

**TOWARDS A MORE ECONOMICALLY EFFECTIVE  
E-GOVERNMENT: THE CASE OF THE TRANSITIONAL  
ECONOMY IN POLAND**

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**Abstract**

*E-government becomes an important element of the emerging e-societies. There is a great diversity of strategies, policies and results related to its introduction. Educational and cultural conditions and possibilities are vital because they generate – or not – interests in ICTs and their various applications. So capacity building for e-government is a complex process, not limited to introduction of technological and organizational actions. Moreover e-government is costly and will require soon not only social but also economic evaluation. These issues are explored in an illustrative case study of e-services in Poland.*

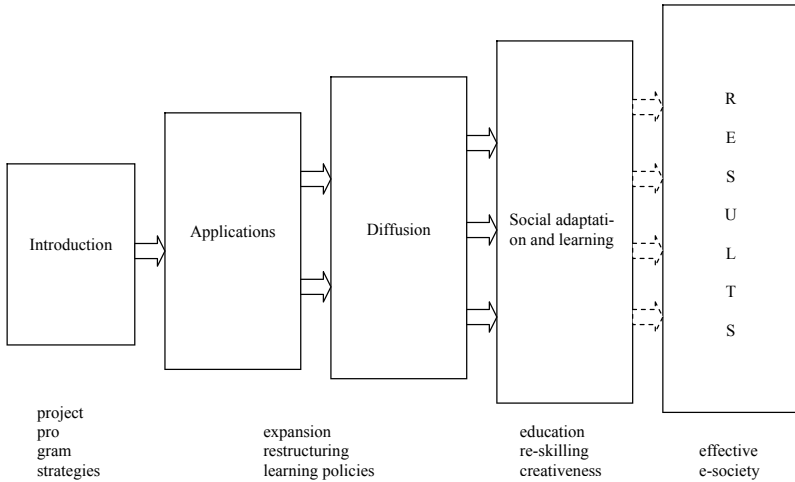
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E-government is becoming an important element of e-societies. Yet e-societies are emerging only recently, mostly in highly advanced countries or in some segments of the less developed ones. There is a great variety of programs, strategies, policies and results. Of course one can observe very significant differentiations of material, financial, political, social, educational and cultural conditions and possibilities, capacities and chances. As a result, concrete models of e-government (its structure, functioning, development trends, strategies and policies) differ significantly from one another. For some countries (which may not be the leaders in e-government), the introduction of its technological and organizational infrastructure, functions, proper competencies and skills of people involved are the value per se. Such capacity building can also be called a supply model. The role of government (central, local, and their agencies) is crucial here. So we have an installation of e-government and building its incubators. The assumption is that they will act and generate new opportunities for the multifaceted applications. On the demand side which is public or society at large, it is assumed that social learning process will occur and demand for e-services will be growing steadily. From this respect, the adaptation to new e-opportunities requires not only a good will and an interest, but also new skills and growing competencies and organizational abilities. There are some social groups requesting a special concern like the unemployed, the sick, the disabled, the homeless, the poor etc. Again, the role of government can be crucial here and various NGOs should be active as well.

So the most important issues in the introductory stage of e-government is its introduction as such, than diffusion, various applications, social adaptation and learning on both sides, the government and the citizens. The following figure captures the conceptual model of e-government strategy.



E-government introduction and development may be treated as the element of modernization, as a requirement under the conditions of the integration and globalization processes. It is to a significant extent the contemporary imposition. As a result, main expectation is the efficient functioning of e-government, not the economic effectiveness. Thus, at the initial stage of e-government the models which are implemented are supply-type, diffusional and learning ones. Economic concerns are not considered yet, although the introduction of e-government technologies and services is at least implicitly connected with the idea of diminishing public administration and its costs.

Probably e-business-like models of e-government will be characteristic for the next stage of its developments. Economic dimension and economic effectiveness of e-services ought to be properly considered. This will be again the next stage of social adaptation and learning. The model of e-government will be enriched and sound. This is not an easy challenge to meet.

