

3 Findings

3.1 The requirements of the new EU Regulations and the existing national legal and procedural framework

The list of evaluation questions, as defined by the Terms of Reference of this ex-ante evaluation, contains a subset of three questions, under its section III.1 related to electronic systems for data exchange. The first of these three questions aims at gathering response to: “*Are there enough rules and procedures in place for the data exchange required by the new regulations?*”.

Answering this question required implementation of the desk-research analysis done in two steps:

- First, we had to identify which are the requirements comprised by the new EU Regulations, related specifically to the electronic data exchange.
- Secondly, given the requirements identified during step one, we had to identify which is the needed support from the national legal and procedural framework and to what extent this support exists.

We identified all relevant articles included in the new European Regulations prepared for the programming period 2014-2020 that refer to the electronic systems in the European Union Member States. The desk research was extended with analysis of several working documents of the European Commission that brought a better picture of, especially, the new elements of the e-Cohesion policy foreseen for the new programming period.

Using the information gathered from the documentary analysis, we sorted and grouped the content of the above-mentioned articles from a technical perspective. We were able to organise the EU requirements regarding electronic systems into the following three groups:

1. Requirements regarding the data exchange between beneficiaries and authorities.
2. Requirements regarding electronic information systems for recording and storage of financial and monitoring information.
3. Requirements regarding the storage of electronic data.

It should be noted that only the first group of the requirements, which are the new e-Cohesion requirements, are directly related to the primary objective of this evaluation - meaning the electronic data exchange. The other two groups of these requirements bring additional information about electronic information systems used for programme implementation, in general.

Herein below, we present those three groups in more detail:

1. Requirements regarding the data exchange between beneficiaries and authorities

These are new requirements specific to the programming period 2014-2020 and they are the result of newly introduced e-Cohesion policy. They also represent the central element of this evaluation. Those requirements are defined by **Art. 112(3) of CPR, under part III containing the general provisions applicable to ERDF, ESF and CF**, and they can be summarised as follows:

- **All exchanges of information between beneficiaries and managing authorities, certifying authorities, audit authorities and intermediate bodies can be carried out [solely] by means of electronic data exchange systems.**
- **The systems shall allow for the beneficiaries to submit all information only once.** In this respect, the systems shall facilitate interoperability between systems – the same operation should be accessible for all authorities implementing the same programme (regardless of whether this is an “Investment for growth and jobs” or “European Territorial Cooperation Programme”).

It should be noted and remembered that these requirements are defined only for ERDF, ESF and CF.

2. Requirements regarding electronic information systems for recording and storage of financial and monitoring information

These requirements define the electronic information systems used by authorities as a support for the programme implementation:

- Managing authorities have to ensure that there is an appropriate secure electronic system to record, maintain, manage and report key information on each operation selected for funding.
- The systems shall record and store key information required for the purposes of monitoring, audit and evaluation of the programme implementation, including:
 - Key characteristics of the beneficiary and the project;
 - Financial and accounting data; and
 - Indicators and progress monitoring data.

The requirements are defined by the following articles:

- Art. 62(d) of CPR;
- Art. 77(1) of EAFRD Regulation; and
- Art. 134(1) of EMFF Regulation.

And the following articles define the responsibility for the implementation, which is assigned to the managing authorities:

- Art. 114(2)(d) of CPR, under part III containing the general provisions applicable to ERDF, ESF and CF;
- Art. 73(1)(a) of EAFRD Regulation; and
- Art. 108(1)(a) of EMFF Regulation.

3. Requirements regarding the storage of electronic data

These requirements cover some particular technical issues regarding those electronic systems that comprise data that exist only in electronic version and that are subject to the retention rules.

The requirements are defined by Art. 132(6) of CPR and they state that:

- The systems shall comply with the commonly accepted security standards.
- The systems shall allow certification of data authenticity according to the national regulations of the Member State.
- The systems shall be viable for audit controls.



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The responsibility for implementing the requirements pertains to each holder of data that exist only in electronic version and that are subject to retention rules.

General conclusions:

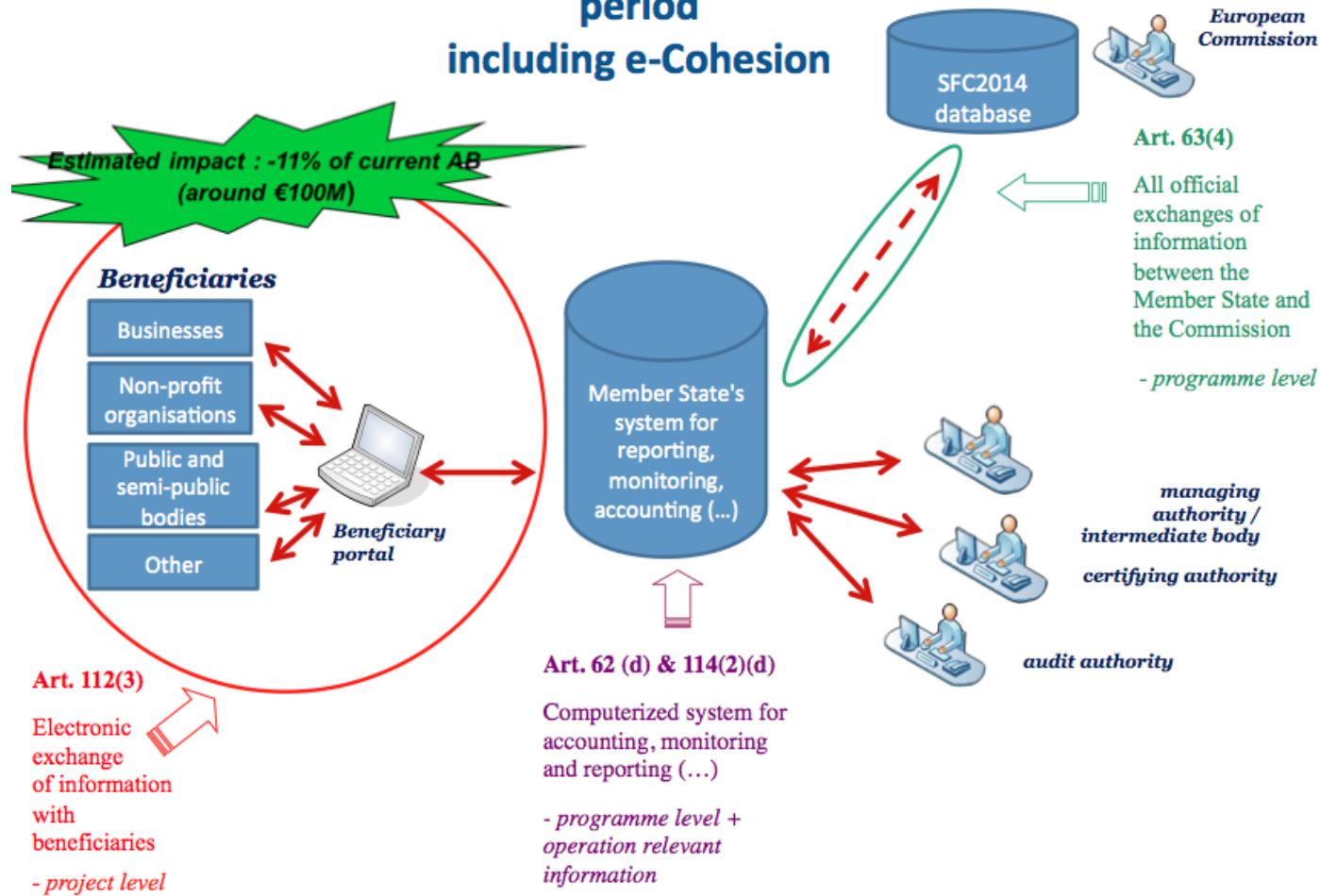
Basically, those three sets of requirements altogether define, in very broad terms, the general architecture of an aggregated virtual system, composed of several individual electronic systems (see the figure on the next page).

