Civil Servants' Educational Needs
in the Field of E-Governance in CIS Countries

Lyudmila Bershadskaya, Andrei Chugunov, Dmitrii Trutnev

e-Government Center
St. Petersburg National Research University of Information Technologies, Mechanics and Optics
Kronverkskiy pr. 49, Saint-Petersburg, Russia
197101
bershadskaya.lyudmila@gmail.com
chugunov@egov-center.ru
trutnev@egov-center.ru

Abstract: Successful and effective e-governance development is impossible without adequate civil servants' qualification. E-Governance development in Commonwealth of Independent State (CIS) countries faces a lot of common hurdles, and the problem of insufficient civil servants' skills in the field of e-governance is among the top of these issues. The article represents the results of several researches dedicated to identification of actual and required civil servants skills for the successful integration of e-government in Russia and CIS countries. In the studies the authors used the following methods: gap-analysis, documents and projects evaluation, testing, expert poll. The authors propose a set of recommendations to solve the problem of insufficient qualification.

1 Introduction

The extensive use of ICT in government cannot bring the expected positive effects without the simultaneous radical change in the principles of organizing their administrative processes. These changes can be planned and implemented only if civil servants have the necessary knowledge, skills and motivation. The e-Government Center's experts (St Petersburg National Research University ITMO) actively participated in projects related to e-governance (EGOV) development, study of civil servants' educational needs, creation of training programs in Russia and the CIS since 2006. This paper presents the original research results obtained in the course of a number of projects in 2006 – 2013. The authors analyze the situation and offer practical advice to better meet the educational needs of public servants.

2 Aim and research question

The main goal of the series of studies conducted by the e-Government Center was to identify the reasons for the current lack of preparedness of civil servants for the successful introduction of e-government in Russia and CIS countries, and how to solve this problem.

The research areas were the following:

• Gap analysis of the civil servants' actual and optimal skills sets;
• Determination of existing discrepancies' reasons;
• Development of proposals for improvement civil servants' skills necessary for successful e-governance development.

3 The Current State of Research

The world best practices were studied in order to identify the optimal set and level of civil servants' skills needed for successful e-governance implementation. Analysis of scholarly publications in the subject area revealed a number of common modern trends: 1) the recognition the insufficient qualifications of civil servants is a hurdle in e-government development, 2) CIO institutions development, 3) specialized educational programs and standards design, 4) regional and international cooperation in the field of training of civil servants.

EGOV development in many countries faces a number of problems and challenges. G.Strejcek and M. Theil [ST02] based on the materials of the EU countries, emphasize the existing gap between the ambition of EGOV projects and their actual implementation. Problems connected with increasing human capacity are also on the agenda. These groups of problems include issues related to the lack of public trust in government institutions [Mi08], a loss of public interest in the political process and governance procedures [Eg08], problem with public apathy and frustration. Additionally, civil servants are ill-qualified in the fields of e-government and e-services [Jo06]. The development of adequate training programs can solve this problem, but then other issues arise: how to make training programs, for which target groups, which issues to solve etc.

The development of e-Government lead to the appearance of an unique position in the public sector – CIO (Chief Information Officer or GCIO – Government CIO). A CIO's requirements for the duties and qualifications, being mandatory for government agencies in many countries, are identified in relevant legislation, in particular, in the Clinger-Cohen Act, adopted in the U.S.A in 1996. In describing the competency-based model for top-level managers, it should be remembered that government officials at various levels are involved in the process of e-government realization. Brazilian researcher Luiz Anotio Joia proposes to divide professionals who need advanced training in the field of e-government into 5 groups: legislators, politicians, senior executives, and ordinary civil servants and state employees working in the IT sector. With respect to the position the author offers a distribution of the following courses: Process Management, Customer

Relationship Management, Information and Communication Technology, Change Management, Knowledge Management, Organizational Design, Project Management, Context Analysis, Legal Issues [Jo06]. Master's program in EGOV areas are represented at University of Albany (USA) [He11], Koblenz- Landau University (Germany), Delft University (Netherlands), as well as in Italy [BN04] and in Nordic countries [El04].

One of the most recent and comprehensive international research from United Nations University International Institute for Software Technology [EJ13] presents the results of 78 education programs' survey from 21 countries. The aim was to determine to what extent they build GCIO-relevant competencies and how much attention different programs pay to policy, design, implementation and operation aspects of the public sector Information and Communication Technology (ICT). The survey covers CIO, Electronic Government, Technology Management, Leadership, Public Administration, Development, Sustainable Development and ICT for Development programs, all analyzed using a single conceptual framework. The survey revealed, among others: 1) the programs are strongly oriented toward one discipline, 2) no one program fulfills all competency needs expected from GCIO positions, 3) such needs can be fulfilled by combinations of existing programs, and 4) a truly international GCIO curriculum is yet to emerge.

4 Research methodology

In the studies the authors used the following methods:

- Expert poll to confirm the existence of the problems;
- Comparison of the objectives and results of the e-governance projects;
- Survey of the executive authorities in Russian regions and CIS countries;
- Testing of public authorities employees' IT-qualifications;
- Gap-analysis of actual and required civil servants' IT- competences.