This article presents the case of Poland, the country with the transitional economy (transition from former centrally-planned to market economy) and the relatively new member of the European Union. Moreover this country is not highly advanced, however processes of modernization (technology transfer, imports of modern goods, FDIs etc.) and pretty high pace of GDP growth and the very dynamic higher education constitute a significant potential for the future of e-government.<sup>1</sup>

### Definitions and beyond

The theory and practice of e-government is rapidly growing. Many new issues are being recognized, invented and discussed.<sup>2</sup> Hence more and more considerations, interpretations, and predictions are available for students of this topic. The refinement of approaches and definitions of e-government is advancing fast.<sup>3</sup> However, this interdisciplinary and future-oriented problem requires still further scientific efforts.

This is not the right place here to conduct further discussion on approaches and definitions. To start, I deem it reasonable to look for some useful operational definitions. There are, indeed, many e-government definitions. According to Sierra Systems there are online services (outward), e.g. information portals, transactional portals, electronic citizens, and government operations (inward), e.g. procurement, human resource portals.<sup>4</sup>

Sierra Systems also defines what is not e-government. For example digital democracy, e-politics, leveraging the internet to simplify the elec-

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<sup>1</sup> Lech W. ZACHER, "Poland: Technology problems in a typical transition economy." In: D. A. DYKER (ed.), *The Technology of Transition – Science and Technology Policies for Transition Countries*. Budapest: CEU Press 1997.

<sup>2</sup> *Encyclopedia of Digital Government*. Hershey, PA: Idea Group Inc. 2006.

<sup>3</sup> See Lech W. ZACHER, "E-Government in the Information Society." In: *Encyclopedia of Digital Government*. Hershey, PA: Idea Group Inc. 2006, p. 536–542.

<sup>4</sup> Daniel D'ARCHE, „E-government and ROI“. Paper presented at *FTA Technology Conference*, Spokane, Washington, August 13, 2001.

tion process and data re-sale (i.e. the sale of information to external agencies) is not e-government. It should be underlined that e-government is not e-business until it does not sell products and services.

The leading and most competitive countries have at the same time better functioning public services and highest readiness for launching e-government services. There we can observe strong relation between economy, innovation, competitiveness and quality of public administration resulting from that. A great importance to e-administration development is attached by the European Union. In April 2006 the European Commission presented an action plan for electronic administration, which constitutes an integral part of i2010 initiative (COM(2006) 173 final). The aim of the plan is to support Lisbon Strategy and other European Community's initiatives for the implementation. The Commission claims that in the situations of facing problems such as societies growing old, climate changes, terrorism and the increasing bureaucracy, electronic services may be helpful in solving them.<sup>5</sup>

In March 2005, the European Commission Directorate General for Information Society and Media published a report on online public services availability prepared by Capgemini. 28 countries were surveyed on 20 online services. In the research a four-stage development framework has been defined for online public services availability: information, one-way interaction, two-way interaction and full electronic case handling. Using 0/1 assessment it appeared that in some EU countries there is still low percentage of online public administration services available. From the same report we also learn that in 15 member states of the EU, Switzerland, Norway and Iceland there is 72 % indicator for public e-services

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<sup>5</sup> Commission of The European Communities, *i2010 e-government Action Plan: Accelerating e-government in Europe for the Benefit of All. (COM(2006) 173 final)* [online]. 2006. Available at [http://europa.eu.int/information\\_society/activities/e-government\\_research](http://europa.eu.int/information_society/activities/e-government_research) [quoted 10. 12. 2006].

availability; in all 25 member countries, Switzerland, Norway and Iceland it is 65 %, and for the 10 new member countries it is 53 %.<sup>6</sup>

The main reasons for such a low level of e-services development are: insufficient broadband infrastructure or its complete lack in some rural areas of the surveyed countries, low level of education and society awareness of ICT domain, lack of experience in electronic administration projects management and finally no central authorities' vision for such services development.