All these electronic systems working together should help the process of implementation and monitoring of the progress of the programmes.

The figure below presents the view within the e-Cohesion Regulation on the architecture of IT systems used by each EU Member State. The figure shows a sample generic architecture of information systems that includes the elements mentioned by the e-Cohesion requirements presented earlier.

There is the electronic data exchange system between beneficiaries and authorities required by art. 112(3) of CPR. And there is a computerised system for accounting, monitoring and reporting, as defined by art. 62(d) of CPR. This last system comprises also a central repository to ensure also the requirements of art. 132(6) of CPR, regarding the storage of electronic data.

Electronic exchange of information in 2014-2020 period including e-Cohesion





The second step in the process of answering the first question of this evaluation consisted of clarification of the current status of the national Romanian legal and procedural framework needed to support those identified EU e-Cohesion requirements for the programming period 2014-2020.

In this respect, for each of the EU requirements, the evaluation focused on what legal support is or may be required. Then the desk research was concentrated on the issue if that legal support exists or not at the national level in Romania.

The result of this comparative analysis is presented in the following table:

Table 3.1.1. Comparative analysis of the required national legal and procedural support needed for the implementation of the EU requirements

Requirements of EU Regulations	National legal and procedural support		
	Needed	Existing	Covered?
1. Requirements regarding the data exchange between beneficiaries and authorities: · All exchanges of information between beneficiaries and managing authorities, certifying authorities, audit authorities and intermediate bodies can be carried out solely by means of electronic data exchange systems. · The systems shall allow for the beneficiaries to submit all information only once. In this respect, the systems shall facilitate their interoperability .	Protection of personal data being submitted by beneficiaries	<ul style="list-style-type: none"> • Law no. 677/2001 for protection of individuals with regard to the processing of personal data and on the free movement of such data • Order no. 52/2002 of the People's Advocate • Decision no. 132/2011 of the National Authority for Supervision of Personal Data Processing 	Yes
	Legal support for authentication of documents submitted by beneficiaries only electronically	<ul style="list-style-type: none"> • Law no. 455/2001 regarding the electronic signature • Procedural framework defined by the Governmental Decision no. 1259/2001 	Yes
	Legal support for authenticated time stamping of electronic documents submitted by beneficiaries	<ul style="list-style-type: none"> • Law no. 451/2004 regarding the time stamp • Procedural framework defined by the Order no. 492/2009 of the Ministry of Communication and Information Society 	Yes
2. Requirements regarding electronic information systems for recording and storage of financial and monitoring information: · Managing authorities ensure that there is an appropriate secure electronic system to record, maintain, manage and report key information on each operation selected for funding. · The systems shall record and store key	Protection of personal data belonging to beneficiaries	<ul style="list-style-type: none"> • Law no. 677/2001 for protection of individuals with regard to the processing of personal data and on the free movement of such data • Order no. 52/2002 of the People's Advocate • Decision no. 132/2011 of the National Authority for Supervision of Personal Data Processing 	Yes

<p>information required for the purposes of monitoring, audit and evaluation of the programme implementation, including: key characteristics of the beneficiary and the project; financial and accounting data; indicators and progress monitoring data.</p>			
<p>3. Requirements regarding the storage of electronic data:</p> <ul style="list-style-type: none"> · The systems shall comply with the commonly accepted security standards. · The systems shall allow certification of data authenticity according to the national regulations of the Member State. · The systems shall be viable for audit controls. 	<p>Protection of personal data</p>	<ul style="list-style-type: none"> • Law no. 677/2001 for protection of individuals with regard to the processing of personal data and on the free movement of such data • Order no. 52/2002 of the People's Advocate • Decision no. 132/2011 of the National Authority for Supervision of Personal Data Processing 	<p>Yes</p>
	<p>Security requirements for archiving electronic documents</p>	<ul style="list-style-type: none"> • Law no. 135/2007 regarding archiving of electronic documents • Procedural framework defined by the Order no. 493/2009 of the Ministry of Communication and Information Society 	<p>Yes</p>
	<p>Legal support for authentication of archived electronic documents</p>	<ul style="list-style-type: none"> • Law no. 455/2001 regarding the electronic signature • Law no. 135/2007 regarding archiving of electronic documents • Procedural framework defined by the Governmental Decision no. 1259/2001, respectively by the Order no. 493/2009 of the Ministry of Communication and Information Society 	<p>Yes</p>
	<p>Legal support for authenticated time stamping of archived electronic documents</p>	<ul style="list-style-type: none"> • Law no. 451/2004 regarding the time stamp • Law no. 135/2007 regarding archiving of electronic documents • Procedural framework defined by the Orders no. 492/2009, respectively 493/2009 of the Ministry of Communication and Information Society 	<p>Yes</p>

As the above table comprehensively confirms, the national legal and procedural framework comprises all needed and required key elements, which have already been regulated through the following Romanian laws:

- Law no. 455/2001 regarding the electronic signature, together with the procedural framework defined by the Governmental Decision no. 1259/2001, ensure the legal and procedural framework needed for legal authentication of electronic data, thus allowing the replacement of original papers signed by hand with electronic data authenticated through electronic signature. This framework is needed in order to support the requirement that “*all exchanges of information between beneficiaries and [...] authorities [...] can be carried out solely by means of electronic data [...]*”, comprised by art. 112(3) of CPR, which implies that authorities will not receive any more papers with original hand signatures. The only possibility to ensure legal authentication of received data will remain the electronic signature.
- Law no. 135/2007 regarding archiving of electronic documents, together with the procedural framework defined by the Order no. 493/2009 of the Ministry of Communication and Information Society, ensure the legal and procedural framework needed in order to support the requirements regarding the storage of electronic data, comprised by art. 132(6) of CPR.
- Law no. 451/2004 regarding the time stamp, together with the procedural framework defined by the Order no. 492/2009 of the Ministry of Communication and Information Society ensure accessory legal and procedural framework for the laws regarding electronic signature, respectively archiving of electronic documents, by providing means for getting legally valid stamps of date and time for the data that is electronically signed or archived in electronic format.
- Law no. 677/2001 for protection of individuals with regard to the processing of personal data and on the free movement of such data, together with the Order no. 52/2002 of the People’s Advocate and the Decision no. 132/2011 of the National Authority for Supervision of Personal Data Processing ensure general legal and procedural framework for all systems that comprise personal data.

