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PECULIARITIES OF DESIGNING HOLISTIC ELECTRONIC GOVERNMENT SERVICES INTEGRATION MODEL

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Abstract

Purpos– *the aim ok this paper is to develop a Holistic Electronic Government Services Integration Model which could ensure the efficient integration of electronic government services in the local self-government level.*

Methodolog– *the following analyses have been carried out in thirkpaper: theoretical-systematic; normative and conceptual comparative analysis of the researcha A method of modeling has also been applied.*

Finding– *the scientific work analyzes the improvement opportunities of the models of electronic government services and their application alternatives in Lithuanian municipalities. The newly developed model of electronic government services that has been designed basng on the principle of integrating online expert consultation is primarily targeted at improvement of inside processes' changes of an organization. Practicing the application of that model in the local self-government level starting with improvement of inside processes of an organization should help adapt more accurately and efficiently to the changing needs of the society while providing electronic government services, thus establishing a higher public value.*

Practical implication– *the practical novelty of work is reflected not only through the integration opportunities' assessment of the principle of online expert consultation services into the theoretical models of electronic government services that have already been developed by the scientists, but also on the basis of this principle there has been created a "Holistic*

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Electronic Government Services Integration Model" in accordance with "E-Diamond" model basis and its practical application realization with the design of "The project of implementing the principle of online expert consultation on the model of electronic government services" for the future investigations.

Originalit– *the systematic, comparative analysis of the models of electronic government services carried out in the scientific work and the assessment of opportunities of their application in the self-government level have hardly been analyzed which makes the topic a novelty. With the help of the method of comparative analysis the models of electronic government services have been assessed and there has been distinguished the total of six. Two of them being the main common models of electronic government services have the features that enable the development of new models of electronic government services that are more targeted at changes taking place in public needs and inside organizational processes signifying the originality.*

Keyword– *electronic government services, the stage model of electronic government services, "E-Diamond" model of electronic government services, Holistic Electronic Government Services Integration Model, public administration, local authorities.*

Research typ– *research paper on designing and developing a Holistic Electronic Government Services Integration Model.*

1. Introduction

Electronic government is being implemented worldwide and in all levels of governance. Local authorities play a particularly important role, since they can identify the changing customers' needs best of all (Ancarini, A., 2005). Although the governance functions of those institutions in different countries slightly differ, their common goal remains the same, that is not only to make the governance itself more efficient, but also to make it more accessible for the public (Gronlund, A., 2002; Gugliota, A, Cabral, L., 2005). Municipalities, that are able to provide public service for the consumers in more effective and modern ways can also meet other public needs, in this way implementing directly one of the principles of European local self-government charter, which is the one of ensuring a tighter link between local self-government and the public. Basng on that it can be claimd, that the role of electronic government if quite an important manner, while making an impact on a suitable choice of different models for the implementation of the abov- mentioned and other principles of local authorities.

Scientific issue. Issues and their solutions concerning the efficient electronic government services provision occur worldwide. In some countries, Lithuania is one of them, the models that are identified only hardly coordinate with the models of electronic government services covered in this work or separate fragments of such models being applied in local self-government levels. In order to solve those problems it would be expedient to find new, improved and more effective models of electronic government services that can meet the needs of customers better while providing electronic government services.

Object of the research. The application of the models of electronic government services for public administration.

Purpos– the aim of work is to develop a *Holistic Electronic Government Services Integration Model* which could ensure the efficient integration of electronic government services in the local self-government level.

There have been set *the following objectives* for the abov- mentioned purpose to be achieved:

1. To carry out the comparative analysis of Stage models of electronic government services;
2. To analyze in detail "E-Diamond" electronic government services model;
3. Having analyzed the Stage models and "E-Diamond" model of electronic government services and having carried out their comparative analysis, to establish the main features of those models for their improvement;
4. To reveal the conceptual-holistic prospects for improving electronic governance services models;
5. To offer a new model of electronic government services for the local authorities.

Practical significance. The development alternatives of the suggested *Holistic Electronic Government Services Integration Model* and its principle of *online expert consultation services* for municipalities provide the conditions to carry out the experiment thus pointing out the practical value of the scientific work**.**

Models of electronic government services, that are created and being analyzed by worldwide scientists, aim at seeking solutions and their alternatives for more efficient public servies provision. The years of establishment of the models reflecting the recent development trends of models of electronic government services show that the subject matter of the models of electronic government services is relevant and fairly new worldwide as well as in Lithuania.

2. Analysis of Stages Models of Electronic Governance Services

All Stages Model "ANO", "SAFAD","Lee & Layne", Public sector processes completing („PSP completing) and"„Hiller & Belanger", which are already analyzed by G. Goldkuhl and A. Persson, have a common feature, namely the first stage has poor functionality and the last one has low level of integration involving all management levels (local and other authorities, legal and natural persons). Another common feature comes with the level of integration, i.e. the higher it is the higher requirements for technologies (Limba, T., 2009, A). Given the common features there are some clear differences as well. In order to compare the models in a more convenient manner the similarities and differences have been put in a table. The features of the models are presented in the columns and the rows list the features of the stages (see Table 1).

