Electronical data exchange between agricultural companies and state administration in the Czech Republic

Jan Jarolimek¹, Jiri Vanek¹, Pavel Simek¹, Jan Skerle²

1 Czech University of Life Sciences Prague, Faculty of Economics and Management, Department of Information Technologies, jarolimek@pef.czu.cz
2 CCV Information systems, jan.skerle@ccv.cz

Abstract

The year 2008 is a turning point for the development of eGovernment in the Czech Republic; the acceptance of Government act is awaited; this introduces the obligation of electronic data exchange between state administration and business subjects (government to business - G2B). The sphere of agriculture does not stand apart.

The Department of Agriculture of the Czech Republic is the central authority of the state administration for agriculture, water resources management, food processing industry, forestry, hunting and fishery. In its administration it has a range of departmental registers. For example: Register of farmland, Register of animals, Register of vineyards, Register of hop-gardens, Register of intensive plantations, Register of agricultural subjects etc. The electronic data exchange between these registers and agricultural entrepreneurs; which will be faster, more effective and more economical than the paper forms; is a big call appeal for the development of eGovernment in the department of agriculture.

The current valid legislation obliges the agricultural subjects to hand in the whole range of declarations and announcements to the resort registers. In paper form this means a big ration of duplicate notations which an agricultural company has to fill in, and with this corresponding error rate and work difficulty. Agricultural subjects need also to know data from resort registers; above all, while processing the grants applications. The farmers could gain the needed information only in the form of paper extracts from the registers which constitutes a time demanding and expensive agenda.

The abstract deals with the problematics of implementation of electronic register of vineyards, as one of the first projects of the prepared electronic communication. It describes the implementation from the technological, organizational, personal and economical view.

Keywords: eGovernment, electronic data exchange, agriculture, farmer, information, vineyards

Introduction

The year 2008 is a turning point for the development of eGovernment in the Czech Republic; the acceptance of Government act is awaited; this introduces the obligation of electronic data exchange between state administration and business subjects (government to business - G2B). The sphere of agriculture does not stand apart.

The Ministry of Agriculture of the Czech Republic is, according to the acts number 2/1969 and 272/1996, the central authority of the state administration for agriculture, water resources management, food processing industry, forestry, hunting and fishery. In its administration it has
a range of departmental registers. For example: Register of farmland, Register of animals, Register of vineyards, Register of hop-gardens, Register of plantations, Register of agricultural subjects etc. The electronic data exchange between these registers and agricultural entrepreneurs; which will be faster, more effective and more economical than the paper forms; is a big call appeal for the development of eGovernment in the department of agriculture. 

The current valid legislation obliges the agricultural subjects to hand in the whole range of declarations and announcements to the departmental registers. In paper form this means a big ration of duplicate notations which an agricultural company has to fill in, and with this corresponding error rate and work difficulty. Agricultural subjects need also to know data from departmental registers; above all, while processing the grants applications. The farmers could gain the needed information only in the form of paper extracts from the registers which constitutes a time demanding and expensive agenda.

**Register of vineyards, hop-gardens and plantations**

To date, there was no unified system of registers; and so, it concerned separate information systems without any sequence, including Register of vineyards, hop-gardens and plantations. The registers did not involve support of processes connected with a new legislature (related to the access to the European Union). In all cases it concerned local installations. That signified limited possibilities of usage. The registers were not prepared to cooperate and share information with other information systems.

Namely, it involved information systems of these subjects:
- Ministry of Agriculture of the Czech Republic
- State Agricultural Intervention Fund
- Czech Agriculture and Food Inspection Authority

Each of the registers was administrated by a different IS/IT company. The registers were not developed in the same way, they did not share mutual dials.

Registers of vineyards, hop gardens and plantations were chosen for pilot examination of a possibility of unification; and above all, for verification of a possibility of verified electronical data exchange between farmers and state administration.