References

<i>Data sources and methods</i>	<i>Desk research; documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See section 1 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>As there are no pending issues (see conclusions), there is no point for recommendations</i>

3.2 Comprehensiveness of existing electronic systems

In order to answer to the second question of this ES evaluation – “*Up to which extent are the electronic systems comprehensive?*” – the following electronic systems were analysed (listed in alphabetical order):

- ActionWeb – web-based system (<https://actionweb.fseromania.ro>) that allows data exchange between beneficiaries or potential beneficiaries and authorities, used for SOP HRD:
 - It covers the entire project life cycle.

- It is complemented by “ASEP”, a web-based application used for the evaluation of the proposed projects. Data is transferred electronically from ActionWeb to ASEP.
- It is complemented by “SIMPOSDRU”, a system that incorporates a reporting tool allowing generation of various predefined or custom reports for the use of authorities. It extracts the needed data from the database of ActionWeb.
- MIS-ETC – used only by authorities, for all four ETC OPs:
 - It covers the entire project life cycle and includes additional dedicated modules for programming, evaluation and audit.
 - It is complemented by “MIS-ETC Web Application”, an integrated web-based extension comprising three modules:
 - e-Submission – for potential beneficiaries – developed but not used yet;
 - e-Evaluation – for evaluators of proposed projects;
 - e-Monitoring – for input of data by beneficiaries, about their expenditures within the project – developed but not used yet.
- MySMIS – web-based system (<https://www.mysmis.ro>) that allows data exchange between beneficiaries or potential beneficiaries and authorities, designed for the current 6 OPs (OP ACD, OPTA, ROP, SOP E, SOP IEC, SOP T) – developed and tested, but not used yet:
 - It is integrated with SMIS.
 - It covers the entire project life cycle.
- Own internal Access database used for SOP IEC - Axis 3 – used only by authorities.
- SIMPOP – used only by authorities, for OPF, covering the entire project life cycle.
- SMIS – used only by authorities, for 7 OPs (OP ACD, OPTA, ROP, SOP E, SOP HRD, SOP IEC, SOP T), covering the entire project life cycle and including additional dedicated modules for programming, evaluation and audit.
- SPCDR – used only by authorities, for NPRD, covering the entire project life cycle.
- Web application for uploading of financing requests for SOP IEC - Axis 1 – used by beneficiaries.
- Web application for uploading of financing requests for SOP IEC - Axis 2 – used by beneficiaries.
- Web application for uploading of financing requests for SOP IEC - Axis 3 – used by beneficiaries.

A set of three systems that are used by APIA: IACS, SVAP and IPA on-line constitute a particular case. Each of these electronic systems is a part of an integrated system, where IACS and SVAP provide the “back-office” functions and IPA on-line provides the “front-office” functions. But altogether, they address a very specific issue, which is different from the process of monitoring projects implementation. These systems are used to support the payments to the farmers. The amounts of payments are calculated based on areas of land parcels. The systems are focused on proper GIS identification of land parcels referred in the payment requests and technical checking of correctness of parcels definition. Consequently, these systems were not approached further in this report because they are out of the scope of this evaluation.

Each of the above-mentioned systems was investigated in terms of scope, features, data structures and technical characteristics. The needed information was gathered from the technical documentation and manuals of the systems, whichever available, and the gaps were filled-in with the help of the interviews with the administrators of each of the systems. Thus, a complete image

with all the characteristics of interest (scope, features, data structures and technical characteristics) was built for each of the evaluated systems.

These sets of characteristics were analysed in relation to the EU requirements identified during the first phase of the evaluation (see chapter 3.1), with the objective to identify to what extent the existing electronic systems cover those requirements.

In order to get a better view of the whole overall picture of the systems available at national level, for all OPs, a grid was designed to present the whole potential coverage of those ESs, on two axes:

- X axis: Features & data structures – grouped by major functional areas;
- Y axis: Scope – representing all OPs.

Two grids were drawn:

- One for electronic systems that are used by authorities – see Table 3.2.1 (further in the report, page 23); and
- One for electronic systems to provide the data exchange between beneficiaries and authorities – see Table 3.2.2 (page 24).

It should be noted that the axis of major functional areas is structured differently for each of the two grids, in order to fit to the specificities of those electronic systems.

Each square in the grid, at the intersection of a major functional area with an OP, shows if the given functionalities and data structures are covered by an electronic system, for the given OP:

- Full coverage is indicated by a solid background colour and the name of at least one electronic system inside that square. This means that the indicated electronic system(s) cover(s) entirely, for the given OP, all functionalities and data structures supposed by the given major functional area. It suggests that the electronic system(s) satisfy(ies) the EU requirements on that particular area.
- Partial coverage is indicated by a hashed background colour and the name of at least one electronic system, followed by a note symbol. This means that the indicated electronic system(s), although dealing with the given OP and the given major functional area, do(es) not cover all functionalities and data structures supposed by the given major functional area and the electronic system(s) do(es) not satisfy entirely the EU requirements on that particular area. Details are provided in the indicated note, below the table.
- No coverage is indicated by a blank square.

Ideally, each square of each of the two grids should be fully covered by at least one system. However, it is necessary to note that both grids were drawn for full scope and full sets of **possible** functional areas in the context of programme implementation. It should also be reminded, that **the EU requirements address a narrower coverage**, namely the “Project implementation” group of functional areas (Art. 62(d) of CPR refers to “operation[s] **selected** for funding” and Art. 112(3) of CPR refers to “beneficiaries”, meaning entities **receiving** financial assistance). Moreover, as regards the data exchange between beneficiaries and authorities (the second grid), the respective EU requirements apply only to ERDF, ESF and CF (see chapter 3.1). This means that NPRD and OPF are excluded and the scope of the EU requirements is narrowed, too, for the second grid.

The coverage envisaged by the EU requirements is bordered by a thicker line on each of the two grids. Consequently, full coverage of the EU requirements would be accomplished if all

the squares inside the thicker border were fully covered by at least one electronic system. If there is at least one blank square inside the area bordered by the thicker line, then the EU requirements are not entirely covered. The same is true in case of a square covered only partially.

Thus, the results of the comparative analysis of the electronic systems characteristics in relation to the EU requirements are synthesized in the following two grids showing up to which extent the electronic systems are comprehensive enough, from the point of view of the EU requirements.

The current coverage of the existing electronic systems is shown in a synthetic manner, in the following two tables:

- Table 3.2.1 shows the coverage of those electronic systems that are used only by authorities.
- Table 3.2.2 presents the coverage of those electronic systems that are used for data exchange between beneficiaries and authorities.

