

## EGOVERNMENT IN POLAND - RESEARCH ON POLISH POLICIES AND PRACTICES

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### Abstract

In [1] some aspects of eGovernment: interoperability were discussed. The aim of this paper is to summarize the national aspects and peculiarity in the field of interoperability in Poland (strategic frameworks, laws, regulations, implementation, specific requirements, organizational aspects, technical aspects, case studies, best practices, etc.). This information will be later on used as a part of an e-course on eGovernment interoperability course. The first part focuses on some of the organizational aspects and the effects they have on PA structures and on the performance of the services provided. In addition, the goal is also to analyze the changes that have produced some valuable innovations. The second section deals with the technological aspects, not only with the identification and exploitation of the best solutions in the field of innovation processes within the PA, but at the same time serves to detect unsuccessful attempts, analyzing the strengths and weaknesses of a given action taken in each case. The final section includes a detailed description of some success examples of a best practice and an in progress experiment of interoperability in Poland. The research was conducted within the LLP Leonardo da Vinci project „ELGI - eLearning for eGovernment” started in 2011. The project addresses its aims at the development of an innovative e-learning course for acquiring knowledge concerning interoperability.

**Key words:** egovernment, eadministration, IT systems, interoperability

## **1 Introduction**

### **1.1 Reusing of existing IT infrastructures, services and their monitoring**

In 1979 the system PESEL (General Electronic System of Population Records) was implemented in Poland. This system allows to record data about citizens of Poland. On 2 August 2006, the Steering Committee of the PESEL 2 Project was established, and from this moment on, the actual implementation of the project began. The PESEL 2 Project is implemented in compliance with the diagnosis and assumptions of the programme of the Law and Justice political party in the area of public administration computerization.[11]

The basis of the new methodology prepared by a team of experts from the Law and Justice Working Group for public administration computerization was to divide the project into several subprojects and to organize several calls for tender so as to prevent monopolization of such an important part of public administration by one IT company. Implementation of each large IT project in the 3rd Republic of Poland came down to one call for tender covering a huge amount of money and, consequently, a private company (Prokom, Computerland) brought a given part of public administration (e.g. the Social Insurance Institution) under control. This mechanism consisting in total dependence of the state's functioning on the interests of private companies was diagnosed during the previous term of the Sejm by the Law and Justice parliamentary group and Working Group experts cooperating with this group. Immediately after the first meeting of the Steering Committee, the Ministry of Interior and Administration took measures which led to the establishment of the PESEL 2 Project Office composed of such members as to make the content-related conducting of the project possible. The solution of the problem (locating it in an auxiliary unit of the Ministry of Interior and Administration) proved to be a great success. Nevertheless, it was necessary to undertake a range of activities, from the change of status of the auxiliary unit (handling establishment) of the Ministry of Interior and Administration, extending its activity with the tasks of the PESEL 2 Project Office, to the Regulation of the Minister of Labour and Social Policy allowing for employment of IT specialists on decent work and pay conditions (not in the positions of auxiliary staff). None of the central offices have decided to take such a step and applied just temporary measures with a view to „efficient expenditure of funds” without long-term collection of knowledge capital in the organization implementing the project. Free of charge IT courses delivered by the PESEL 2 Project Office for students in last years of IT studies was an integral part of the above mentioned process of building intellectual capital. At these courses, students were acquainted with the practical aspects of the functioning of large state IT systems (in particular PESEL). Some participants of the courses started work

in the PESEL 2 Project Office afterwards, and created the application of the Nationwide Registry of Issued and Lost ID Cards (OEWiUDO) – prototype of the future central database of the PESEL 2 system.

The PESEL 2 Project is the largest of all recent implementations of teleIT system in public administration in terms of the territory covered. Therefore, a working group was established, and it is composed inter alia of representatives of Offices of Voivodes and Voivodship IT Centres, which determine (together with experts from the Ministry of Interior and Administration) the so-called structure of „leading gminas”, in whose territory preliminary pilot projects will be carried out. [4]

### **1.2 Homogeneity and compliance of online services' front-end provided by public organizations**

The Polish Government has decided to make the main e-administration systems available from one page (<http://epuap.gov.pl/>). The Government named the project GATE OF Poland. The philosophy of this solution is to provide the platform to citizens, companies (portal) and administration (communication bus) to interact.[2]. Project Gate of Poland of online services e.g. tax paying, job placement, social insurance service, process of driving license and ID card service, process of document obtain from registry office, to arrange medical visit, service family and social allowance, economic activity registration.