The empirical base of educational needs' in the field of e-government study is based on the results of research projects carried out by experts of the e-Government Center:

- e-Governance development in Russian regions and the CIS countries (expert poll, 2011- 2012, 96 experts);
- A series of sociological researches in Russian regional Administrations (2010 –2013, > 1200 civil servants interviewed);
- Continuous monitoring and analysis of the legal framework for e-government;
- Governance Strengthening Project in Turkmenistan (USAID Project, 2011, EuropeAid, 2010);
- Support to e-Government in the Russian Federation (3 EuropeAid projects, 2005 – 2011, > 1100 civil servants tested);
- The Concept of requalification system in ICT for civil servants improvement (Russian federal target program, 2009, analysis of governmental statistics, legal framework).

One of the main hypotheses to be evaluated in the course of these studies was the proposition that there exists an optimal set of IT qualifications objectively determined by the specific needs of current administrative processes performed by a civil servant, as well as by their further development goals. Any deviation in set and level of civil servants IT qualifications results in lower quality of the results of activities they initiate and manage.

5 Data analysis

Over 2002 – 2012 there was much public investment in nationwide projects aimed at e-governance development in Russia. It is logical to expect rapid positive changes in economy and society development in response to such vigorous state activity and investment growth in the use of ICT in government, but this has not happened [BCT11].

5.1 The problem of insufficient civil servants IT-qualifications

The barriers of e-governance development survey in the CIS showed that the problem of lack of IT-qualification among civil servants was indicated by experts the second most important after the failure of motivation.

Expert surveys were focused on the main e-government problems, which prevent integration and effective communication between authorities, businesses and citizens. The research expert panel consisted of most reputable experts from government institutions, IT-companies and scientific and expert organizations involved in e-governance development in the CIS. Semi-structured interviews were conducted with the experts. The methodology of this research was similar with technique used in expert poll 'E-Government development problems in Russia" held in 2011 [BCT12].

The experts were asked to evaluate a list of e-governance development problems in order to identify the most pressing and important. The lack of IT-qualification is among the top-ranked e-governance problems (Figure 1).
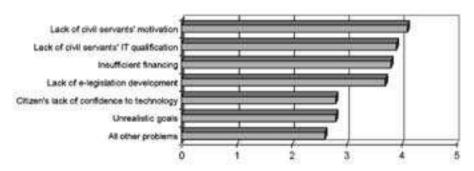

Figure 1: Expert opinion on e-governance development problems importance (5 - max)

During the study experts suggested various solutions for e-governance problems based on the experience of their own countries and neighboring countries. The majority of experts feel the need for international cooperation in the field of e-governance, supported by the joint activity of specialized groups and joint education programs.

5.2 Comparison between actual and required civil servants' skills in the field of e-governance

The authors hypothesized that the lack of specific knowledge results in poor performance of civil servants. To confirm this assumption and to identify specific areas of insufficient IT qualifications of civil servants a number of legislative acts and projects were put under scrutiny in the framework of research projects mentioned above.

The preliminary list of specific IT skills needed for successful e-government development was formed on the basis of the studied literature, and then narrowed down by generalizing the results of the study as illustrated in Table 1.

Table 1. The dependence between specific skills deficiencies and eGov development outcomes

Symptoms of IT skills deficiencies/ reasons for unsuccessful outcomes of eGov legislative acts and projects discovered in course of researches	Areas of IT skills deficiencies						
	Architectural approach	Re-engineering of admin. procedures	Modeling and analysis of AP	Management of EGov projects	Change management	Risk management	EGov quality management
Lack of congruence in strategic and operative goals	✓			✓			
Wrong performance indicators	✓	✓		✓	✓		
Lack of quality requirements for the expected result				✓	✓		✓
Lack of tutorial support	✓	✓		✓	✓		
Lack of responsibility for non-performance	✓			✓		✓	
Lack of awareness of local context	✓				✓		
Vertical translation of requirements without troubleshooting	✓			✓			
Regimentation without optimization	✓	✓	✓		✓	✓	✓
"Innovations" without improvement		✓	✓			✓	✓
Failures in project management	✓	✓	✓	✓	✓	✓	✓
Initiative seizure by the executants				✓		✓	
Non-systematic approach	✓			✓	✓	✓	✓
Exceeded budgets and unmet deadlines			✓	✓	✓	✓	

Figure 2 represents the research results (Russia, CIS, 2009 – 2012) where the levels of self-evaluated (dotted) and tested (dark) levels of IT-skills as % of required levels (100% cycle) by name of civil servants' IT skills.

It should be underlined that we take into consideration the average civil servant who are responsible for the administrative work, who set the main goals during the transition to electronic governance, but not the IT-roles who serves these electronic services.
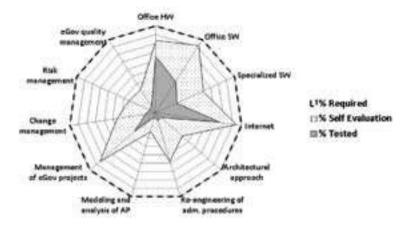

Figure 2: Self-Evaluated, Tested and Required IT skills

As we can see, the detected level of civil servants' IT qualifications is very different from the level which has been recommended by such prestigious professional organizations as INCOSE, IEEE CS, IEEE IIE, NDIA, ACM and Fostas experienced in the creation of complex information systems which certainly applies to e-Governance development.