Table 1. A comparative analysis of the Stages Models

	"ANAO"	"SAFAD"	"Lee & Layne"	"PSP completing"	"Hiller & Belanger"
I	*Publishing information*	*Information*	*Catalogue*	*Cultivation*	*Information*
II	*Interaction*	*Interaction*	*Transaction*	*Extension*	*Two-way Communication*
III	*Transaction of secure information*	*Transaction*	*Vertical integration*	*Maturity*	*Transaction*
IV	*Sharing information with other agencies*	*Integration*	*Horizontal integration*	*Revolution*	*Integration*
V	(Doesn't exist)	(Doesn't exist)	(Doesn't exist)	(Doesn't exist)	*Political participation*

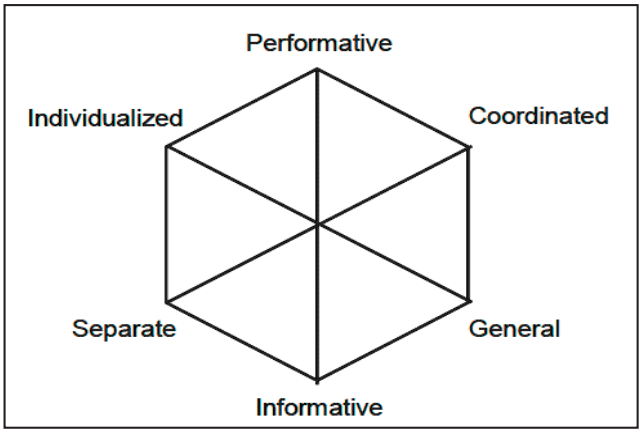
Source: Limba, T., 2009, A

The comparative analysis of the models that has been carried out shows the fact that electronic governance stage models have advantages and disadvantages although it is worth remembering that in both theoretical and practical works, where the issues of electronic governance are being analyzed, we would not possibly find absolutely perfect models that would be able to fit any public administration systems. A common spread of stage models in different worldwide public sector systems shows that this type of models are easily implemented in public administration, although it is necessary to emphasize that the spread of their application does not completely illustrate the usefulness and quality of the models while providing public service for users. Having evaluated the weaknesses and threats of the models the essential issues must be pointed out. Firstly, integration of stages is rather complicated process, e.g. a higher stage cannot be integrated without firstly integrating a lower stage. However, this is mainly the issue of technological solutions. Another more important problem might arise while implementing stage models at the moment, namely the rapid change in public sector organizational processes and increasing aiming at individual and complex needs of users, which are related to multiple social phenomena. In conclusion, it can be stated that having assessed the advantages and disadvantages of the above mentioned models' application in public sector, there could be explored not only those but also more developed alternatives for implementing electronic governance models in public administration institutions.

3. Analysis of "E-Diamond" Electronic Governance Services Model

Electronic governance service model "E-Diamond" is based on a different attitude to public service in comparison with the analyzed stage model group, although it is not completely distant from stage models. This model has been designed as an opposition to stage models. On the other hand, the authors themselves believe that the development of the "E-Diamond" model is restructuring the stage models into poles (Goldkuhl, G., Persson, A., 2006). The analysis of the "E-Diamond" model and efforts to find connections with stages can be based on the Swedish "SAFAD" stage model (Goldkuhl, G., Persson, A., Sturgart, 2006).

The analysis of stage models shows the predominance of aiming to collect informative services into one pool around one particular subject, in other words, coordinated, individualized and informative electronic governance services (further on—services). The following opposition for this classification is provided in the E-Diamond model: separation, generalizing and performance. This kind of division composes three electronic governance services poles (Goldkuhl G., Persson A., Sturgart, 2006, p. 70). The poles with subdivisions are illustrated in the picture below (see Picture 1).



Source: Goldkuhl, G., Persson, A., Sturgart, 2006, p. 72

Picture 1. "E-Diamond" model

The first opposition in the poles is separate and coordinated services. Separate meaning the ones that require only one institution to provide service, their opposition being coordinated services that correspond stage model integration levels (Goldkuhl, G., Persson, A., Sturgart, 2006) and in a way the partial services layer of the inter-institutional multiple interaction model structure (Gugliota, A., Cabral, L., 2005). Coordinated services have two more subdivisions: aligned and fused services.

The second opposition includes general and individualized services. General services are provided for everyone without requiring personal identification in the database, whereas individualized services are provided only having identified a person in the electronic space. The latter are divided into non-secured and secured services. Non-secured services in this model can be related with electronic mail requests in stage models (the second stage of "SAFAD") where you need the basic personal identification (basic presentation indicating the name, surname, occupation, etc.), but the information provided for the applicant is not personal, thus a secured personal identification is not necessary, which would be extremely important for secured services subdivision under the fourth stage of "SAFAD".

The last poles of the opposition provide informative and performative services. Informative services are targeted only at the information available for reading, e.g. information provided in the website of municipality, whereas the performative services allow the user pursue interaction with an institution on the integrational level (Goldkuhl, G., Persson, A., Sturgart, 2006; Goldkuhl, G., Persson, A., 2006). For instance, the following information is available on the website of municipality after submitting application for it: information on the vision, mission, objectives and activity. Further systemized information and valid public services are provided after having clarified the request if it is required or carrying out different inter-institutional procedures on the computerized databases. It is worth mentioning that informative services can be subdivided into pre-arranged knowledge and selected information. Pre-arranged information (or knowledge) is received when a customer is surfing the website of an institution, and selected information is the one that is filtered through the browsing system on the site. (Goldkuhl, G., Persson, A., 2006).

The founders of the "E-Diamond" model criticize the negative application of the stages principle (Goldkuhl, G., Persson, A., 2006). The stage models aim at including all the previous stages to the last stage and they set it as the objective, although it is not always possible and necessary to transmit services from the first level to the highest, e.g. there is no point in seeking to transmit the publicity of municipality documents to the highest level. Here the advantages of the "E-Diamond" model come up. This model does not aim at transmitting everything to the highest level, because there is no such level. There are three incomparable areas that are all of equal importance and necessary, and the complexity of services fluctuates in different poles of the areas (Goldkuhl, G., Persson, A., 2006).