### **1.3 Capability to provide and manage online payment services by online outlays**

In September 2008, a new PaybyNet service set up by the National Chamber of Settlements, allowed Polish citizens to pay for public services via the Internet handling many official matters without leaving the comfort of their home. The Ministry of the Interior and Administration's Public Administration eServices Platform (e-PUAP) will allow users to pay online for public administration services.

PayByNet is a secure credit payment instrument based on the credit transfer mechanism, specifically modified for the purpose of supporting electronic trade. Information about the actual payment having been made transmitted online by KIR S.A. to the Internet store gives the store a guarantee of payment and constitutes grounds for delivering goods/performing a service. Introducing the PayByNet service means setting a new standard of online sale/purchase of products such as rail and airline tickets, software licences or access codes. The high standard and security of PayByNet has been recog-

nized by the National Bank of Poland which has included it in the group of authorization and clearing systems.

#### **1.4 Customer satisfaction, feedback analysis to identify or define better services**

From September 2011 to March 2012 The Chancellery of The Prime Minister realized a project named "Customer at the Center of Public Administration". One hundred government administration offices participated in the project. The main purpose of this project was to make office work effective on the basis of customer satisfaction. Within project conferences, training and analysis of customer satisfaction was organized. The final report consists of, among other, conclusions, that IT systems functionality on the client satisfaction aspect is very limited. It is necessary to implement new hardware and software in all offices, because it facilitates effective customer service and as a consequence customers satisfaction is increasing.

#### **1.5 Citizens collaboration and e-participation**

One particular purpose of the project "Customer at the Center of Public Administration" is to increase customer satisfaction by co-projecting, co-deciding, co-producing public services. One of the final report conclusions is: "more contact with customers". The offices have to often communicate with customers and encourage them to use modern IT tools.

#### **1.6 Multi-channel PA services**

Since 1 July 2011, it has been possible to register business activities in Poland through the Internet, provided that the entrepreneur has a trusted profile or electronic signature. The Central Register and Information on Business Activity (Centralna Ewidencja i Informacja o Działalności Gospodarczej - CEIDG, in Polish), which is run by the Ministry of Economy (Ministerstwo Gospodarki, in Polish), has introduced the CEIDG-1 form to replace the EDG-1 form. The new form is available through [ceidg.gov.pl](http://ceidg.gov.pl) and [firma.gov.pl](http://firma.gov.pl) websites. Other organizational advantages - E-administration allows to improve work efficiency thanks to time and cost savings. In consequence official matters are settled better for customers. Offices information and services are more available by using web-sites.

## **1.7 Organizational advantages of interoperability of online services**

### **1.7.1 Improved circulation / exchange / delivery of data and information between PA organizations**

On 12 October 2010, the IT Projects Centre (Centrum Projektów Informatycznych - CPI, in Polish) of the Ministry of the Interior and Administration reached an agreement with a private company to build and implemented a nationwide universal platform constituting the Police's eServices communication vehicle to ensure the efficient exchange of information within the Police. This eServices Platform will provide the following services, which will be available on e-PUAP:

eProcurement; eAuctions for properties; electronic applications for weapon permits; electronic applications for licenses; eRegistration of complaints and ePolice office.

On 1 October 2009, two websites ([poszukiwani.policja.pl](http://poszukiwani.policja.pl) and [zaginieni.policja.pl](http://zaginieni.policja.pl)) were officially launched providing free access to databases containing information on wanted and missing persons.

These sites were introduced to the public at a briefing by Adam Rapacki, Undersecretary of State in the Ministry of the Interior and Administration and Inspector General Andrzej Matejuk, Chief of the Polish National Police. It was stressed that both portals will help improve the quality of investigations and assist in the identification of people escaping justice. The data, provided on the two websites, are taken from the National Police Information System (Krajowy System Informacyjny Policji: KSIP).

### **1.7.2 Responsibility**

On the basis of Computerization of the activities of entities implementing public tasks Act the offices in Poland are obliged to accept a document sent by another office by electronic media, for example e-mail, electronic incoming box.

