



# INTEGRATED ADMINISTRATION AND CONTROL SYSTEM (IACS)

## 2005 COMPUTERWORLD HONORS CASE STUDY

### GOVERNMENT & NON-PROFIT ORGANIZATIONS

A COMBINATION DATABASE, LAND PARCEL IDENTIFICATION SYSTEM, INTEGRATED CONTROL SYSTEM, AND ANIMAL IDENTIFICATION AND REGISTRATION SYSTEM MAKES DISTRIBUTION AND CONFIRMATION OF AID FOR POLISH FARMERS POSSIBLE. [20055382]

*A Search for New Horizons*



### SUMMARY

Integrated Administration and Control System (IACS) developed by the Agency for Restructuring and Modernisation of Agriculture is the basic tool used for managing the system of payments to agricultural land and other mechanisms of the Common Agricultural Policy implemented within the European Union. IACS is a complex IT tool, which makes distribution and check of aid for Polish farmers possible. Implementation and application of IACS guarantees that transactions financed from the European Union budget within the Guarantee Section of the European Agricultural Guidance and Guarantee Fund (EAGGF) are performed in accordance with the binding provisions under national law and EU legislation. The basic legal act that lays down the rules for IACS development in Poland is the Act of 18.12.2003 on the national system of registration of agricultural producers, agricultural holdings and applications for payments /Journal of Laws Dz. U. of 2004, No 10, item 76/. The IACS consists of: • Computerised Database, where data obtained from applications for assistance is recorded for each holding, • Land Parcel Identification System /LPIS/, developed on the basis of maps and documents from the national land register, cartographic data or aerial/satellite pictures, • Register of applications for payment, • Integrated Control System covering all submitted applications for assistance, • Animal Identification and Registration System.

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### APPLICATION

IACS development in Poland was commenced in December 1999 through the implementation of two projects within the Poland and Hungary Assistance for Reconstructing of their Economies /PHARE/ programme. Early capital expenditure (hardware, earmarks and animal passports) had been made, training for employees responsible for system implementation in Poland was started, contacts with experts from EU Member States where IACS has already been operating had also been established.

In November 2000 the Agency for Restructuring and Modernisation of Agriculture invited bidders to tender for the development of the Integrated Administration and Control System in Poland.

The tender covered the supply and implementation of software as well as the development of relevant technical and logistic infrastructure.

As a result, an agreement with the Hewlett Packard company has been concluded on 28 June 2001; it concerned assigning HP the task of developing the IT part (development and implementation of all IACS IT sub-systems) and the organisational part (analytic works, developing organisational structures – employment of staff and organisation of training for IACS system employees). Given the extremely high costs of the undertaking, this agreement was re-negotiated on a later date.

As a result, the organisational part of the project has been excluded from the agreement. Therefore, the project was divided into two parts:

- IT part of the system (implemented by HP),
- Non-IT part of the system (implemented by ARMA).

It should be emphasised that the strategic goal of the Agency for Restructuring and Modernisation of Agriculture in the pre-accession period was to obtain accreditation as so called a Paying Agency /institution operating based on European Union legislation, fulfilling the criteria required by the UE/ and arrive at a full operational readiness as regards the management of payments to agricultural land, Rural Development Plan and fruit and vegetable market.

In order to arrive at this readiness, ARMA had to meet the accreditation criteria, the most important of which was the development of the Integrated Administration and Control System.

Consequently, a detailed schedule for IACS development has been established in the form of the so-called Master Plan under the name of - "Tentative activities within the framework of the Integrated Administration

and Control System implementation”.

Under the IT part of the system (CIS), HP has distinguished 8 sub-systems:

1. Holding Register Sub-system, covering all operations concerning registration and up-date of data about the holding and the farmer/agricultural producer. It is the basic CIS sub-system, where data about farmers and agricultural holdings is entered and processed as indispensable for the implementation of most remaining tasks of application software.
2. Direct Payments Subsystem, covering processing of applications for payment both on account of plant production and animal breeding.
3. Special Crops Sub-system, covering processing of applications for payment on account of hops, tobacco and dry feed production, as well as management of checks of crops for non-consumption purposes on set-aside areas.
4. Accompanying Measures Sub-system, covering processing of applications for payment under the Rural Development Plan (initially only two measures were included: structural pensions and processing of payments on account of farming in less favoured areas)
5. Paying Agency Sub-system, covering functions related to the following activities: payment execution, accounting for payments, payment recovery, financial plan management, financial reporting.
6. Animal Identification and Registration Sub-system, covering all operations related to keeping the register of animals (cattle, sheep, goats):
  - a. notification about animals (births, change of location, slaughter),
  - b. applications for earmarks,
  - c. issuance and return of animal passports.
7. Ancillary and Joint Functions Sub-system, gathering functions used by the remaining subsystems or performing the management of ARMA action areas, not connected directly with aid schemes.
8. Data Analysis Sub-system (the so-called data warehouse), covering a collection of functionalities, realising the CIS reporting in the broad sense, and covering: standard reports, data analyses, non-standard reports.

The following designs have been elaborated as a result of analytical and design works under CIS:

- Design of the application software architecture, which has become the basis for all works on further stages of IACS software development,
- Technical design of CIS infrastructure, which has become a basis for all works aiming at the development of infrastructure necessary for CIS purposes (structural wiring development in all units of IACS, installation and configuration of active facilities for the purposes of computer local and wide area networks - LAN/WAN, installation and configuration of hardware necessary for CIS together with the installation of system and standard software, launching ancillary sub-systems – of data storage, management, security, e-mail, verification of user authorisation).

At the same time, intensive works on the development of the Non-IT part of the system were under way in the Agency. The main elements of this process were the following:

- Elaboration and implementation of the target ARMA organisational structure as a Paying Agency. Three-level division reflecting the administrative division of Poland was chosen. It was agreed that ARMA District Office would be established in each district (essential tasks of its employees consist in receiving applications for payment and registering them in the system, the District Office Manager issues the decision to grant payment). The Agency has its Regional Office in each of the 16 provinces (appeal process and on-the-spot check process are performed there; the latter consists in verification - based on an application sample – of correctness of data from applications for payment by way of a visit in a selected agricultural holding). Functioning of the whole Agency is co-ordinated in the Headquarters, where payments are executed and accounted for.
- Elaboration of written procedures covering the flow of all matters in the Paying Agency and the IACS system, i.e. from submission of the application for payment up to payment execution and performance of all

checks planned, and regulating administrative, business, register and security processes. Procedures can be divided into 4 main groups:

- o implementation procedures;
  - o financial and accounting procedures,
  - o animal identification and registration procedures,
  - o horizontal procedures (not connected directly with the management of the agriculture payments process).
- Employment of staff and ensuring necessary office space and means of transport,
  - Organisation of training both for ARMA employees operating the IACS system and for farmers.

In January 2002 the European Commission has suggested candidate countries about to enter the European Union structures using the so-called simplified payment system /SAPS – Single Area Payment Scheme/, as opposed to the standard system operating before.

In November 2002 the Council of Ministers has decided that Poland will employ the simplified system.

For that reason, the IACS development concept had to be strongly modified. Changes in the Non-IT part of the system were so substantive, that the IT part had to undergo significant modification.

It was necessary to elaborate and implement a totally new IT functionalities. Analysis has been made in respect of the solutions and products already designed that could be used during IACS development for the simplified payment scheme.

A schedule for the development of a simplified system application was then drafted.

It was divided into 4 phases:

Phase I:

Preparation of the part of the IT IACS system processing applications for direct payments under the simplified system. Under this phase the following elements were to be developed:

- processing of applications for area payments,
- payment calculation model,
- model for administrative check of applications,
- on-the-spot check model

These elements had to be realised if ARMA was to obtain accreditation as a Paying Agency.

Phase II:

Preparation of complementary software as regards processing of applications and basic data warehouse (storage of reports from different periods and sources, enabling their comparison).

Phase III:

Extension of the IT system with additional application elements: holding register, data warehouse, LPIS - Land Parcel Identification System and on-the-spot check.

Phase IV:

Extension of interfaces for external systems and mechanisms enabling wider use of information collected in databases and LPIS.

The result of the great work performed by ARMA employees and external companies participating in IACS development was the pronouncement of ARMA a Paying Agency on 27th of April 2004.