Table 3.2.1. Electronic systems that are used only by authorities

Programme	Major areas of data collections managed by the electronic systems in relation to the programme implementation				
	Project selection		Project implementation		
	Proposed projects	The selection process	Project and beneficiary data	Financial data	Progress monitoring data
ETC (all OPs)	MIS-ETC	MIS-ETC + eEvaluation	MIS-ETC	MIS-ETC	MIS-ETC
NPRD	SPCDR	SPCDR	SPCDR	SPCDR	SPCDR
OP ACD	SMIS	SMIS	SMIS	SMIS	SMIS
OPF	SIMPOP	SIMPOP	SIMPOP	SIMPOP	SIMPOP
OPTA	SMIS	SMIS	SMIS	SMIS	SMIS
ROP	SMIS	SMIS	SMIS	SMIS	SMIS
SOP E	SMIS	SMIS	SMIS	SMIS	SMIS
SOP HRD	ActionWeb & SMIS ^[1]	ASEP & SMIS ^[1]	ActionWeb + SIMPOSDRU & SMIS ^[1]	ActionWeb + SIMPOSDRU & SMIS ^[1]	ActionWeb + SIMPOSDRU & SMIS ^[1]
SOP IEC	SMIS	SMIS	SMIS & Internal Access DB for Axis 3 ^[2]	SMIS & Internal Access DB for Axis 3 ^[2]	SMIS & Internal Access DB for Axis 3 ^[2]
SOP T	SMIS	SMIS	SMIS	SMIS	SMIS

Notes:

[1] The ensemble of systems ActionWeb + ASEP + SIMPOSDRU is used as a primary tool by the MA and IBs for SOP HRD. But the same data is entered also in SMIS for reporting towards the higher levels of aggregation. There is no electronic exchange of data between ActionWeb and SMIS. All data are entered twice, manually.

[2] The IB for SOP IEC - Axis 3 uses its own Access database for the internal reporting needs. But the same data is entered also in SMIS for reporting towards the higher levels of aggregation. There is no electronic exchange of data between the internal database and SMIS. All data are entered twice, manually.

In table 3.2.1, the area surrounded by a thicker black border is the area envisaged by the minimum requirements of the EU Regulations, respectively the requirements defined by art. 62(d) of CPR,

art. 77(1) of EAFRD Regulation and art. 134(1) of EMFF Regulation, respectively by art. 132(6) of CPR (see chapter 3.1). Thus, it can be easily seen that as regards the recording and storage of financial and monitoring information, the existing electronic systems are comprehensive enough, covering entirely the area of project implementation, for all programmes (area that represents the minimum requirements). They even extend beyond the project implementation area, ensuring also full coverage of the area of project selection.

For some of the Operational Programmes (SOP HRD and SOP IEC - Axis 3), the main central system, SMIS, is used in parallel with other systems that are specific to the respective programme(s). The authorities managing those programmes felt the need of additional features to help with their specific needs. Thus, specific systems were developed in addition to SMIS. Unfortunately, none of these systems has the ability to interface with SMIS for data exchange. Consequently, users have to enter certain sets of data twice: once in SMIS and once in one of the programme specific systems. For these programmes, data entered in SMIS often has quality gaps (e.g. available with significant delays, missing data etc.). *This finding led to conclusion 4.1 in Chapter 4, "Conclusions", and to recommendation 4.1 in Chapter 5, "Recommendations".*

Table 3.2.2. Electronic systems that are used for data exchange between beneficiaries and authorities

Program me	Major areas of data collections managed by the electronic systems					
	Project selection		Project implementation			
	Proposed projects	Exchange of additional data	Procurement data	Financial data	Progress monitoring data	Exchange of additional data
ETC (all OPs)	eSubmission ^{[1] [4]}			eMonitoring ^{[1] [2] [4]}		
NPRD						
OP ACD	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]
OPF						
OPTA	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]
ROP	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]
SOP E	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]
SOP HRD	ActionWeb ^[4]			ActionWeb ^{[3] [4]}	ActionWeb ^{[3] [4]}	
SOP IEC	MySMIS ^[1] + Web app. for uploading requests for Axis 1 ^[4] + Web app. for uploading requests for Axis 2 ^[4] + Web app. for uploading requests for Axis 3 ^[4]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]
SOP T	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]	MySMIS ^[1]

Notes:

[1] MySMIS, e-Submission and e-Monitoring have not been used yet. They are developed and tested, but they were never used for real operation.

[2] e-Monitoring has limited features in the area of financial data. This system allows only the input of data related to the expenditures within the project.

[3] ActionWeb lacks some features in the areas of financial data and progress monitoring data. Financial data consists only of the expenditures of the project; the system does not include data about the financial flows between the beneficiary and the authorities (e.g. requested, paid). Progress monitor data consists mostly of data about the individuals participating in the project (e.g. final beneficiaries, experts); the system does not include indicators that are not linked directly to persons.

[4] e-Submission, e-Monitoring, ActionWeb and all the three web applications for uploading financing requests for SOP IEC - Axis 1, 2 and 3 do not implement yet the technology needed for electronic certification of authenticity for the data that is available only in electronic format.

In table 3.2.2, the area surrounded by a thicker black border is the area envisaged by the minimum requirements of the EU Regulations, respectively the requirements defined by art. 112(3) of CPR (see chapter 3.1). Thus, it can be seen that in terms of **currently used** electronic systems for data exchange between beneficiaries and authorities, this area is almost totally not covered, as **MySMIS, e-Submission and e-Monitoring are not used at present** (see note [1] below the table). The only existing implementations are ActionWeb and the three web applications for uploading financing requests for SOP IEC - Axis 1, 2 and 3, which offer limited features for SOP HRD, respectively for SOP IEC. Strictly in the area of the minimum requirements of the EU Regulations, only ActionWeb covers partially only two sections (financial data and progress monitoring data – see also notes [3] and [4] of the table) and only for SOP HRD.

If the implementation of the recently developed system MySMIS is finalised, then most of the area of data exchange between beneficiaries and authorities will be covered. In this case, as it can be seen from table 3.2.2, from the point of view of the minimal requirements (the area surrounded by a thicker black border), gaps will remain only for the ETC programmes and for SOP HRD. It is worth to be noted here that the minimal requirements are not applicable to EAFRD and EMFF, corresponding to NPRD and OPF.

References

<i>Data sources and methods</i>	<i>Desk research; documentary analysis – see Annex 8, “List of Analysed Documents”</i> <i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i>
<i>Conclusions</i>	<i>See section 2 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See section 1 of Chapter 5, “Recommendations”</i>

3.3 Compliance of the electronic systems with the checklist

The third and last question for the current ES evaluation asks: “*Up to which extent do the electronic systems satisfy the items in the checklist to be elaborated by the evaluators?*”.

One checklist was filled in for each of the relevant electronic systems that are currently used, based on the results of a survey conducted among the users of the electronic systems.

Three different questionnaires were designed for three target groups:

- Beneficiaries;
- Regular users within authorities; and
- Administrators / coordinators of electronic systems.

The questionnaire for administrators / coordinators is the most extensive one, covering all the items in the checklist. The questionnaires for regular users, including the beneficiaries, are more restricted, in order to avoid technicalities that cannot always be known or understood by users. Consequently, the items of the checklist of more technical nature were filled in based only on the answers received from administrators or coordinators of electronic systems.