### **1.7.3 Validation / data processing**

In June 2009, the pilot project called 'Simple Procedures Online for Cross-border Services' (SPOCS) was conducted by Poland, Austria, France, Germany, Greece, Italy and the Netherlands. It aims to develop new technical solutions for enhancing the quality of the electronic cross-border services provided by the Public Administrations. Under the EU Services Directive, by the end of 2009, each EU Member State has to establish "points of single contact", through which service providers can easily obtain all relevant information and complete all necessary procedures electronically, without having to contact several administrative or professional bodies.

#### **1.7.4 Uniqueness of data processed**

##### **Geoportal**

Poland's Geoportal is set to digitise and centralise all land-related data and information in Poland. Partly operational since the beginning of 2008, it became fully operational in 2009. The system is based on three different levels: local, provincial and central. It aims to enable users to access the systemised data that have been available only on different portals and in different institutions. The basic options of the system would include searching, exploring, downloading and converting. 'Searching' will employ geospatial solutions based on metadata. 'Exploring' means navigating, zooming and reading map legends. 'Downloading' will allow users to obtain full sets of maps, geospatial data or parts of these sets. 'Converting' will allow visitors to change spatial data sets. The nodes of National Spatial Data Infrastructure (KIIP) operate on the three levels: central, provincial (voivodeship) and district. The data bases of the register of lands and building (EGiB) are placed in the districts, while the warehouses of the topographical data are stored on the provincial level.

GEOPORTAL.GOV.PL enables access to geospatial information in the form of redirecting or indication to the outer data (any spatial data services registered in the system) and also be able to act as the data access point that indicates the source of the data (so called "one stop").

There is administrative load reduction in terms of time and cost savings. The example of such reduction has been obtained by introducing STAP

STAP, a Secure Network for Public Administration is a nationwide network linking Central Government departments, offices, agencies and Local Government. One of the projected advantages of implementing STAP is improvement of information exchange between offices and different organization register integration. It has influence on procedures`shortening and office workers` time savings. One of its primary goals are: to integrate existing public networks in order to minimize maintenance and service costs (phone, Internet access and data transmission); to increase security; to enable the interoperability of applications and to provide a communication infrastructure for the Electronic Platform of Public Administration Services (e-PUAP).

#### **1.7.5 Documents' accessibility.**

Many documents related to the topic are available in polish Internet. Most of them are freely published on Public Administration web services. The E-PUAP platform enables documents exchange between officers, in consequence these documents are accessible within short time. Often commercial organizations create web-systems and portals for offices, where there are necessary documents, e.g. legal documents, decision format.

### **1.7.6 Reusing of existing infrastructure and systems**

Geoportal (first version) has been used as the starting point to creation of the next version of the service. As we can read on the official pages of the project: “Currently completed GEOPORTAL.GOV.PL project will be continued and further developed in the following phase called GEOPORTAL 2 focusing on extension of National Spatial Data Infrastructure. This infrastructure will be part of the wider European Spatial Data Infrastructure by meeting requirements of EC Directive INSPIRE and relying on fully digitalised documents, materials and data contained in the Polish National Geodetic and Cartographic Resource”.

It is anticipated that the GEOPORTAL 2 ([www.geoportal2.pl](http://www.geoportal2.pl)) project will extend the current functionality to include among other issues:

- sharing of data selling capabilities in the electronic or paper form in the transactional mode with the use of the Electronic Charging System;
- support for spatial queries (e.g. query for the closest hospital);
- possibility to include in the systems spatial data files and services provided by third parties;
- geospatial address localization service;
- access to the geodetic network database.

The project provides for the future development of the network with interconnected diverse spatial

data infrastructure nodes that support a business process typical for the geodetic authority which

will be the owner of the node. [3]

### **1.7.7 Homogeneity / compliance of online services' front-end delivered between public organizations**

An example of compliance of online services' front-end delivered between public organization is the Public Information Bulletin (BIP). Obligatory each office has implemented BIP. Structure of menu and kind of information in BIP are defined by law.

### **1.7.8 Definition and adoption of precise expertise**

There are many projects on public administration, where definition and adoption of precise expertise have been realized. For example powiat Żnin project named “Professional personnel” [5]. One project purpose is the adoption of precise expertise between Żnin powiat offices. Another example is the project “Understanding and experience exchange platform” [6] realized by Regional Centre of Social Policy. Its assume exchange precise expertise between social assistance centres in Opole voivodeship.