Assessing this model according to the analysis that has been carried out firstly it is necessary to point out that the practice of applying the "E-Diamond" model is not very common. As it was mentioned above, the model has been developed by Swedish scientists, so it has been tried to be applied in Sweden. Having assessed the theoretical analysis of the "E-Diamond" model, its application should be easier implemented in practice from the technological point of view than the stage models, because in that case the barriers are created due to the pursue of the higher stage. However, from the organizational processes development point of view, the implementation of the "E-Diamond" model might be a little bit more complicated for a few reasons. Firstly,

the lack of experience of implementing such a model might create certain obstacles for implementation and proper sorting out of public services to particular poles. As it was analyzed describing the threats for model implementation, it might occur that at the same time one or a few services should be attributed to different opposite poles.

However, it is more likely that the main problem is related to the lack of expertise of public administration institutions civil servants in the area of electronic governance project implementation field. The "E-Diamond" model structure in itself is slightly more complicated than that of stage models, therefore it could be harder taken in and brought into awareness by the civil servants, responsible for implementing projects of this kind in the public sector.

4. Comparative Analysis of the Stages and "E-Diamond" Electronic Governance Services Models: an Impact for their Improvement

All electronic governance models that have been analyzed in this paper have their own distinguishing features in comparison with other models. The stages and "E-Diamond" models are considered universal. Stage Models, e.g., "SAFAD," "ANAO," are considered to be founding models, others basing on the origin of their paradigm are complementing the founding ones or emphasize other features of the models—"E-Diamond" Model. What is also necessary to point out is that electronic governance Stage Models that have been developed and applied for a longer period of time, have been useful for a while, although further application prospects cast certain scientific doubts. On the other hand, what is also arguable is the usefulness of later developed theoretical electronic governance models (the case of "E-Diamond" Model).

In order to assess the usefulness and more suitable application of electronic governance models in public sector in a more accurate and efficient manner, one of the proposed alternatives is to define the common features of electronic governance Stages Model and "E-Diamond" Model, which could be the following:

- *Possible levels of implementation*
- *The main features of different level, or in case they are not available, different stages or steps;*
- *The level of targeting at the client;*
- *The level of targeting at organizational inner processes;*
- *Feedback (self-assessment opportunity);*
- *Technological background for the implementation of the selected model* (Limba, T., 2009).

The comparative analysis according to the features mentioned above will also help distinguish the advantages and disadvantages of the model (see Table 2).

Table 2. A comparative analysis of common features of the stages and "E-Diamond" electronic governance services models

Features \ Model	Stages Models	"E-Diamond" Model
1. Possible levels of implementation	There are 4 most common levels of implementation.[1]	The level of implementation is defined according to three different features—poling.[2]
2. Description of features for different levels	1) Every higher level includes all features of the lower level (stage) and complements them. 2) The first level deals with information publicity, whereas the highest level has a complete organizational integration.	1) The services are defined as a combination being individualized, general and performative of a certain level. 2) Every pole distributes the services from simple to more complicated ones.
2. Targeting at the client	Every higher stage integrates the clients even more, but the model is not suitable for everyday life situations.	One of the poles is the relation between individualized and general.
3. Targeting at inner processes	The attention is paid. The fourth stage most commonly is devoted to inter-organizational processes.	The model partly distinguishes targeting at inner processes.
4. Feedback	The model does not envisage such an opportunity.	The model does not envisage such an opportunity.
5. Possibility for service assessment	It is available. It is assessed according to the level the service belongs to.	It is available. It can be assessed according to the place the service is in the "E-Diamond."
6. Technological background	Every higher stage requires more modern technologies and better integration.	The more complicated the services of each pole are, the more complicated technological solutions they require in order to provide them.

Source: Limba, T., 2011, B.

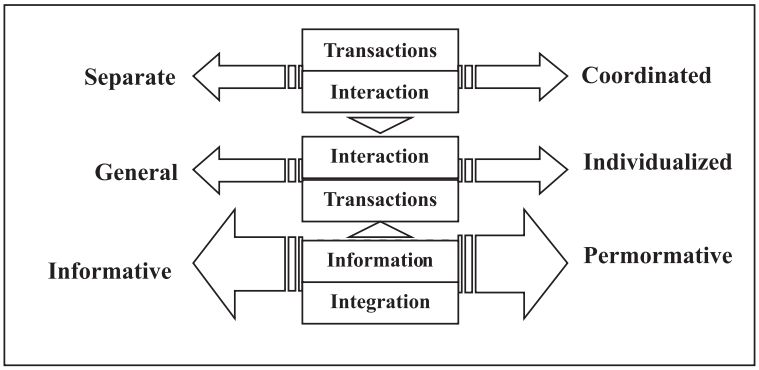
1. An exception is "Hiller & Belanger" model which has 5 levels of implementation.
2. Service poles: *separate ↔ coordinated; general ↔ individualized; informative ↔ performative.*

In evaluation of these general features designed for the models exceptionally from the point of traditional public administration conceptions, the most important of them are to be considered two of them—orientation towards the client and orientation towards

internal organizational processes. However, the science of public administration, having assessed the information technology actively penetrating into all public administration system reform processes and public life, in this context becomes interdisciplinary; therefore, importance of other aforementioned general features of electronic government services models does not lose significance and value. After carrying out the comparative analysis of models, it is possible to make a presumption that both electronic government services stages' model and the "E-Diamond" model are sufficiently proportionally oriented by the features of the orientation towards a client and orientation towards internal organizational processes.

Having carried out a comparative analysis of the models, it would be purposeful to analyze some similarities and differences among the models, identifying the causes and essentials of them.