The answers to the questionnaires were collected and grouped by each electronic system. In order to get the results needed for the checklist, the answers from the questionnaires were synthesized for each electronic system as standard average for the numeric values or as percentile statistics of “yes” or “no” answers, upon the case.

In case of items in the checklist that were addressed in more questionnaires (e.g. for users and for administrators, too), all received answers for that item participated in the computation of the average value, meaning that all parties were taken into account, upon the case: beneficiaries, users and administrators.

The filled checklists can be found in the Annex 1 of this report.

The results obtained from the checklists were expanded by the findings of the documentary analysis, the interviews and the focus group. It is necessary to be noted that no conflicting findings rose from this pool of sources.

A summary of the findings resulting from the data provided by the respondents through filled in checklists is presented below:

3.3.1 *Ease of use*

The following synthetic results were obtained for each of the items in this section of the checklist:

- Users' general opinion regarding the ease of use – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 2.95; ActionWeb – 3.57; SPCDR – 3.63; SIMPOP – 3.88; MIS-ETC – 2.25
- Average number of training days required to get a new user prepared – Answers received from administrators / coordinators (days; satisfactory values max. 2): SMIS – 10.97; ActionWeb – 2; SPCDR – 5.5; SIMPOP – 6.5; MIS-ETC – 7
- Average number of weeks required to get a new user fully accommodated with the system (proper accomplishment of all tasks without help) – Answers received from administrators / coordinators (weeks; satisfactory values max. 4): SMIS – 5.42; ActionWeb – 1.33; SPCDR – 10.25; SIMPOP – 3; MIS-ETC – 6

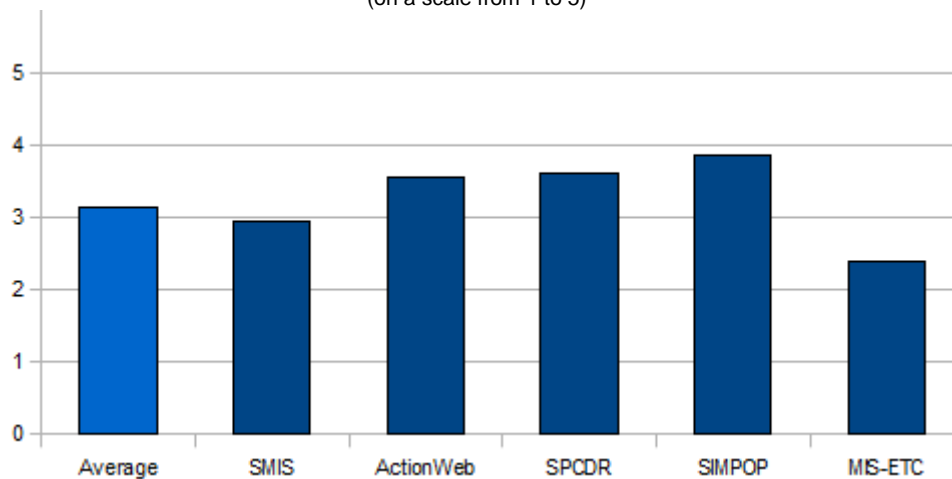
It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based

on manuals and technical documentation) and the confrontation of those statistical figures within the focus group.

Most values in this section of the checklist are outside the satisfactory range and the rest of them are not far from the limit value of the satisfactory range. It may be concluded that, in general lines, the existing electronic systems are perceived by their users as not being very user friendly. The general trend for user friendliness is around the medium rating on the scale.

The systems that are dedicated to a single OP (like ActionWeb, SPCDR or SIMPOP) are regarded slightly positive (with average scores ranging from 3.5 to 3.8 on a scale from 1 to 5), opposed to the bigger systems like SMIS (covering 7 OPs) or MIS-ETC, which are regarded slightly negative (with average scores below 3).

Figure 3.3.1.1. How easy to use are the electronic systems?
(on a scale from 1 to 5)



This perception is sustained also by the estimative figures for the time needed to train new users and to have them fully accommodated with the system. It should be noted that the figures related to training **should not be regarded as absolute measurements** due to the risk of being altered by different methodologies of computation used by each of the administrators. The figures should be regarded only in terms of magnitude.

References

<i>Data sources and methods</i>	<p><i>Questionnaires – see Annex 2, “Questionnaires”</i></p> <p><i>Checklists – see Annex 1, “Completed Checklists”</i></p> <p><i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i></p> <p><i>Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i></p> <p><i>Documentary analysis – see Annex 8, “List of Analysed Documents”</i></p>
<i>Conclusions</i>	<p><i>See conclusions 3.1 and 3.3 in section 3 of Chapter 4, “Conclusions”</i></p>
<i>Recommendations</i>	<p><i>See recommendations 2.2 and 2.3 in section 2 of Chapter 5, “Recommendations”</i></p>

3.3.2 Administrative burden

The following synthetic results were obtained for each of the items in this section of the checklist:

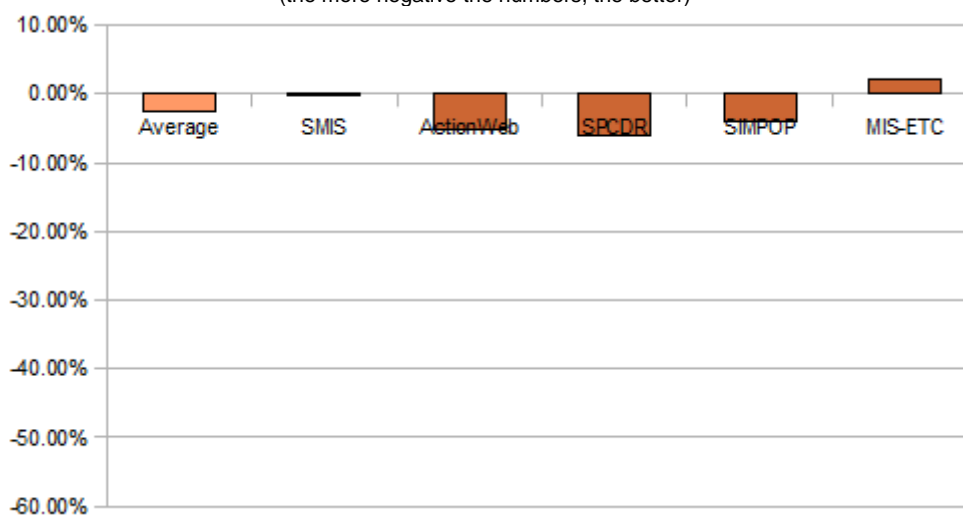
- Estimation of relative difference between the time required to fulfil the daily tasks using the system and the time required to fulfil the same tasks without using the system – Answers received from all types of users, including administrators / coordinators (satisfactory values are negative): SMIS – -0,11%; ActionWeb – -6,47%; SPCDR – -6,25%; SIMPOP – -4,11%; MIS-ETC – +2,5%.
- Estimation of relative difference between the average work time consumed by a beneficiary in relation with the authorities (including the preparatory work), in the case when the system is used and in the case when no information system is used – Answers received from beneficiaries (satisfactory values are negative): ActionWeb – -3.18% – ActionWeb is the only system used by beneficiaries.