## **2 Strategy for Poland in the fields of changes in organizational structure and logistics consequence of automatic processes**

The strategy of Poland for 2013 introduces many changes which will influence organizational and logistic behaviors.

The use of information and communication technologies accelerates the implementation of administrative procedures, which results in reduced maintenance costs and reduces administration time that businesses and citizens must devote to formal legal action. Officials have at their disposal easy to use tools that streamline their work. This leads to the ease of access to data by using a consistent architecture solutions and adequately secured integrating ICT solutions to individual offices.

The use of ICT in administration allowed for the introduction of solutions enabling the efficient exchange of data between offices, reducing the time needed to process the documents.

Strategy for Poland 2013 also defines the tasks for re-engineering of existing systems. This includes:

- implementation of the full range, defined by the European Union, 20 interactive public eGovernment services for citizens and business will simplify the administration, administration-citizen and administration- business communication;
- introduction of public documents in electronic form and Services provided electronically, if the essence of the matter allows;
- development of new tools and channels for providing public services electronically using an electronic signature;
- develop a common vocabulary of terms used in the interpretation of computerization, standardization of data exchange and design of electronic documents;
- promote the use of advanced electronic signature;
- developing and Construction of new domain e-Services platforms for enterprises and citizens;
- simplify billing system based on VAT invoices and electronical sending.

## **3 Certification process for interoperability**

There are many legislation laws which define the necessary standards for IT systems. The laws are provided above. One of interesting certification process initiatives was put forward with the project eadministracja.pl. Certificates issued by the Institute EITCI (European IT Certification Academy: EITC/EG/FAIS, EITC/EG/IEEGP, EITC/EG/PAIS) are a formal certification of acquired competencies to enable effective use of information technology components of eGovernment (under the IDABC program and ISA) . The cer-

tificate is obtained after completion of an e-course provided to local government staff. One of the aims of the course is the promotion of good practices and development of innovative IT solutions in public administrations. The course covers some technological, organizational aspects of e-administration. It contributes to the efforts of public administrations of Member States in terms of implementation, safety, efficiency and transparency of service.

## **4 Technological aspects**

### **4.1 Analysis of administrative information systems that meet the interoperability requirements**

E-PUAP (<http://www.epuap.gov.pl>)- The main concept of e-administration systems is to connect new systems to some central application (e.g. e-PUAP). This central application is a gateway to other services and applications. The services are provided as WEB applications (architecture). The applications that are connected to the gate are designed in different technologies of layer 2 and 3.

- Gate to Poland (Wrota Polski)
- Gate to Poland is built with the concepts of Service Oriented Architecture.
- Presentation Layer. This layer allows efficient adding of new communication channels. The main channels are RSS, NewsML, WWW, e-mail, WAP, SMS, PDA, IVR, call-centers
- Layer of services. Here, not only e-services are made available, but also a directory is connected. This allows the users to get information about the services themselves and how to use them. There are also electronic forms, search engines, personalization mechanism.
- Bridge Layer (BR). BR consists of Directory services, workflow software (which for example helps completing the registration processes, which assure the business/administration Process Management), event processors, IAAA, digital signature and e-payments features. Below, there are so called adapters which connect administration departments, Certification Centre, etc.
- There are four roles within the system (logical architecture):
- Directory - in its most simple role, just presenting links to services and integrating of the content;
- Gateway - IAAA, initiating of the services (e.g. sending the form that has been filled by the user);
- Notifier - event manager;
- Coordinator - inter-department business process manager.

## **4.2 Some standards and technical rules for implementation of online eGovernment systems**

Standard 1: SOA - 11 of 18 administration services are designed as SOA, web architecture. Service Oriented Architecture (SOA) is a business-centric IT architectural approach that supports integrating any business as linked, repeatable business tasks, or services. With the Smart SOA approach, the user can find value at every stage of the SOA continuum, from departmental projects to enterprise-wide initiatives. [7]

Standard 2:.NET 8 of 11 institutions use this technology and standards for their applications. .NET is an integral part of many applications running on Windows and provides common functionality for those applications to run. This download is for people who need .NET to run an application on their computer. For developers, the .NET Framework provides a comprehensive and consistent programming model for building applications that have visually stunning user experiences and seamless and secure communication. [8]

Standard 3:

J2EE - 3 of 11 institution use this technology and standards for their applications. Java Platform, Enterprise Edition (Java EE) 6 is the industry standard for enterprise Java computing. Utilize the new, lightweight Java EE 6 Web Profile to create next-generation web applications, and the full power of the Java EE 6 platform for enterprise applications. Developers will benefit from productivity improvements with more annotations, more POJOs, simplified packaging, and less XML configuration[9].