The most simple comparison to carry out would be of the Stages Model and the "E-Diamond." The "E-Diamond" model is made up of regrouping and complementing the stages of "SAFAD" Model into certain opposition. As the authors of the model claim (Goldkuhl, G., Persson, A., 2006), the first two stages of the "SAFAD" Model, namely the opportunities for information provision and assurance of interaction in the electronic space, might be treated as the opposition of informative and performative services, with regards to the services being used by the customer (see Picture 9). The third stage of the "SAFAD" Model implements the transactional services—receiving and transmitting information or electronic governance services. Services of a transactional nature are different from the other services in the level of individualization, thus in the authors' opinion (Goldkuhl, G., Persson, A., 2006), the emergence of the opposition of individual and general electronic governance services would be purposeful. The fourth stage of the Stages Model, i.e. the Integration becomes an opposition to individualized and integrated services of the "E-Diamond" Model (see Picture 2).



Source: Limba, T., 2011, B.

Picture 2. Transformation of the Stages Model into the "E-Diamond" Model

It is worth paying attention to the fact that only the Stages Model provides the opportunity to assess the implementation of electronic governance services according

to the levels set in advance. However, with the help of other models it can be identified what is the status of the electronic governance services provision. For instance, if the municipality provides only individualized, informative and general services, it might be assumed that either there is no technological basis or the integration of services having more complicated implementation (individualized, merged, implemented on the web) is avoided.

It is also possible to state that the designed "E-Diamond" model as it liberates the stages from their technological dependence, thus, it is simpler and more universal from the application aspect and in conceptual approach its implementation should be more simple. However, it is more likely that the main problem is not technological dependence of the stages' models or issues of stages liberalization while transforming them into the "E-Diamond" model, but the lack of competence by the officials of public administration institutions in the area of electronic government services project implementation (Limba, T., 2011, B). The structure of the "E-Diamond" model itself is more complex than that of the stages' models; thus, it could be more difficult to be understood and comprehended by civil servants responsible for the implementation of the projects of such nature in public sector. Consequently, the appearance of new models unambiguously requires also the changes in qualification and competence of civil servants.

5. Conceptual-holistic Prospects of Improving Electronic Governance Services Models

It is difficult to distinguish one model that would be dominating or the best. Each model has its advantages and disadvantages. However, it is necessary to emphasize that these models are developed not only basing on theoretical paradigms, but also on practice of integrating electronic governance service into public sector in foreign countries. A great number of theoretical models, such as "ANAO," "SAFAD," "Lee & Layne" are developed basing on experience of electronic governance service implementation in public administration institutions in Australia, Sweden and the USA. It should not be forgotten that all these models have been implemented and applied considering the peculiarities of public administration in every country, especially the specific system of local authorities and the national users needs. At this point it should be mentioned that the needs of local authorities systems and national users in different countries around the world vary, therefore claiming that one of the analyzed and compared models would suit perfectly to other countries, e.g. Lithuania, would be wrong (Limba, T., 2011, A). Thus, we can draw a conclusion, that basing on the background of the above analyzed models, it would be purposeful to develop more universal electronic governance service models that would include holistic-social, competence and technological aspects, suitable for most countries public sector systems.

Some worldwide and European Union public administration institutions, especially municipalities, have a relatively low connection with local community while carrying out interactions. It is seen while providing information, especially public services to the public. Having designed websites for the municipalities (Ancarini A., 2005), it was thought that putting public information to electronic space would lead to more favorable conditions for the customers to use them, which would eventually solve the problem of the flow of residents applying directly to municipalities. However, some scientists (Fountain, J., 2001; Coe, A., Paquet, G., 2001; Bretschneider, S., 2003; Burn, J., Robins, G., 2003; Andersen, K. V., 2004) tend to have doubts concerning that being the only solution. In such a case quite an important issue is identified and a question is asked directly relating to it—how could it be possible to provide services more efficiently and increase the flow of residents applying directly for public information and services while applying and developing the electronic governance service models. What is more, how can the activity and the importance of municipalities be fostered in the context of modernization.

In order to solve this problem, it is suggested to base on statements by Swiss scientists N. Thom and A. Ritz (2004) who state management of public institutions as well as municipalities demand new strategies, administrative and technological solutions from the fast changing environment. However, existing legal conditions cast doubt on the reality of such a prospect.

What especially needs to be placed some emphasis on is the fact that those changes are resisted by administrative staff who are accustomed to the existing stable systems and are not inclined to innovations. The fact how public institutions are able to accept changes in the system and its environment and realize the factors that influence them has a considerable importance on public sector management.

Discretion of management differs in making influence on outside environment, human factors and conditions for institutions. The management's role in influencing the conditions for political level is much lower than conditions for institutional level and human factors. The law on public organizations and public service still restricts flexibility, which is of extreme importance for the development of the modern reforms (Thom N., Ritz A., 2004, p. 58).

It should not be forgotten, that public sector conditions are divided into:

- *Outside conditions;*
- *Inside conditions.*

The public sector outside conditions include only general results and results of specific influence on outside environment, e.g. when there is provided final integrated and prepared public service for the user and additional consultancy service of how to use the implemented public service. The outside conditions provide the opportunity for the user to judge, e.g. if the public service is provided in a sufficiently qualified and effective manner (Thom N., Ritz A., 2004). Whereas inside conditions, that are affecting the management of public institutions, fall into the following:

- *Institutional conditions;*
- *Human factors.*

Institutional conditions are targeted at selecting proper administrative structure and the required number of employees, as well as the process of the executed reform. Usually the conditions of institutions are obvious and they set a clearly defined operation area for the management. Thus, while modernizing the administration, the pursuit to reform and change those aspects is usually more reasonable than the pursue to change human aspect. However, the human aspects influence even more important organizational decisions, that are crucial to the proximity of outside factors as well, namely the directiveness of the public sector functions, depth and quality, the civil servants overcoming the barriers of social experience, knowledge and skills (Thom N., Ritz A., 2004, p. 58).