It has a three-tier hierarchical structure, while the administration system and IT system databases are central. All ARMA organisational units, both in the Headquarters and at regional and district level have an IT network connected to the central database.

District Offices of the Agency receive applications for various payments (first applications were submitted on 15 April 2004), enter the data from applications into the system, carry out administrative checks in the system, and in the event of any problems - clarify the doubts of prospective beneficiaries and authorise payments. All the operations performed by system users are recorded in the system, a history of changes is also kept.

Regional Offices supervise and control District Offices, they are responsible for organisation and logistics of the system.

The Agency is in possession and keeps all register resources in electronic format, ensuring data protection and security in the event of a loss or unauthorised access to it.

At present, IACS consists of:

1. Computerised database owned by ARMA and including:

- Register of producers

It includes subject data: full name or producer's name, address of the place of residence or registered office, PESEL (personal identification number) and REGON (National Official Register of Economic Entities number), tax identification number (NIP), particulars of the proxy, if he was appointed, and the bank account number, as well as ID number assigned when making entry to the register of producers.

- Holding register

It contains data concerning agricultural holding area, area of cadastral parcels on which agricultural parcels are located, as well as data enabling identification of agricultural parcels forming an agricultural holding (area of agricultural parcels, location of agricultural parcels together with numbers of cadastral parcels on which they are located, and the way agricultural parcels are utilised). Holding register database is made on the basis of data provided in the application for area payment, and therefore is subject to annual update.

2. Register of applications for payment

It covers data regarding: deadlines for submission of applications for payment, account of granting payments, area of agricultural parcels, sums and basis for payment calculation, including results of all checks and the amounts granted and paid, together with dates of payments' granting and execution, as well as periods for which they were granted and paid out.

3. Land Parcel Identification System /LPIS/

It aims at a nationally univocal identification of the declared agricultural parcel (one piece of land with one crop species) and its location, compliance check of the declared area together with an evaluation and check of its eligibility, i.e. the right to receive payment in reference to a given aid scheme, and a check of one-off declaration for particular agricultural parcels or their parts by clearly identified prospective beneficiaries. Identification of an agricultural parcel in the system is univocal and unique nation-wide. It is based on TERYT territorial codes of Poland and a full number of a cadastral parcel and an identifier of an agricultural parcel in the holding.

4. Integrated Control System

It consists of the following types of check performed on all stages of application processing:

- visual, consisting in completeness check of whether the application has been filled in,
- compliance, consisting in comparison of data entered to the system against source documents,
- administrative, which aims at establishing the correctness of confirmed data and their relation to data in the system; it can be divided into:

a. simple check - the verification of data entered from the application, statement or declaration against data already recorded in the system for a given entity,

b. cross check - the verification of data entered from the application, statement or declaration against data submitted by other entities in order to find potential multiple declaration of the same areas or payments,

- on-the-spot check – performed directly at the applicants' holdings. During this check the compliance of data provided in the application, statement or declaration with the actual state of agricultural holding is established. On-the-spot check can be performed by way of a field inspection or - in reference to direct payments – by way of remote sensing, using aerial and satellite pictures of a given area.

5. Animal Identification and Registration System

It includes the following elements:

- animal identification marks (earmark or a tattoo),
- animal passports,
- computerised database,
- register books kept in holdings.

Data collected within this system is used to document animal history, which enables to trace the way animal has gone from birth till death.

## **BENEFITS**

Implementation of IACS in Poland enabled the financial resources from the EU budget to be utilised and transferred to Polish farmers.

Additional funding will help them upgrade their agricultural production.

They will be able to make additional investments in their agricultural holdings (purchase of better machines, materials, fertilisers, etc.).

Without a well-functioning IT system, Poland would not be able to utilise financial resources available in the European Union budget for direct payments nor apply for co-financing of Polish agriculture.

The amount of payments processed by IACS is estimated to reach the level of 8-9 billion PLN already in 2004.

Moreover the amount of the producers/farmers being registered in IACS data base has reached 1,65 million by now, during while the applications amounts to approximately 1,4 million.

The above data show the scale of the IACS venture.

These figures shall increase systematically in the years to come.