### **E-government: business or the quality of public administration services improvement?**

Majority of countries—EU new members—using financial support such as structural funds, try to make up for the backlog on the level of implementation of information and communication technology in public administration. In order to gain such a co-financing, a beneficiary must prepare an application form which then undergoes a number of stages of verification in the respect of formal, content-related, influence on other administrative areas or economy.

From the analysis of the application forms and implementation of electronic services for the public administration, not supported by the EU funds, it follows that the most important factor which is to be achieved as a result of the project is the better operation of administrative offices.

Achieving this goal will be possible by meeting partial targets such as improvement of the quality of provided services, increasing the access of administration services for citizens and business, more transparent administrative procedures, shortening the time of waiting for administra-

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<sup>6</sup> This is a web-based survey on electronic public services about online availability of public services by European Commission Directorate General for Information Society and Media *How is Europe progressing?* [online]. 2005. Available at [http://ec.europa.eu/information\\_society/soccul/egov/egov\\_benchmarking\\_2005.pdf](http://ec.europa.eu/information_society/soccul/egov/egov_benchmarking_2005.pdf) [quoted 10. 12. 2006].

tive decision, possibility of monitoring cases ongoing, or the increase of citizens' satisfaction. There are also numerous factors from civil servants' perspective such as increasing job satisfaction.

It is noticeable that this approach differs sizeably from the one we come across in ICT business projects. Financial efficiency, of course, is also taken into account but in the further perspective and not directly but through influencing citizens or enterprises. It is supposed that electronic services implementation for public administration will reduce costs, at the same time making some savings for tax payers, both citizens and enterprises.

To reach the assumed factors it is essential to implement electronic services on all levels such as G2C (Government to Citizens), G2G (Government to Government) and G2B (Government to Business), taking into consideration all the main players on the market. Difficulty in the evaluation of how a given service will influence reducing the costs of administration functioning is the effect of the lack of data necessary for its estimation, as the research in this field is rarely carried out by public institutions.

### **Evaluation of efficiency of implemented services**

The Council of European Union and the European Commission through their instruments in form of directives and ordinances influence the Member countries to realize the tasks in terms of e-government while keeping the particular technical and economical standards (Guidance, 2004). They define *inter alia* the sources of financing, financial estimation (in the part related to budget and financial benefits), not financial benefits and risk evaluation of projects' realization.

Undertakings, aiming at launching electronic services in administration require the purchase, implementation and maintaining of the adequate quantity of equipment (including software), building the necessary infrastructure and also creating and implementing dedicated software.

Capital expenses, which have to be born, very often exceed the financial abilities of public administration units which implement services and require financial support from external sources.

The European Commission elaborated the evaluation rules concerning the project re financial support.<sup>7</sup> To check whether the project requires co-financing the financial analysis is necessary: if financial net present value of the investment without financial support is negative (FNPV/C) it means that the project can be co-financed. Grants, however, should not exceed the amount necessary to assure the financial balance of the project so that to avoid the financing greater than it is necessary. Member States are obliged to present the analysis of benefits and costs to the proper units of the Commission while taking into consideration large projects in order to prove that—in terms of the goals of the EU regional policy – project is needed from economic point of view ( $ENPV > 0$ ), financial contribution is necessary to assure the completion of project in terms of financing ( $FNPV/C < 0$ ).

E-government projects do not have the commercial character and from the assumption do not generate net incomes. Therefore, discounting of incomes is not possible as well as their comparison with the amount of the incurred expenses for the investment, what means counting of internal rate of return (IRR). In such situations the economic rate of return (ERR) has been counted. It is the rate of discount for which economic net present value equals zero. In case of verification of economic rate of return the height of costs and profits, taken into consideration while counting, can be influenced also by social factors. Project is profitable if ERR is greater than zero, project is acceptable if ERR is greater or equal to the expected rate of return. At the stage of costs and benefits analysis, while considering social benefits, the economic net present value (ENPV) is used, which is the sum of discounted flows of costs and profits related

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<sup>7</sup> *Guidance on the methodology for carrying out cost-benefit analysis*. Working Document No. 4. [online]. 2004. Available from [http://ec.europa.eu/regional\\_policy/sources/docoffic/2007/working/wd4\\_cost\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/wd4_cost_en.pdf) [quoted 10. 12. 2006].



to direct and indirect beneficiaries that can be expressed in money values calculated according to accounting prices. Through the accounting prices we understand prices which are the closest to the prices, which would occur in open market economy under the conditions of perfect competition, without state intervention.