It should be noted that the group of IT skills (Office SW&HW, Specialized SW, Internet) was related to the skills needed for current operations and use of e-government, but was excluded from the skills required for the creation and development of e-government and listed in Table 1. At the same time, research results (Russia, CIS, 2009 – 2012) shows that the most of civil servants' IT-qualification programs remain focused on these "operational" but not on "developmental" skills.

In addition to the above, the studies have revealed a major and very important discrepancy between the results of civil servants' IT skills self-evaluation (very overraited) and their actual level detected in course of their testing. Also, among the senior managers were found reluctance to acknowledge the poor results of projects, which are obvious, and link them to their and other managers incompetence.

Thus, these extensive studies of senior level civil servants IT skills showed that their existing range and level of competencies does not meet the requirements of e-government development as have been identified in previous studies. Existing training system and programs do not form the skills necessary to use ICT opportunities for administrative processes restructuring and improving and creating effective e-government solutions.

6 Conclusions

The e-Government Center experts have identified the main reasons for the occurrence of such discrepancy between required and the existing level of civil servants' skills in the field of e-governance :

- existing legislation enshrined the principle of periodic training of civil servants rather than early detection and prevention of the mismatch between required and existing skills;
- lack of methods to identify the range and level of IT-skills necessary for EGOV projects successful initiation and performance;
- de facto lack of executives' responsibility for the discrepancy between the actual level of the subordinates' IT skills and the required one;
- false orientation of training programs offered in response to the wrong demand
- lack of practical evaluation of the efficiency of training programs, based on assessing the change in compliance of the IT skills with the expectations.

Another finding is the fact that the solution for the problem could not come without close attention and support from the very top-level governors which only can set the "right" legislative and educational environment for all other civil servants.

The results of the research has fully confirmed the hypothesis that the lack of specific knowledge results in poor performance of civil servants and a deviation from an optimal set of civil servants "developmental" IT-skills leads to various negative consequences in e-Governance projects realization. To improve the efficiency and effectiveness of e-government projects the country's leaders must pay closer attention to the problems of increasing the "right" IT skills of civil servants.

To solve these problems the e-Government Center's experience contains the following projects:

- Monitoring and analysis of civil servants' IT skills.
- Shaping and developing EGOV skills models for civil servants.
- Development and implementation of training programs of two types: - Short-term training programs for civil servants and Master's-level training program in Management of Governmental Information Systems Management
- World best-practices presentation.

References

[BCT11] Bershadskaya, L., Chugunov, A., Trutnev, D.: IT Awareness of Senior Servants and It's Influence on the Results of E-Gov Projects in Russia. In: Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance

ICEGOV2011. Ed. by E. Estevez, M. Janssen. pp. 244-248. ACM Press, New York (2011)

[BCT12] Bershadskaya, L., Chugunov, A., Trutnev, D.: Monitoring methods of e-Governance development assessment: Comparative analysis of international and Russian experience. In: Proceedings of the 6th International Conference on Theory and Practice of Electronic Governance ICEGOV2012. pp.490-491 (2012)

[BN04] Biasiotti, M., Nannucci, R.: Teaching e-Government in Italy. In: Proceedings if the Third International Conference EGOV. pp.460- 463 (2004)

[El04] Elovaara, P., Eriksen, S., Ekelin, A., Hansson, C., Nilsson, M., Winter, J.: Educational programs in e-Government – An active, practice and designed- oriented network? In: Proceedings of the Third international conference EGOV. Traunmuller R. (ed.), Zaragoza, Spain. pp.464- 467 (2004)

[Eg08] eGovernment for the people: eParticipation. European Commission (2008)

[EJ23] Estevez, E., Janowski, T.: Landscaping Government Chief Information Officer education. In: Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS). IEEE Computer Society Press, Maui, USA (2013)

[He11] Helbig, N., Dawes, S., Hrdinova, J., Cook, M.: Cultivating next generation of international digital government researches: a community-building experiment. In: Proceedings of the 5th International Conference on theory and practice of electronic governance ICEGOV 2011. pp. 225- 233 (2011)

[Jo06] Joia, L.A.: Connecting the Americas through an E-Government capacity- building network. In: Proceedings of the Americas Conference on Information systems. AMCIS. pp. 139- 149 (2006)

[Mi08] Millard, G., Nielsen, M., Smith, S., Macintosh, A., Dalakiouridou, E., Tambouris, E.: D5.1a: eParticipation recommendations- first version. European participation consortium, http://www.epractice.eu/files/ePractice-Journal-Volume-7.pdf (2008)

[ST02] Strejcek, G., Theil, M.: Technology push, legislation pull? E-Government in the European Union. Decision Support Systems. 34, 305-313. (2002)