The main technological aspects are:

- demand for Webservices Architecture;
- built with the concepts of Simple Object Access Protocol;
- built with Universal Description, Discovery and Integration;
- built with Web Services Description Language.

It is expected that more web-oriented standards will be added as they are available and mature enough.

The systems should be built on the basis of

- .NET technology;
- Java Enterprise Edition;
- Linux/Apache/MySQL/PHP systems.

## **4.3 Existing methodologies in the management of IT services**

Since the e-administration systems are designed and created by different companies (private and government owned) they use different methodologies of IT management. Often ITIL, Price2 and PMI standards are used in PA. ITIL is mainly focused on service delivery in the IT sector, whereas Prince2 and PMI cover all sectors.

Prince2 & PMI are focused on managing projects, pieces of work that have a beginning and end. The work could be large, like building a call centre, or small, like a social event. ITIL is focused on service delivery, the stuff that happens after you have built your “thing” in the project. For example, once you have built your call centre in your project, there will now be on-going work where the people in the call centre answer the phone. This service delivery goes on and on for as long as the call centre exists.

#### **4.4 Authentication tools for electronic identification interoperability**

The e-administration systems are typically equipped with smart card readers (administration users). The companies and private users can use smart cards and electronic signatures. E-PUAP also provides a so called Secured Profile. This method of authentication can be achieved in two steps.

The first one is issued electronically (the user fills the electronic form). Then the user has to go to the administration office and confirm his identity. From now on he is recognized by the e-administration systems. This method of authentication is free of charge, easy to deploy. There is another method described above, the so called Trusted Profile

#### **4.5 Tools for unattended access to services and information in public places**

Since the eAdministration systems are web-based they can be accessed from any place. Generally speaking, the administration offices do not provide equipment for users to access the services. Many local offices and cities provide internet access (Wireless access) which helps the users to connect to the systems using their own computers. Many offices make available multimedia kiosks for customers who can use e-services. For example Małopolskie voivodship realized a project named “E-administration systems extension in Małopolska”. Under the project offices bought 150 multimedia kiosks.

#### **4.6 Online services directory and search engine platforms for PA online services**

The created eGovernment systems contain the sophisticated search engines incorporated into the system features. This is a part of WEB-oriented platforms.

One of the direct purposes of the E-PUAP2 project realized by IT Project center is services directory referred to simplification using e-services by studies systematic of these services by using directory form. The service directory

has? ordering tools, it allows the use of uniform names of services by all offices.

E-PUAP implemented technologies such as:

- Service Oriented Architecture (SOA);
- Open standards xml, SAML;
- scalability hardware;
- reliability;
- IBM applications.

## **5 Best practices and systems on trial**

In this part of the article some best practice examples are described

### **5.1 BIP and e-Deklaracje**

Public Information Bulletin (BIP) is a web system used to grant the citizens access to public administration information. Access to information is possible via:

- newsletter home page located at [www.bip.gov.pl](http://www.bip.gov.pl), containing basic information on administration entities (name, contact details, information on the editor page), along with links to selected offices;
- links to public administration entities' web sites, with information about their activities.
- Addresses of these pages can be found in the main BIP.
- Public Information Bulletin is a step in the way to providing all coherent, complete and timely public information. System BIP implemented several often open source technologies, such as Linux operating system, Apache Server, MySQL database, secure technologies (SSL, TLS, SSH). Content management systems (CMS) and frameworks are used to implement BIP, too. In this project all public offices are involved.
- Since 2009 the Ministry of Finance has introduced the system for taxpayers ([www.edeklaracje.gov.pl](http://www.edeklaracje.gov.pl)). The system was developed in such a way that the taxpayer can use it virtually without any effort. It is intuitive, user-friendly, guides him through the steps required to prepare, and then send the declaration. There are many advantages of the system, it has many useful technologies, such as drop-down list of fields; mandatory fields are marked with brackets and further described. In addition input validation was programmed. Security of data transfer is ensured by requiring authentication of the declaration (qualified electronic signature, or as simple and costless: the taxpayer has to "sign" his declaration by providing information of amount shown of the previous income tax return). E-deklaracje implements Adobe AIR technology (<http://www.adobe.com/products/>

air.html). The Adobe AIR runtime enables developers to deploy standalone applications built with HTML, JavaScript, ActionScript®, Flex, Adobe Flash® Professional, and Adobe Flash Builder® across platforms and devices — including Android™, BlackBerry®, iOS devices, personal computers, and televisions.

