstacle for openness to other knowledge and different opinions?

Who is to take care of these problems, and how is it to be accomplished, if experts have no power to solve them, and the authorities do not care to learn their opinions?

5.6. European Union aid programmes

The European Union aid programme was initiated for the purpose of introducing WIS in Serbia. The first project documents stressed the system approach and building success on errors as fundamental parts of WIS designing. In his offer, the contractor stated that several unsuccessful attempts to introduce WIS in Serbia so far were caused by organizational problems. The proposed approach to WIS development in Serbia insisted that sustainable and appropriate approaches should be used from the very beginning of the project as well as that local knowledge and expertise and the representatives of all the stakeholders should be involved too.

On the other hand, the project was conducted in accordance to the project task that was not considered appropriate by either the contractor or some members of the project monitoring Board, however, the European Development Agency representative was firmly against any changes in the project task. The opening activities on the project were not carried out in the way that the contractor considered the key factor of the project success - the system approach was not implemented, the organizational issues were not analysed, the local knowledge was not involved, nor were the representatives of stakeholders. In other words, the approach that was devised as appropriate was not properly implemented from the beginning of the project. Likewise, the local experts' experience in WIS development was not used

at all, regardless of an expressly stated opinion that it is rather extensive and highly valuable. Moreover, the local experts, after they had expressed their doubts as regards the project success, were excluded from further activities by simply not being appointed into the groups in which their engagement was planned.

The above quoted problems were the indications of a great risk for the success of the project ([22]). The decision makers on the project, however, did not care to hear anything about this, a case similar to the one of the HISD. They seemed not to be willing to learn from the errors made, to use the accumulated experience. They seemed to feel it was easier to wait for the others to provide solutions, to "absolve" themselves by claiming that they are not acquainted with what IS is, to require "all" data, and to exclude those who do not agree with them from the process.

However, does the decision maker in the WIS have the right to do so? Isn't it his knowledge, his openness to different standpoints, his willingness to start a discourse on problems and responsibilities, that make the precondition for the WIS success? Does he have the right and authority to change the social reality by not taking into consideration the needs and the interests of all the stakeholders?

Could the project with a poorly set project task bring a better life to the water resources of Serbia? Did the European Union really aid Serbia in developing WIS in the appropriate manner?

Is it really so difficult to look back, to recognize and analyse the errors we have made and thus try to create a better life instead of only talking about it?

6. Concluding remarks

This paper is an author's attempt to, so far as it is possible, contribute to the responsible IS development in Serbia by liberating the IS experts and researchers from the limited and limiting understanding of IS.

The paper highlights the issues of responsibility for IS and lists problems to be thought about in order to understand the IS development issues. Due to the complexity of the problem and due to the limited human competences, the answers to these problems should be sought in the discourse among all the stakeholders in the IS development - the users, the investors, and the experts. In finding the answers which will be subject to further changes, conditions could be created for both understanding and delegating social responsibility.

In order that a realistic vision of a better life for all the parties interested in IS be created, the discourse should include the researchers, the teachers, and those who are responsible for generating knowledge required for a socially responsible IS development.

Since the development of information society, and hence IS as part of the national information infrastructure is the care of the Ministry of Telecommunications and Information Society, the success Serbia will achieve in creating information society will depend on the willingness of the Ministry to analyse and discuss the socially responsible IS development and to take care of that social responsibility. A significant role in this work certainly belongs to professional associations, as well as all the organizations engaged in the development of information systems.

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