Huge amount of data gathered by ARMA in the IT system forms a unique source of diverse information on the present state and structure of the Polish agriculture and agricultural real estate.

It may be used for all kinds of research and statistics.

The existence of IACS contributes to lower costs of direct payments processing.

Maintenance of the system costs much less than the necessity to employ additional employees responsible for manual processing and control of the whole process.

It should be also emphasised that the control system within IACS ensures that resources from EU funds are transferred where they should.

It reduces the risk of financial loss resulting from human error or fraud attempts to a minimum.

## **IMPORTANCE**

The use of state-of-the-art technologies and IT solutions enabled to develop within a short time an integrated IT system covering the whole Poland and being at present the most detailed and reliable source of data related to agriculture and agricultural land.

The tentative inclusion of other aid instruments of the Common Agricultural Policy under the uniform processing system will involve a transformation of the register of producers into a multi-functional holding register.

It will be linked to other state registers by use of external interfaces, which will enable to obtain complete knowledge about the state of Polish agriculture and help in shaping the state agricultural policy.

In spite of a complex structure, consisting of many elements (sub-systems, modules, applications, etc.), the system is very user-friendly.

A short training will suffice for an Agency employee to perform his tasks efficiently within IACS.

Granting employees access rights only to those elements of the system, for which they are directly responsible, substantively reduces the risk of potential abuse.

Regular copying of processed data and recording it on back-up servers, and using all sorts of security procedures (e. g. fire prevention), as well as physical and logical protection (different access levels, protection with passwords) exclude the possibility of data loss.

## **ORIGINALITY**

The centralised administration and IT system – IACS is so far the largest and at the same time the most complex project of that kind in Europe.

About 6,000 Agency employees are now users of the system.

Each day enormous amounts of data are being processed.

The use of innovative teleinformatic solutions had an impact on great flexibility of the system, and the resulting ease of its further extension and connection with other IT systems.

## **SUCCESS**

Owing to the labour input of thousands of people employed in ARMA and in companies and institutions participating in the IACS project, it was possible within a very short time to develop the system, test it and implement it for functioning in production environment.

Therefore, ARMA has received accreditation as a Paying Agency, and a great flow of financial resources was directed from the EU budget to Polish farmers.

Despite the fact that due to time limitations many strategic decisions were taken at a short notice during its development, once IACS was launched it turned out that it operates properly, in accordance with the approved plans and assumptions.

When using all functionalities, just a small number of errors was found, and they were easily removed immediately.

It should be emphasised that already in the first year of granting direct payments about 85% of prospective beneficiaries applied, which is a wonderful outcome in comparison with experiences of countries that joined the EU before Poland.

In those countries it was around 30-50%.

## **DIFFICULTY**

The greatest difficulty experienced during project implementation was the lack of complete legislation laying down rules and standards on the basis of which the system would function.

It concerns both national and EU law.

In many cases bills and draft regulations were the point of reference.

However, the ongoing co-operation of the Agency with legislative bodies enabled all the necessary legal acts to be passed in time, and their content did not disturb the IACS development process.

One of the problem in ensuring IT within IACS readiness was wide scope of tasks to be fulfilled by the IT solutions (during while the time for application submitting was constant and might not be changed).

ARMA had to solve also technical problems:

- during the system starting, suspense of its work happened, resulting from not optimal selection of the operating system, database or application parameters.
- the system efficiency seemed to have some restrictions, however the tuning process considerably improved the efficiency parameters.
- the proper system functionality was restricted by the lack of experience in application processing what made it difficult to verify the system construction guidelines, however the first practical experiences gained during start-up or during producers registration allowed to eliminate the errors noticed

Another element that had also been a serious threat to the implementation of the project within deadline was the decision concerning a change in the way payments were granted, i. e. from a standard into simplified

system.

The decision was taken during IACS development process.

Yet, it was possible very fast to identify the elements common to both systems, adapt them to the needs of the simplified system, renegotiate an agreement with HP, update the work schedule and in an undisturbed manner continue activities aiming at completing the project before deadline.

Summing up, it is worth noticing that the development of the Integrated Administration and Control System has so far been the biggest IT and organisational undertaking within the agricultural sector in Poland, financed from public funds.