- Ministry of Finance presents data about using the e-deklaracje system. 2,1 million declarations were sent in 2011. It is a 100% increase in comparison with 2010. 53% of persons aged 21-40, 17% of persons aged 41-60 and 8% of persons aged 61 or more sent a declaration using internet. Ministry of finance and all tax offices are involved in this project.

## 5.2 System on trial

In Poland there are more and more systems that are made available to public.

SORBNET - billing system for large-value settlements, run by the Polish National Bank. SORBNET supports banks' current accounts held at the NBP for interbank settlements. It belongs to the class of RTGS systems (called Real Time Gross Settlement) or allowing wholesale accounts in real time. Now new version of the system (SORBNET2 is on the tests). The SORBNET was launched in March 1996, replacing the SORB that had been in operation since April 1993. Although SORB had fulfilled the basic requirements of an RTGS system, it had not been a fully efficient system since banks could present their payment instructions only on paper or a floppy disk. Since December 1998 all banks have been able to transfer their instructions electronically.

Operating rules for the SORBNET system are specified in the resolutions of the NBP Management Board and in the bank account agreement, concluded between the NBP and the bank, which has its settlement account maintained in the NBP Head Office in the SORBNET system. The resolutions cover access criteria, types of payments to be processed, general prerequisites concerning technical infrastructure and pricing, while the agreement provisions, which are identical for all banks, regulate time of operation and other operational details.

As of 31 December 2001, there were 62 banks participating in the SORBNET system. The requirements for banks wishing to become participants in the SORBNET are specified in the Resolution No 14/2000 of the NBP Management Board on terms for opening and maintaining accounts of banks with the National Bank of Poland of 31 March 2000, subsequently amended in December 2000 and in December 2001. Banks that wish to open a settlement account with the NBP have to meet the following requirements:

- the bank has to have been conducting operational activity for at least 6 months;
- financial standing of the bank has to be considered by the NBP as appropriate;

- the bank has to meet specified technical requirements enabling electronic exchange of payment orders messages and other information between the bank and the NBP;
- it has to receive a positive rating of the relevant tests from the NBP.

Additionally, in the SORBNET system there are banking accounts handled for two clearing agents, i.e. the KIR [10] and the KDPW.

The SORBNET settles banks' payment instructions related to the interbank money market, foreign exchange and securities market transactions, transactions between banks and the NBP. The SORBNET can be used for processing payment instructions sent by banks on their own behalf or on behalf of their customers (for large value and/or urgent payments). A large value customer's payment is equivalent to the amount above PLN 1,000,000 (EUR 272,480). The system is also used for settling banks' obligations arising from clearing systems: net positions arising from the KIR related to the retail payments and net positions arising from the KDPW related to the capital market.

In general, participants may access the system between 7.30 a.m. and 6 p.m., while customer payment orders may be sent till 4 p.m. However, between banks participating in the "Interbank Agreement on the Rules of Co-operation between Correspondent Banks" customer payment orders may be sent till 5 p.m. After 6 p.m. payment messages are no longer accepted.

Messages transferred between banks and the NBP are encrypted for confidentiality purposes and an electronic signature is used to ensure authenticity, integrity and non-repudiation.

The flow of information between banks and the SORBNET is V-shaped. Banks send the payment orders to the central bank, which informs the sending and receiving bank of the settlement.

Banks' instructions are transferred to the SORBNET system via electronic post. In the event of any disruption in the system, the instructions concerning banks' payments can be transferred on a floppy disk or on paper (including via fax). Instructions filed on paper have to be registered at the NBP. The customer payment instructions can be transferred on a floppy disk only.

E-administration systems are developed in the following architecture.

Citizen<=>Administration<=>Business

The cores system allows communication between the eGovernment departments. The business uses the eGovernment systems through the provided web services or can use plug-in or has to install software on local computers.