While confirming the above stated, we can base upon the presumption which is still relevant nowadays that was made by the USA scientist Kenneth L. Kraemer (1996) who has been exploring the peculiarities of the innovative tools implementation in the public sector. The author claims that one of the more important factors that limit the use of information technologies and the implementation of similar innovations in public sector is the lack of computer literacy and training among employees of public administration institutions. The use of information technologies provides more flexibility for such public sector organizations as municipality and its divisions (Kraemer K. L., 1996, p. 580-581; Davenport, T. H., 1999).

Having assessed the above mentioned scientific statements, it can be established that while implementing innovative means in local authorities institutions a great deal of attention must first of all be paid to the law reform, which is related to administrative changes due to the influence of innovations that are being implemented, and to the civil servants expertise development in the area of electronic governance service implementation. The emphasis must be placed on the fact that project implementation of electronic governance service and management in the local authorities level depend on the expertise and computer literacy of employees in municipalities. Electronic governance services first of all are implemented into the information-technological system of local authority institutions and only then they can be provided to users. Thus, it can be stated that the quality and efficiency of providing electronic governance service depend on the level of knowledge and abilities of civil servants to use information technologies, as well as the outside and new instruments of public consultancy in the area of electronic governance services. Therefore, *a great amount of attention must be drawn to changes in competence* while designing and developing the new model of integrating electronic governance service, which would include holistic-social, competence and technological aspects.

6. Designing and Application of Holistic Electronic Government Services Integration Model for Local Authorities

In discussing the aforementioned problem solving methods, various proposals are possible; however, one of them would be, particularly taking into account the problem

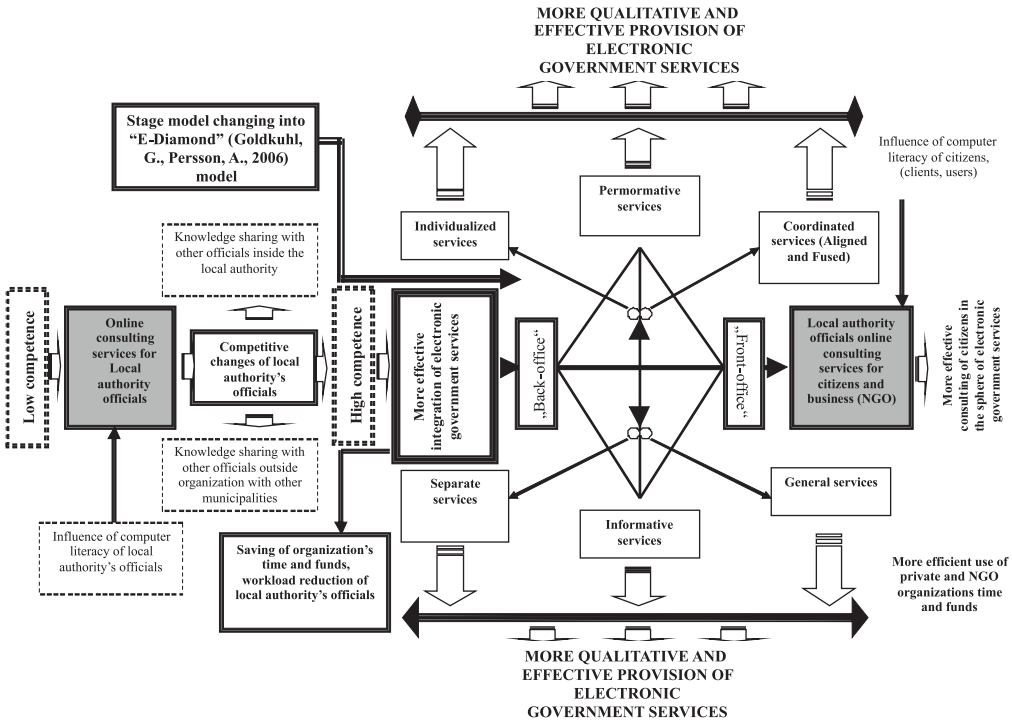
of interaction between the institutions of district self-government and residents as well as business—to create a model based on the principle of expert consultation application. External framework of the model would include the *"Virtual Union of Local Authorities."* That is to say, it would be possible to merge local authorities into the single virtual unit on the cyberspace leaving their former usual structural functioning and the possibility to use the websites of these local authorities. The *"Virtual Union of Local Authorities"* model would be characterized by the implementation of the expert advisory function, e.g. for district municipalities, and this in its own turn would contribute to solving the issues of active use of electronic government services and their provision quality. To put it simply, the example could be a special model *grounded by online expert consultations* individually applied by one or several smaller district municipalities of Lithuania characteristic of the lowest activeness among residents addressing them as well as the larger city municipalities.

It is important to note that functioning of the *"Virtual Union of Local Authorities"* might be exceptionally virtual, on the contrary to other associations or public sector institutions. The *"Virtual Union of Local Authorities"* would function solely on the cyberspace or, more precisely, would exceptionally be characteristic of just the advisory function striving for improvement of interaction between local authorities and the public. Of course, attempting to consolidate such novelties in practice, though the advisory functioning of the proposed model, it would be worth to regulate it by legal acts of the Republic of Lithuania.