The information system of Register of vineyards, hop-gardens and plantations (further as special registers or SR) was created by CCV company for Central Institute for Supervising and Testing in Agriculture, which is the main user of the information system of special registers. The investor and the highest authority in the managing commission of the project was the Ministry of Agriculture of the Czech Republic.

Central Institute for Supervising and Testing in Agriculture is established by the Ministry of Agriculture of the Czech Republic as a specialised body of state administration. It accomplishes administrative procedure and executes other administrative activities, professional and examinational operations, monitoring and supervision activities in the field of variant quality control, fodder, agricultural chemistry, soil and plants nourishment, seeds and planting of cultivated plants, lasting cultures (viniculture and hop growing) and in the field of animal production. The process is arranged at workplaces in the area of the whole Czech Republic.

From imperfections of the initial state arose the following requirements on the final solution:

1. To create a completely new and integral application for all three registers
2. To support proceedings which arose from new legislature
3. To use a three-layer architecture – to enable users to access by means of web forms
4. To implement cooperation with information systems of other subjects - Ministry of Agriculture of the Czech Republic, State Agricultural Intervention Fund and Czech Agriculture and Food Inspection Authority.

**Applied technologies**

Information system of special registers was created through the use of ORACLE technology, specifically product Oracle Portal, built up on the newest version of database Oracle 10g Release 2 and application server Oracle AS 10g. The whole Oracle technology was installed on a host center Nagano which is administered by Telefónica O2, Czech Republic.

Along the installation, a complete communication infrastructure was prepared, including the LDAP server as a part of Oracle Internet Directory which serves as a deposit of identities; and further SSO (Single Sign-On) server which serves to ensure a single enrolment of users to all registers. Part of the solution is also a use of Oracle RAC (Real Application Cluster) technology. The whole project was implemented by SDLC (System Development Life Cycle) methodologies.

**Integral administration of identities – LDAP**

All registers had to reach the final state in which the users identity is being verified against a single deposit of identities – LDAP server of Ministry of Agriculture. For users it remains sufficient to use just one login name and password for registration to all departmental systems.

**Single enrolment to all registers – SSO**

The final state was to enable a user to login just once. After a login, all registers must roll up without the need to enter through a login name and password once again.

The authentication of a user in the registers is provided by SSO server. And so, all providers of registers had to provide the users authentication in cooperation with SSO server of the Ministry of Agriculture.

**Access to the registers by means of a public network internet**

Till the implementation of this project, departmental registers were accessible only through an internal network of state administration GovNet. One of the requirements of the proposed solution is to ensure technically that users from a range of public get to their data from registers by means of a public network internet.

**Electronic delivery authority**

Part of it is also an Electronic delivery authority which communicates with SSO server for the users authentication, with LDAP server for verification of identity of a delivering subject and with each register for needs of the delivery itself as well. For an electronical delivery a digital signature certificate is essential.
Discussion

The above described special registers were launched in the year 2007. The application which should cover the whole section of agriculture in the Czech Republic is the so called Portal of a Farmer. The final solution should involve an integral electronic communication of all users (farmers and civil officers) and accessibility of all information about each subjects. A linkage with the so called central registers prepared within the State information policy „eGon“ is also essential.

Register of inhabitants
Register of corporate bodies
Register of real estate and territorial identification
Register of rights and duties
Development of eGovernment is not only development of information and communication technologies (ICT) usage in the state administration, substitute to paper by electronical media or substitution of ordinary signature by electronical; but first of all, it is a change in procedures and thinking of people. This is likely to bring a whole range of unexpected difficulties and problems. We shall be glad, that we live in a period which brings so many challenges and opportunities for fulfilment.

Pieces of knowledge introduced in this paper resulted from solution of an institutional research intention MSM 6046070906 „Economics of resources of Czech agriculture and their efficient use in frame of multifunctional agri-food systems”.

References

3. Case study „Special registers“, CCV, Brno, 2007