In case of immaterial costs and profits, the opportunity costs are to be taken, which means how much are we able to pay for not worsening the quality of service provision or how much we would pay for improvement of quality of provided service adequately in case of worsening or improving the quality of provided service.

As it has been mentioned before, to undertake the financial analysis the financial net present value is used. It is the sum of discounted flows of costs and profits related to direct beneficiary, expressed in money value calculated according to the market prices and financial rate of return (FRR) that means the rate of discount for which the financial net present value equals zero. Project is profitable if FRR is greater than zero, project is acceptable if FRR is greater or equal to the expected rate of return. Some of the authors give other method of calculation of the return on investment in IT in public administration – Public Return On Investment (Public ROI). This method also takes into account the return both in economic, social and political sphere.<sup>8</sup> Therefore, there is a tendency in the EU to make economical the services of e-government type.

### **Poland: a case study**

E-government may be initiated and coordinated on central or local authorities' levels. Moreover, in the EU countries some actions are defined by

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<sup>8</sup> Anthony M. CRESSWELL – G. Brian BURKE – Theresa A. PARDO, *Advancing Return on Investment Analysis for Government IT. A Public Value Framework* [online]. 2006. Available at the website of the Center for Technology in E-government, University at Albany from [http://www.ctg.albany.edu/publications/reports/advancing\\_roi](http://www.ctg.albany.edu/publications/reports/advancing_roi) [quoted 10. 12. 2006].

the directions from EU guidelines for all EU community members. As the answer to eEurope 2005 initiative, the Polish Gate project was launched, which constitutes the vision of the development in providing public services using ICT. The project plans the creation of electronic Public Administration Services Platform (e-PUAP) which is to be partially financed by the EU funds.

The most important functional areas, which are supposed to belong to the platform, are information portal devoted to available public e-services, the support for the services provided via electronic way, the support for two-way interaction, safety and access to public registers and brokers. There are many issues connected with e-PUAP functioning still unresolved, and the most important of them is the business foundations of the project. The superior aim of the platform implementation is increasing the public administration efficiency, its work transparency and fast adaptation to citizens' needs.

The example of the service provided on central level is the electronic system of driver licenses producing – *eDriver License*. Polish Security Printing Works (PWPW) produces personalized driver licenses since July 1999. It means that documents prepared by PWPW do not require any additional registration by clerical workers (placing photographs, stamping etc.) The process of implementation was conducted in two phases. In 1999–2001 there was no computer system allowing distant data transmission between the public office and PWPW. The process of disposing driver licenses was though transformed. An official filled the appropriate form and sent it to PWPW by mail. There it was scanned using OCR and that way it was implemented to the system being simultaneously verified by an operator in terms of validity. Paradoxically, such solution prolonged the process of disposing driver licenses considerably and in some cases the time of issuing the document was even longer than before the system was introduced. The next step was the implementation of such system that allowed filling the form and sending it electronically to PWPW using

satellite and radio transmission. The rate of errors decreased then from 3 % to 0,01 %.

Hewlett Packard (HP), the technological partner ensures the appropriate time of data supplying which is also required in the case of the breakdown of hardware or software. It requires from the supplier a permanent readiness for the breakdown removing. The system fulfils operates also other functionalities. The repository gives the possibility of fast verification of driver licenses issued, it enables access for the police. The system is based on the solutions of Oracle and unique servers. The next step is to give possibility of sending the document directly to the driver.

The business model assumed the financing of the investment and its later settlements with current fees connected with each transaction.