In considering the possibilities to apply the "E-Diamond" model in local authorities of Lithuania and having assessed the current situation of electronic government services integration, the development of the "lower edge of the diamond" fragments is possible. The lower edge of the "E-Diamond" model includes provision of services of more informative nature; however, this edge is integrated not gradually (one following another), but individually. In other words, all the edges of the model are independent of each other, in contrast to the models of electronic government stages. As in Lithuania the principles of stage models are known and applied, it is possible to state that in Lithuania practical application of the "E-Diamond" model has not been identified (Limba, T, 2009, B).

In successful improvement of electronic government services introduction in local authorities, in future it would possible to discuss the development of the "E-Diamond" model in the upper "edge" fragments or the entire "E-Diamond" model integration.

However, having assessed quite poor experience of Lithuania in improving electronic government services, relevant electronic government service integration at self-government level problems, absence of alternative contemporary electronic government service models, the proposal would be to introduce the principle of "online expert consultation services" at the levels of "front-office" and "back-office" moving from the current electronic government stages' model to the "E-Diamond" model, in this way designing a new and one of the most appropriate alternatives of *Holistic Electronic Government Services Integration Model* (see Picture 3).



Source: Compiled by the author

Picture 3. Holistic Electronic Government Services Integration Model

The first aspect *"Low Competence"* of this model structure is taken as a starting point showing the low organizational competence of a municipality in the area of electronic government services. What is more, it is important to point out that the implementation of the principle of *online expert consultation services* is closely related to and is dependent on the *computer literacy skills of municipality officials*. Obviously, the higher the level of computer literacy of local authorities' officials, the more effectively the online expert consultation services can be integrated in an organization, and vice versa. Thus, it is important to point out that the officials' ability to participate in providing them with online expert consultation services is directly related to their own level of computer literacy, which is an important structural component of the aforementioned model.

At the "back-office" of the municipality a structural element "*Qualification changes of municipality officials"* is created after the provision of the online expert consultation services. This element has two branches:

- *Sharing the gained knowledge in the area of electronic government services within the organization, passing this knowledge on to all main structural levels of the organization;*
- *Sharing the gained knowledge in the area of electronic government services among organizations, spread of this knowledge among all local authorities*

(and other public administration institutions of the state) and their different structural levels.

As far as the holistic model of integrating electronic government services is concerned, the *outcome aspect* of the organizational inner structure of the municipality, which outlines the obtained result while implementing the principle of the online expert consultation, is a *high organizational competence in the area of electronic government services*. However, the main structural element of the outcome of this model that helps to withdraw inefficient stage model and move on to the three alternate poles (six elements) implementation of the "E-Diamond" model is *the more efficient integration of electronic government services*, which ensures saving the costs of the municipality budget and time as well as the reduction of the workload of municipalities' officials more effectively.

At the "back-office" level the online expert consultation services, as it has already been mentioned, would firstly be provided for the officials of municipalities. While at the "front-office" level of an organization having become qualified specialists of this area the officials of municipalities providing *online expert consultation services* for the public could inform residents and businesspeople about the electronic government services and their advantages. It has to be mentioned that at the "front-office" level the online expert consultation services in the area of electronic government services would be provided for residents and business entities on the principle of online consultation. Of course, here other, quite important problems of the public motivation to participate in seminars of such nature and computer literacy arise, on which consultation effectiveness, saving finances and time of the interested, and finally, key expected result—a more high-quality and efficient electronic government service provision—depend.

The "online expert consultation service level" principle is characteristic of universality, therefore, it can be quite easily integrated into the aforementioned and on this basis designed *Holistic Electronic Government Services Integration Model*. "Online expert consultation service level" principle can be easily implemented also in practice.

Based on the proportion of electronic government service model comparison by orientation into municipal internal processes and orientation towards satisfaction of client needs, currently the most appropriate to Lithuania and forming the conditions for the occurrence of the new research possibilities would be suggested and created *the Holistic Electronic Government Services Integration Model* on "E-Diamond" model basis. This *Holistic Electronic Government Services Integration Model* was also designed using the basis of the survey of the electronic government services provision situation in Lithuania (Limba, T, 2009, B).

It is presumable that after application and implementation of the proposed *Holistic Electronic Government Services Integration Model,* more favorable mutual conditions would be formed: to municipalities—to more effectively integrate electronic government services, and to the public – to more effectively and in a more high-quality manner make use of electronic government services provided by both larger (city) and smaller (of district) municipalities.

The practical application realization of *Holistic Electronic Government Services Integration Model* with the design of "*The project of implementing the principle of online expert consultation on the model of electronic government services*" could be created and analyzed in detail for the future investigations.

7. Conclusion and recommendations

1. Having carried out comparative analysis of stage and "E-Diamond" models of electronic government services, there are distinguished six key features of the models, such as possible levels of implementation, attributes of different levels, targeting at the customer, targeting at the inside processes, feedback, possibility to evaluate services, technological background. However, out of six features the main ones are considered to be the feature of targeting at the inside organizational processes of self-government and the feature of targeting at the customer. The latter is emphasized most of all due to the fact that it represents customers interests best.

2. The implementation of the above mentioned features is identified in the models of "Stages" and "E-Diamond". Both of them are quite equally targeted at restructuring inside processes and meeting the needs of customers. Assessing the models of "Stages" and "E-Diamond" according to this rather neutral targeting, they can be applied in economically developing as well as highly developed countries, thus can be considered to be universal.