It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

Most of the values are negative but still near the zero value – one digit figures, barely surpassing a 5 percentile points margin of statistical error, in the best cases. Consequently, the results of the questionnaires show that the general perception on the existing electronic systems is that they are not very efficient in reducing the administrative burden. The results show only a slight gain of working time through the implementation of the electronic system.

One of the main causes for this lack of performance is the fact that the existing electronic systems are not well fitted to the needs of the users. This can be seen in the correlation of the scores for this subject with the scores for general usefulness and for ease of use (see chapter 3.3.1).

Figure 3.3.2.1. Reducing the time consumed by the administrative burden
(the more negative the numbers, the better)



Other important factors that limit a potentially positive impact of electronic systems on reducing the administrative burden are the multiple parallel flows of the same data (on paper and electronically,

sometimes even in more than one electronic system) and the lack of interfaces between the various electronic systems that should have allowed sharing common data (see also table 3.2.1 above, in chapter 3.2, its notes and the references to conclusions and recommendations included there).

References

<i>Data sources and methods</i>	<i>Questionnaires – see Annex 2, “Questionnaires” Checklists – see Annex 1, “Completed Checklists” Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews” Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i>
<i>Conclusions</i>	<i>See conclusions 3.1 and 3.3 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See recommendations 2.1, 2.2 and 2.3 in section 2 of Chapter 5, “Recommendations”</i>

3.3.3 General usefulness

The following synthetic results were obtained from the questionnaires for each of the items in this section of the checklist:

- Users' general opinion regarding the usefulness of the system for their daily activity – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.53; ActionWeb – 4.02; SPCDR – 4.5; SIMPOP – 4.2; MIS-ETC – 3.25.
- Relevance of the data content for the users' needs – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.24; ActionWeb – 3.67; SPCDR – 3.85; SIMPOP – 4.49; MIS-ETC – 3.7.
- Usefulness of the reports generated by the system – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.03; ActionWeb – 3.04; SPCDR – 3.38; SIMPOP – 4.18; MIS-ETC – 2.25.

It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

In spite of modest results reported for the ease of use and for reducing the administrative burden (see chapters 3.3.1 and 3.3.2), the electronic systems are regarded however better in terms of general usefulness. Almost all values recorded for this section of the checklist are within the satisfactory range. Users appreciate that the electronic systems are, as marked in the questionnaire, “rather useful”. This is a positive assessment, in the given context, and it is fed by a general positive attitude towards the concept of electronic systems.

Although the users are not always too content about certain features of their electronic systems (as indicated by the results obtained in the other sections of the checklist), they are generally positive

about having an electronic system at hand as an alternative to paper files (as indicated by the results in this section of the checklist).

Figure 3.3.3.1. General usefulness of electronic systems
(on a scale from 1 to 5)

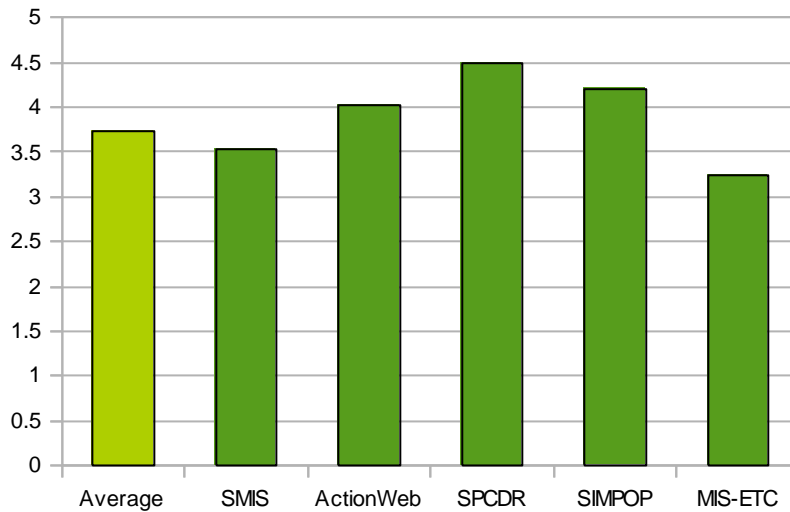


Figure 3.3.3.2. Relevance of the data provided by the electronic systems
(on a scale from 1 to 5)

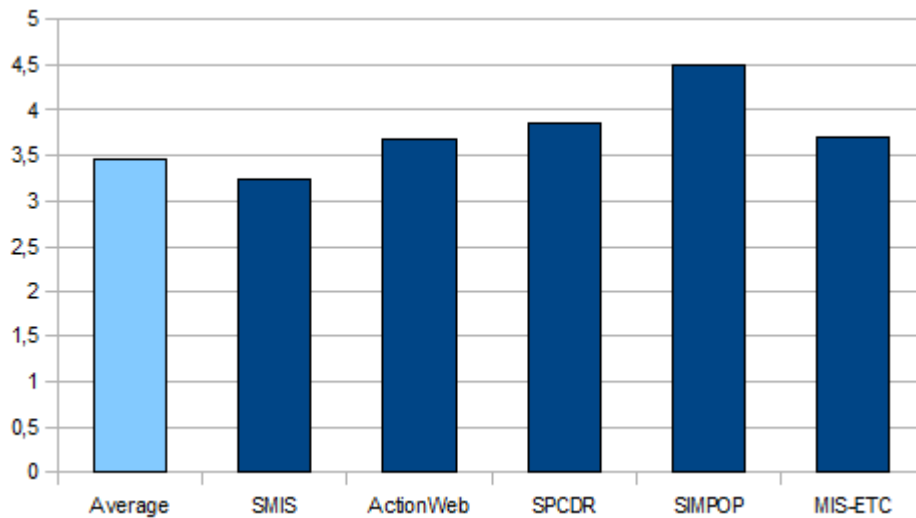
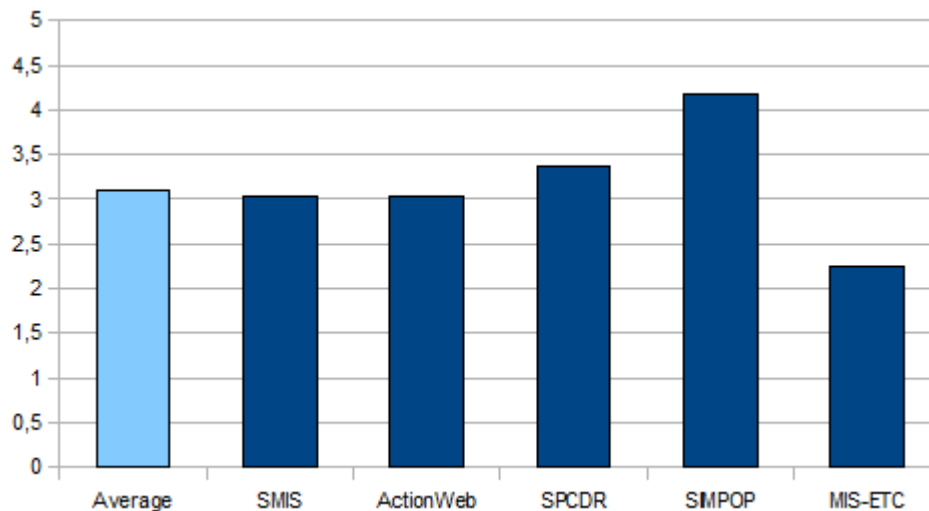


Figure 3.3.3.3. Usefulness of the reports
(on a scale from 1 to 5)



To be noted that the scores for general usefulness are high even in spite of the lower scores obtained for relevance of the data provided by the electronic system and the even lower scores obtained for usefulness of the reports generated by the system, which are only slightly above the medium rating (see the results presented above and the graphs).