As it was mentioned, this service was built into the model of public-private partnership. Furthermore the mechanism of risk-sharing guaranteed that the system works in a right way and will be implemented on time. The more time the implementation of the system would take the longer the supplier would wait for the first payment. Of course if the implementation did not succeed the supplier would have lost. The system was designed completely by HP Poland. After three-month long pilot project in five agencies, the decision was taken to implement the system in all 400 agencies. Public offices did not buy computers, they did not even contribute to the investment in a computer system. The cost of providing connectivity, hardware service and helping end users was on the HP side. According to the applied financial model PWPW pays to HP about 3,5 USD for each transaction in this case for each document issued. Because of the fact that PWPW did not incurred any initial cost, the charge was calculated in a way that would allow to return the capital expenditures borne by HP and all operational cost of contract. Transactions are settled once a month. If the number of transactions is higher than it was assumed, the price for next transactions is reduced. The agreement between HP Poland and PWPW was in force until the end of the process of obligatory driver licenses exchange at the

end of June 2006, while the minimal number of transactions set was up to 13 million. If this number is lower, the agreement will be prolonged till the level assumed of transaction will be reached. At the time when agreement is in force, computers are owned by HP. After that offices will take them over. Cost of system was finally imposed on drivers who currently pay around 25 USD for a driving license. This amount is shared between HP and transportation office.

The next example concerns *eTaxes* project. A condition of proper functioning of the state and the realization of the established economic and social goals is the effective functioning of internal revenue services, especially in the range of tax fees collection. In every country, internal revenue administration belongs to the basic public services and provides resources for the state's operations. To provide more effective, just, and efficient realization of economic, social and administrative goals, internal revenue administration may use the mechanism based on the newest ICT, and that implemented *eTaxes* system is for.

From the analysis of the proposed financial project installment it follows that putting this service in practice demands additional financing on the level of 75 % from the European Regional Development Fund except for regular national budget finance. The system exploitation costs and restored outlay were estimated at the level of approximately 10 millions USD. The Ministry of Treasure as the owner of the system assures that the costs are below the so far level of expenditures on maintenance and exploitation of current solutions. The main social advantages are: making possible and available the access to electronic documents for tax payers, internal revenues data concerning tax payers, putting in declarations and application forms in a electronic way via internet, and a two-way interaction, as well as the integration of all units of internal revenues administration which will allow to establish the level of the backlog in payments by tax payers accounting for different taxes in different units.

During the realization of the project, the time dedicated by tax payers for formal issues and communication with offices should be reduced. It should lead to cost reduction in business activity and to the improvement in enterprises functioning. That in turn should contribute to faster economic growth which is estimated for next years on the level of 4–5 % of GNP annually.

The successive example refers to the service implemented by local government. *City Council in Częstochowa* in southern Poland has implemented the workflow, allowing for electronic process operation serving the citizens. Like many others similar cases, the main determinant is the rationalization of processes and sealing of the system. Financial benefits are taken for granted. Facing the increasing bureaucracy and its costs, it is assumed that implementation of eSystems for offices will be always profitable. Financial costs (e.g. licenses, maintenance, updating) amount to almost 40 millions USD. There is the lack of estimations regarding personal costs of persons participating in the implementation. The socio-political costs have been indicated: costs related to transition from traditional system to IT system and possibilities of the occurrence of faults in the initial phase of start up and mental resistances among employees. The owner of the system does not conduct any detailed costs' measurements as they would be long-lasting and costly due to the constant changes in law and resulting from these changes new tasks. Only one service has been estimated—the collection of taxes from real estates. It results from the estimations that the office has significant benefits coming from the implementation of e-government resulting from the savings of toner, paper, binder, etc. Besides, the service time of particular issues has been reduced.