Another of the possibilities is to allow the full use of eGovernment systems (e.g. ePUAP) to integrate with external systems for both service providers and recipients. The integration enables combining different applications and thus to automate and simplify the exchange of data.

Such integration allows:

- sending, receiving, treatment of documents;
- payments;

- delivery of dictionaries - collection of data dictionaries, with the exception of their updates,
- collecting information about the subject;
- events Subscription (to be notified by the occurrence of certain events, such as modification of settings);
- document management within the storage;
- one point of authentication SSO (single sign-on) or the transmission of identity.

## ABBREVIATIONS

BIP	- Public Information Bulletin
CEIDG	- Central Register and Information on Business Activity (Centralna Ewidencja i Informacja o Działalności Gospodarczej)
CPI	- IT Projects Centre (Centrum Projektów Informatycznych)
DVC	- Data Validation and Certification
ePUAP	- Electronic Platform of Public Administration Services
ICC	- Circuit Cards
KDPW	- Krajowy Depozyt Papierów Wartościowych
KIIP	- National Spatial Data Infrastructure
KIR	- Krajowa Izba Rozliczeniowa
KSIP	- National Police Information System (Krajowy System Informacyjny Policji)
NBP	- Polish National Bank (Naridowy Bank Polski)
NIF	- National interoperability framework
PEPPOL	- Pan-European Public Procurement Online
PESEL	- General Electronic System of Population Records
PIT	- Personal Tax Declaration
PZ	- Trusted Profile (Profil Zaufany)
REGON	- Company Registration Certificate
RTGS	- Real Time Gross Settlement
SOA	- Service Oriented Architecture
TP	- Polish Telecommunication
ZUS	- Social Security Service/ Social Insurance Institution (Zakład Ubezpieczeń Socjalnych)

## References

1. Goetzen P., Chmielecki M., Hernes M., *eGovernment in Poland – research on Polish Policies and Practices – part 1 [in] Computer Methods in Practice Academic Publishing House Exit, Warsaw 2012*

2. Rozporządzenie Rady Ministrów z dnia 11 października 2005 r. w sprawie minimalnych wymagań dla rejestrów publicznych i wymiany informacji w formie elektronicznej  
<http://isap.sejm.gov.pl/DetailsServlet?id=WDU20052141781>
3. Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 27 kwietnia 2011 r. w sprawie zakresu warunków korzystania z elektronicznej platformy usług administracji publicznej  
<http://isap.sejm.gov.pl/DetailsServlet?id=WDU20110930546>
4. Rozporządzenie Ministra Finansów z dnia 19 grudnia 2007 r. w sprawie określenia rodzajów deklaracji, które mogą być składane za pomocą środków komunikacji elektronicznej  
<http://isap.sejm.gov.pl/DetailsServlet?id=WDU20072461817>
5. *Profesjonalne Kadry – Sprawne Urzędy Powiatu Żnińskiego*,  
[http://www.administracja.znin.pl/index.php?option=com\\_content&view=article&id=51:informacjeo-projekcie&catid=25:the-project&Itemid=57](http://www.administracja.znin.pl/index.php?option=com_content&view=article&id=51:informacjeo-projekcie&catid=25:the-project&Itemid=57))
6. Platforma porozumienia i wymiany doświadczeń, <http://pokl.rops-opole.pl/index.php?id=16>
7. *Service Oriented Architecture (SOA)*, <http://www-01.ibm.com/software/solutions/soa/>
8. .NET, <http://www.microsoft.com/net/>
9. Java EE at a Glance,  
<http://www.oracle.com/technetwork/java/javae/overview/index.html>
10. *Mission Statement*, <http://www.kir.com.pl/main.php?changeLang=en>
11. *Implementation of the PESEL 2 Project* – statement of Piotr Pięta, Deputy Minister of Interior and Administration, (2007), Ministry of Interior,  
[http://www.msw.gov.pl/palm/en/1/331/Implementation\\_of\\_the\\_PESEL\\_2\\_Project\\_statement\\_of\\_Piotr\\_Pietak\\_Deputy\\_Minister.html](http://www.msw.gov.pl/palm/en/1/331/Implementation_of_the_PESEL_2_Project_statement_of_Piotr_Pietak_Deputy_Minister.html)