Again, higher scores are obtained by the systems that are dedicated to a single OP (ActionWeb, SPCDR and SIMPOP, with score above 4 on a scale from 1 to 5). SMIS and MIS-ETC, which are broader systems, obtained lower scores but still above the medium level (see the results presented above and the graphs).

References

<i>Data sources and methods</i>	<p><i>Questionnaires – see Annex 2, “Questionnaires”</i></p> <p><i>Checklists – see Annex 1, “Completed Checklists”</i></p> <p><i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i></p> <p><i>Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i></p>
<i>Conclusions</i>	<i>See conclusions 3.1 and 3.3 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See recommendations 2.1 and 2.2 in section 2 of Chapter 5, “Recommendations”</i>

As a partial conclusion, the results obtained for all the first three sections of the checklist (see chapters 3.3.1, 3.3.2 and 3.3.3), which relate directly to the user satisfaction level, show that users are not very content about the performance of the existing electronic systems (see the relatively low scores obtained for the various items relating to precise characteristics). But the users are still positive about the idea of an electronic system helping them with the administrative tasks (see the relatively high scores obtained for the item relating to the “general usefulness”).

3.3.4 Data querying and data aggregation

The following synthetic results were obtained for each of the items in this section of the checklist:

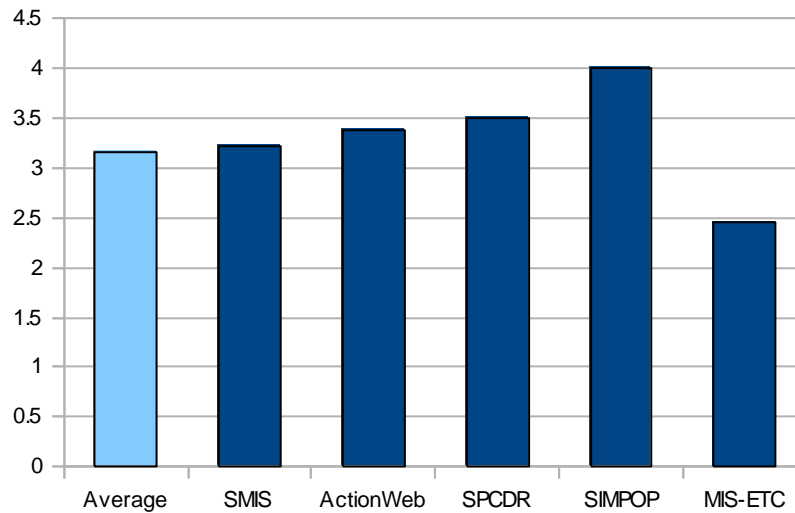
- Availability of functions for searching individual data – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.03; ActionWeb – 3.33; SPCDR – 3.25; SIMPOP – 3.75; MIS-ETC – 2.
- Availability of functions for listing a subset of a data collection (filtering) – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.16; ActionWeb – 2; SPCDR – 3; SIMPOP – 3.5; MIS-ETC – 2.
- Users' general opinion regarding the ease of retrieving needed data – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 3.22; ActionWeb – 3.38; SPCDR – 3.5; SIMPOP – 4; MIS-ETC – 2.25.
- Availability of functions for aggregating data – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 2): SMIS – 3; ActionWeb – 2.33; SPCDR – 3.25; SIMPOP – 3.5; MIS-ETC – 3.
- Availability of predefined reports – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 2,56; ActionWeb – 2; SPCDR – 3.5; SIMPOP – 3.75; MIS-ETC – 4.
- Availability of functions for building customised reports – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 2): SMIS – 2.66; ActionWeb – 2; SPCDR – 3.5; SIMPOP – 3.33; MIS-ETC – 3.

It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

Similarly to the general user satisfaction level (see chapters 3.3.1, 3.3.2 and 3.3.3), the availability of sufficient and efficient features for data processing is seen as rather modest (most of the results are oscillating in the vicinity of the average level, which is also the limit for the satisfactory range).

The features related to the data extraction (e.g. searching, querying, filtering) are appreciated slightly positive for all systems (scores ranging mostly from 3 to 3.5 on a scale from 1 to 5), except for MIS-ETC, which presents a rather negative perception (see the figures above and the graph below):

Figure 3.3.4.1. How easy is to retrieve the needed data?
(on a scale from 1 to 5)



The features related to data aggregation and especially to the availability of reports obtained lower scores for most of the systems, but still above the medium level of 3. SMIS obtained negative ratings (below the medium level) for the availability of useful reports (see the figures above). This could be explained by the broader scope of SMIS, which is not able to address the specific needs of each authority or OP. Also, many users are not enough acquainted with the ART4SMIS reporting tool that accompanies SMIS and they are not aware of the real capabilities of such a tool. Insufficient training regarding this tool (which was implemented at a later stage, after SMIS initial implementation) could also explain the low results.

Note: This led to recommendation 3.2.d, in Chapter 5, "Recommendations".

The very low scores obtained by ActionWeb for data aggregation tools (including reporting – see figures above) are explained by the fact that ActionWeb itself does not include reporting features. For this purposes it works in conjunction with the more versatile reporting tool included in SIMPOSDRU. The combination of the two systems ensures the appropriate features needed by the users.

Note: Details are based on information gathered from documentary analysis and from interviews.

SPCDR and SIMPOP benefit of their own sets of reports incorporated in the system and designed specifically for the OPs they manage.

Note: Details are based on information gathered from documentary analysis and from interviews.

References

<i>Data sources and methods</i>	<i>Questionnaires – see Annex 2, “Questionnaires”</i> <i>Checklists – see Annex 1, “Completed Checklists”</i> <i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i> <i>Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i> <i>Documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See conclusions 3.1 and 3.3 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See recommendations 2.1, 2.2 and 2.3 in section 2 of Chapter 5, “Recommendations”</i>

3.3.5 Data quality

The following synthetic results were obtained for each of the items in this section of the checklist:

- Data input is based on trustworthy sources and clear procedures – Answers received from administrators / coordinators (% of “yes” answers): SMIS – 100%; ActionWeb – 100%; SPCDR – 100%; SIMPOP – 100%; MIS-ETC – 100%.
- Input data are validated properly – Answers received from administrators / coordinators (% of “yes” answers): SMIS – 84,4%; ActionWeb – 66,7%; SPCDR – 50%; SIMPOP – 100%; MIS-ETC – 100%.
- Checks are available to allow detection of errors – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 2.94; ActionWeb – 2.33; SPCDR – 3; SIMPOP – 4; MIS-ETC – 2.
- Required data are available in due time for the final recipients – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 3): SMIS – 4.03; ActionWeb – 4.67; SPCDR – 4.25; SIMPOP – 4.75; MIS-ETC – 3.5.