3. Aiming at a greater universality and practical applicability of models, the perspective of model improvement should be oriented towards improvement of conceptual-holistic processes under the external and internal conditions of the public sector system. The significance of internal conditions of public sector, first of all, is to be linked with human resources management peculiarities, upgrading of their competence and qualification skills. Of course, here a great role is played also by computer technology. Thus, in this case it is essential to emphasize that application and management of specific electronic government service models at local self-government level depend on the overall holistic processes—competence of municipal officials in innovation management area, their conceptual abilities in electronic government knowledge, application and proper formation of technology skills and computer literacy. Thus, it is possible to formulate a conclusion that quality and effectiveness of electronic government services provision to consumers depend on the knowledge of civil servants, level of their ability to use information technology, external and new public consultation in electronic government service area instruments.

4. Despite the fact that in the old member states of the European Union—Austria, Netherlands, Belgium, Germany the principles of the electronic government administration are becoming a norm, having stepped through the threshold of the twentieth century, in the central and local authorities of the other European states, for example Lithuania, there is still widely applied the Max Weber's model of hierarchical bureaucracy, which impedes the success o innovations as well as the implementations

of principles and models of electronic government services. Therefore, to enable the establishment of the suggested *Holistic Electronic Government Services Integration Model* in Lithuanian municipalities, it is not sufficient to solve its application and implementation problems causing only competitive, managerial organizational changes. Practical implementation of the models of electronic government services in Lithuania should also be regulated by legal acts.

5. Provision of public services for the society is one of the realized and regularly developing functions of municipalities worldwide. The range of the services for residents and business is rather big, thus awareness of electronic government services provided by municipalities would be critical for nearly all levels of municipalities' officials. Consultations provided by experts during online consultation services based on the suggested *Holistic Electronic Government Services Integration Model,* that was created in accordance with "E-Diamond" model, could help municipalities' officials get accustomed with features of providing electronic government services to residents and business entities, as well as could provide an opportunity to become more competitive and efficient specialists in this area. What is more, the principle of online expert consultation of municipalities' officials of the suggested model could be implemented in the "back office" or/and "front office" of the public sector in Lithuania. Finally, it can be claimed that having implemented and widely applied the suggested *Holistic Electronic Government Services Integration Model*, more efficient integration of electronic government services in the local self-government level and more accurate implementation of public expectations might be anticipated.

Literature

Ancarini, A. (2005). Towards quality e-service in the public sector: The evolution of web sites in the local public service sector, *Managing Service Quality*, Vol. 15. 2005. p. 6-23.

Andersen, K.V.; Henriksen, H.Z. (2003). E-government maturity models: extension of the Layne and Lee model. *Government information Quarterly.* No. 26, 2003. p. 236–248.

Andersen, K. V. (2004). E-government and public sector process rebuilding. Amsterdam: Kluwer. 2004. p. 38-67.

Becker, J.; Algermissen, L.; Niehaves, B. (2005). Processes in E-Government focus: A procedure model for process oriented reorganization in public administration on the local level. *Accepted to the First International Pragmatic Web Conference,* September, 2005. p. 87–103.

Becker, J.; Algermissen, L.; Niehaves, B. (2006). A procedure model for process oriented E-Government projects. *Accepted to the First International Pragmatic Web Conference,* September, Germany, 2006. p. 150–183.

Bretschneider, S. (2003). Information technology, e-government, and institutional change. Public Administration Review, 63(6), 2003. 738–744.

Buckley, J. (2003). E-service quality and the public sector, Managing Service Quality. Vol 13, 2003. p 453-462.

Burn, J.; Robins, G. (2003). Moving towards e-government: A case study of organizational change processes. Logistics Information Management. 2003. p. 25–35.

Coe, A.; Paquet, G.; Roy, J. (2001). E-Governance and Smart Communities—A Social Learning Challenge," Social Science Computer Review, 2001. p. 80-93.

Davenport, T. H. (1999). Process Innovation: Reengineering Work through Information Technology, Boston, MA: Harvard Business School Press, 1999. p. 246-267.

Domarkas, V.; Lukoševičienė, V. (2006). Electronic government by the aspect of providing information for the society. *Public policy and administration,* No. 16, 2006. p. 73–86.

Fountain, J. (2001). Building the virtual state: Information technology and institutional change. Washington, DC, Brookings Institution. 2001. p. 64-78.

Goldkuhl, G. (2005). Socio-Instrumental Pragmatism: A Theoretical Synthesis for Pragmatic Conceptualization in Information Systems, in Proceedings of the 3rd Intl Conf on Action in Language, Organizations and Information Systems, Limerick, 2005. p. 115-132.

Goldkuhl, G.; Cronholm, S.; Sjöström, J. (2004). User Interfaces as Organizational Action Media, in Proceedings of the 7th International Workshop on Organizational Semiotics, Portugal, 2004. p. 124-140.

Goldkuhl, G.; Persson, A. (2006). Characteristics of Public E-services: Investigating the "E-Diamond" Model. *Accepted to the First International Pragmatic Web Conference*, September. Stuttgart, Germany, 2006. p. 54–79.

Goldkuhl, G.; Persson, A. (2006). From e-ladder to "E-Diamond"—re-conceptualizing models for public e-services. *Proceedings of the 14th European Conference on Information Systems*, Göteborg, 2006. p. 117–132.

Gronlund, A. (2002). Electronic Government – Design, Applications and Management. Hershey et al.: Idea Group Publishing, 2002. p. 61- 77.

Gugliota, A.; Cabral, L.; Doingue, J.; Roberto, V.; Rowlatt, M.; Davies, R. (2005). A semantic web service-based architecture for the interoperability of e-government services, 2005. p. 133–145.

Kraemer, K. L.; King, J. L. (1996). Information technology and administrative reform: Will the time after e-government be different? Irvine, CA7 CRITO, University of California. 1996. p. 580-582.