The following example is *eLabour Board*. The Regional Labour Board in Białystok in eastern Poland has started preparations for the implementation of innovative tool—an integrated Internet portal and Contact Centre. Implementation of this system is aiming at the increase of effectiveness of activities undertaken for customers resulting finally in significant

benefits for the labour market. The implemented system will make easier the access to job offers, trainings of the unemployed, and it will enhance the contact of the unemployed with the employment services. The high rate of unemployment in this part of the country prompted civil servants to look for effective methods of its displacement. As is follows from the structure of unemployment, many unemployed people live in the rural areas. Therefore, some activities have been undertaken aiming at the use of state-of-the-art information and communications technologies. The authors of the project underline that while implementing this service, they will enable active and on-line access to all job offers and to offers of trainings improving skills. The provisions of legal rules impose on unemployed the responsibility of monthly appearance in the office. Due to the distance between the Labour Board and the places of residence of the unemployed their travel costs are high, although sometimes it is the only way to check the job offers inserted in the office. Implementation of the state-of-the-art system is meant to change this situation through the provision of tools for unemployed, enabling them quick and easy access to the most current job offers and trainings. The unemployed will have the access to the information through the network of PIAPs into which they will log in through the citizen cards.

The estimated results of the project are: free access to job offers, free dialing to Call Center, free access to professional consulting services and trainings. The success of implementation will be marked by the achievement of the above mentioned results and by the growing interest of potential unemployed in the new system.

In order to spread it among the society, mainly in rural areas, the solutions from ICT domain which are more commonly used in public administration, the public Internet access points have been build (PIAP). PIAPs play the crucial role, according to the guidelines of eEurope plan, influencing the balanced access to state-of-the-art technologies and making Internet popular as the information source. Many countries, including

Poland, still do not have the sufficiently developed broadband infrastructure of Internet access.

The most important features PIAPs should fulfill are the following: accessibility, common use, low costs on the user site, the possibility of use of different resources from one device. The building and maintenance costs are mostly on the local government side—they provide the equal access to information for all and to level the effect of digital exclusion. However, due to the high costs of maintenance (and vandalism) many countries get away from this solution in aid of free or cheap Internet access.

The aforementioned cases are the initial examples of the development of e-services in Poland. For the most part, they are aimed at the amelioration of relations between public administration, citizens and business on central and local level. Quality, efficiency and economization of resources and expenses were attained, of course step by step.

Many impositions, resources and patterns of good practice are transferred from the EU. Growing experience and economic requirements will be oriented to economically effective models of e-government.

### **Concluding remarks**

The conclusion may be twofold—optimistic and pessimistic. The very introduction of e-government infrastructure, technologies and services is important because it initiates long term processes of modernization of public administration, both on central and local level. Moreover, it imposes processes of social adaptation and learning. It stimulates education and training in this area. It definitely helps the country to catch up with countries more advanced and more experienced in e-government. Thus is extremely important and timely for the EU members (e.g. in the context of the Schengen treaty removing borders). Another positive factor stimulating e-government is probably the highest percentage of higher schools pupils entering universities in Europe. This young generation has quite

good competencies, skills and habits in using computers, Internet, mobile phones and other ICTs.

Of course, some critiques point out that all the aforementioned factors and processes are too slow, not enough influential, sometimes not efficient and economically effective, that there are hard barriers and negative side effects, too big costs, lack of sufficient number of skilled personnel in public administration, not good contacts with business sphere, limited willingness of people to use e-services and so on.

But even a mini technology assessment shows that the occurring change seems positive, promising and agenda-increasing for the future e-government developments in Poland. Of course more economically-oriented models should be elaborated and implemented, new strategies and policies developed. Proactive approach of the government and its agencies should be linked with the interests of business sphere and with propensity of the people to use e-government applications and services (e-voting, e-democracy etc. included) as creatively as possible and to adapt and learn. Then some synergetic effects can emerge. Not only better economic effectiveness can be generated but perhaps also better future society in which e-government will be a part of democratic e-governance.<sup>9</sup>

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<sup>9</sup> See Lech W. ZACHER, "The Emerging Information Society (Some questions on theory and practice)." *Dialogue and Universalism*, X, 2000, no. 9–10. See also Lech W. ZACHER, "The Way Towards a Knowledge Society – Some Barriers not only for Countries in Transition." In: G. BANSE et al. (ed.), *Towards the Information Society – The Case of Central and Eastern European Countries*. Berlin, Heidelberg, New York: Springer 2000.



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