Layne, K.; Lee, J. (2001). Developing fully functional e-government: a four stage model. *Government information Quarterly*. No. 18, 2001. p. 122–136.

Lenk, K.; Traunmueller, R. (2001). Broadening the Concept of Electronic Government. In: Prins, J. E. J. (Ed.) Designing E-Government. Amsterdam: Kluwer. 2001. p. 63-74.

Lind, M.; Forsgren, O.; Salomonson, N.; Albinsson, L. (2004). The E-co model—citizen driving e-service quality, 2004. p. 97–124.

Limba, T. (2009) Electronic government services' maturity models: their comparative analysis. Information Sciences. VU, 2009. P. 30-40.

Limba, T. (2009). Models of electronic government services: opportunities of their application in Lithuanian municipalities. Doctoral dissertation. Vinius: MRU. 2009 P. -260.

Limba, T. (2011). Comparative analysis of Stages models and "E-Diamond" model of electronic government services, the conceptual features of their improvement. Information Sciences. VU, 2011. P. 8-23.

Limba, T. (2011) Comparative aspects of Electronic government services' maturity and "E-Diamond" models. Social Technologies, No. 1(1), 2011. P. 35-45.

Millard, J. (2003). The (r)e-Balancing of Government // e-Government: Public Administration for a New Century. UPGRADE. Vol. IV. No. 2. 2003. [2011 m. gruodžio 19 d.] Prieiga per internetą <http://www.upgrade-cepis.org/issues/2003/2/up4-2Millard.pdf>

Persson, A.; Goldkuhl, G. (2005). Stage-models for public e-services—investigating conceptual foundations. *2nd Scandinavian Workshop on e-government*, February, Copenhagen, 2005. p. 151–188.

Signore, O.; Chesi, F.; Pallotti, M. (2003). E-government: challenges and opportunities. *CMG Italy—XIX Annual Conference*, Florence, Italy, 2003. p. 231–265.

Thom, N.; Ritz A. (2004). Public management. Monograph. Vilnius: LTU, 2004, p. 55-60.

HOLISTINIO ELEKTRONINĖS VALDŽIOS PASLAUGŲ INTEGRAVIMO MODELIO KŪRIMO YPATUMAI

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Santrauka. *Straipsnyje išanalizuoti elektroninės valdžios paslaugų pakopų ir „E. deimanto“ modelių kūrimo bei taikymo viešojo administravimo institucijoje ypatumai, pranašumai ir trūkumai. Sukūrus šių modelių bendruosius požymius, jais remiantis atlikta elektroninės valdžios paslaugų pakopų ir „E. deimanto“ modelių lyginamoji analizė, pateiktos šių modelių tobulinimo koncepcines rekomendacijos. Tyrimo originalumą pabrėžia elektroninės valdžios paslaugų modelių nuodugni koncepcinė analizė išskiriant šių modelių bendruosius požymius lyginamuoju aspektu. Nagrinėjant minėtus elektroninės valdžios paslaugų modelius, taikyti sisteminės analizės, koncepcinės lyginamosios analizės ir dinaminio modeliavimo metodai leido geriau atskleisti elektroninės valdžios paslaugų integravimo viešojo sektoriaus institucijose problemas ir jų tobulinimo galimybes. Atlikta elektroninės valdžios paslaugų pakopų ir „E. deimanto“ modelių lyginamoji analizė bei detaliai išanalizuotos pakopų modelių transformacijos į „E. deimanto“ modelį dinaminės kryptys leistų efektyviau integruoti naujai sukurtus, holistinius procesus apimančius modelius į skirtingų šalių viešojo sektoriaus sistemas, reglamentuojant šių modelių taikymo ypatumus nacionaliniuose teisės aktuose.*

Viena iš įgyvendinamų ir reguliariai tobulinamų savivaldybių funkcijų visose šalyse – viešųjų paslaugų teikimas visuomenei. Šių gyventojams ir verslui tiekiamų paslaugų spektras gana platus kievienoje valstybės savivaldos sistemoje, todėl savivaldybių teikiamų elektroninės valdžios paslaugų išmanymas būtų labai svarbus beveik visų lygių savivaldybių tarnautojams. Ekspertų teikiamos konsultacijos įtinklintų ekspertinių konsultacijų metu, paremtos pasiūlytu nauju, „E. deimanto“ modelio pagrindu sukurtu holistiniu elektroninės valdžios paslaugų integravimo modeliu, ne tik padėtų savivaldybių tarnautojams geriau susipažinti su elektroninės valdžios paslaugų teikimo gyventojams ir verslui ypatumais, bet ir suteiktų galimybę tapti kompetentingais ir kvalifikuotais šios srities specialistais. Be to, pasiūlyto modelio ekspertinio savivaldybių tarnautojų tiesiogiai internetu konsultavimo paslaugų principas galėtų būti įgyvendinamas Lietuvos vidinėje arba / ir išorinėje viešojo sektoriaus sistemoje. Galiausiai galima teigti, jog sėkmingai įdiegus ir plačiai taikant savivaldybėms pasiūlytą holistinį elektroninės valdžios paslaugų integravimo modelį, būtų galima tikėtis efektyvesnio elektroninės valdžios paslaugų integravimo vietos savivaldos lygiu ir tikslesnio visuomenės lūkesčių įgyvendinimo.

Raktažodžiai: *elektroninės valdžios paslaugos, elektroninės valdžios paslaugų pakopų modeliai, „E. deimanto“ elektroninės valdžios paslaugų modelis, holistinis elektroninės valdžios paslaugų integravimo modelis, viešojo administravimo institucijos, savivaldybės.*