It is necessary to be noted that the above figures are rough statistic computations based on users’ opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

The data entered in all systems are based entirely on trustworthy sources of information (like original documents or copies certified against their originals) – see figures above.

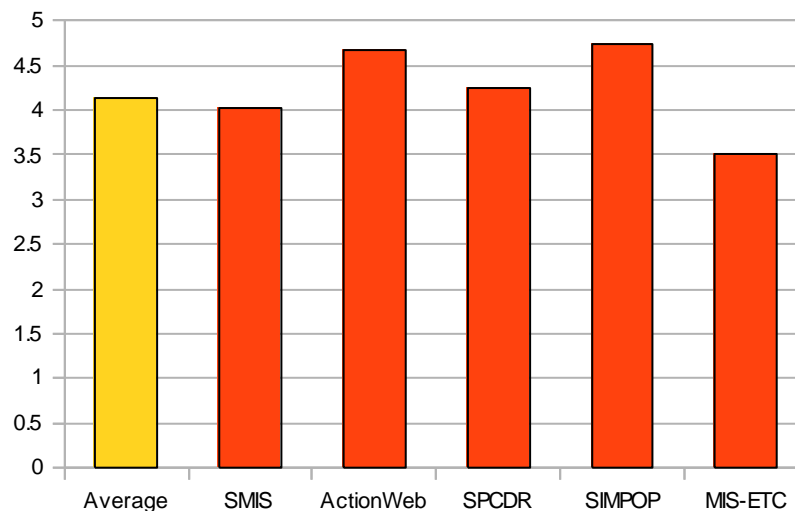
Most systems foresee validation of all relevant input data (automated or through manual validation procedures) – see figures above. Except for SPCDR, which relies rather on the inherent data processing flow that allows several persons to work on the same data, thus expecting that the invalid data would be spotted somewhere in the work flow (based on information gathered from documentary analysis and from interviews).

Generally, the effort for ensuring data quality is focused on the input of data. It seems, however, that the systems do not envisage enough controls to allow timely identification of errors already residing in the system (which either by-passed the control of input data or which were eventually generated by some system malfunctions). The scores recorded for this subject (see figures above) show concerns regarding the availability of enough checks to allow identification of errors in the

system. The general perception in this respect is rather negative (below the medium level for SMIS, ActionWeb and MIS-ETC).

In terms of timely availability of data required from the electronic system, all the systems are performing very well (rated above 4 on a scale from 1 to 5).

Figure 3.3.5.1. Timely availability of needed data
(on a scale from 1 to 5)



References

<i>Data sources and methods</i>	<i>Questionnaires – see Annex 2, “Questionnaires”</i> <i>Checklists – see Annex 1, “Completed Checklists”</i> <i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i> <i>Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i> <i>Documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See conclusion 3.2 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See recommendations 2.4 and 2.5 in section 2 of Chapter 5, “Recommendations”</i>

3.3.6 Data security

The following synthetic results were obtained for each of the items in this section of the checklist:

- Only authenticated users are allowed to access non-public data or to modify data – Answers received from administrators / coordinators (% of “yes” answers): SMIS – 93,8%; ActionWeb – 100%; SPCDR – 100%; SIMPOP – 100%; MIS-ETC – 100%.
- Each user is limited to a specific set of access rights, for specific sections of the system – Answers received from administrators / coordinators (% of “yes” answers): SMIS – 90,6%; ActionWeb – 66,7%; SPCDR – 100%; SIMPOP – 100%; MIS-ETC – 100%.
- Communication channels used for exchanging sensitive data between various parts of the system are protected – Answers received from administrators / coordinators (% of “yes”

answers): SMIS – 87,5%; ActionWeb – 66,7%; SPCDR – 100%; SIMPOP – 75%; MIS-ETC – 100%.

It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

In general, all the systems are reasonably well secured, data security being considered in all cases (see figures above; also confronted with the results of the documentary analysis and the interviews). All systems require users to authenticate and foresee specific access rights limiting the access of users only to those areas that are pertinent for their roles.

Communication between the various locations of offices is done through secured channels, usually VPNs provided in many cases by the Special Telecommunications Service (STS), even for the most remote locations. In cases when the web applications are accessible from Internet (e.g. in order to allow access of beneficiaries or external evaluators), the communication is done entirely through Secure HTTP (HTTPS), ensuring a reasonable level of software protection.

Note: Details are based on information gathered from documentary analysis and from interviews.

References

<i>Data sources and methods</i>	<i>Questionnaires – see Annex 2, “Questionnaires” Checklists – see Annex 1, “Completed Checklists” Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews” Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants” Documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See conclusion 3.2 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>As there are no pending issues (see conclusion: “all the systems prove to be satisfactory”), there is no point for recommendations.</i>

3.3.7 System stability

The following synthetic results were obtained for each of the items in this section of the checklist:

- Average downtime of the system in a month – Answers received from administrators / coordinators (hours; satisfactory values max. 2): SMIS – 8.75; ActionWeb – 2.67; SPCDR – 1; SIMPOP – 5.75; MIS-ETC – 36.
- Frequency of major failures of the system (requiring the intervention of administrators for restoring the system) – Answers received from administrators / coordinators (on a scale from 1 to 5; satisfactory values above 4): SMIS – 4.28; ActionWeb – 4.67; SPCDR – 4.67; SIMPOP – 5; MIS-ETC – 4.5.
- Frequency of significant malfunctions impeding the proper use of the system – Answers received from all types of users, including administrators / coordinators (on a scale from 1 to 5; satisfactory values above 4): SMIS – 3.43; ActionWeb – 3.64; SPCDR – 4.34; SIMPOP – 4.45; MIS-ETC – 4.

It is necessary to be noted that the above figures are rough statistic computations based on users' opinions and **they should be interpreted with much caution**. The following interpretations took into account also the opinions gathered from interviews, the results of the documentary analysis (based on manuals and technical documentation) and the confrontation of the statistical figures within the focus group.

Although the results obtained for system stability show a rather low frequency of malfunctions (see figures above), some of the indicated levels are not entirely satisfactory for a quality and reliable production system.

The major failures are very seldom for all systems (see figures above). But when they happen, it takes a lot of time to restore the system, as indicated by the high numbers of hours of downtime. One of the explanations is that most of the systems are managed by generally understaffed IT units of public institutions, which cannot provide a 24/7 support.

Note: Details are based on information gathered from interviews and focus group.

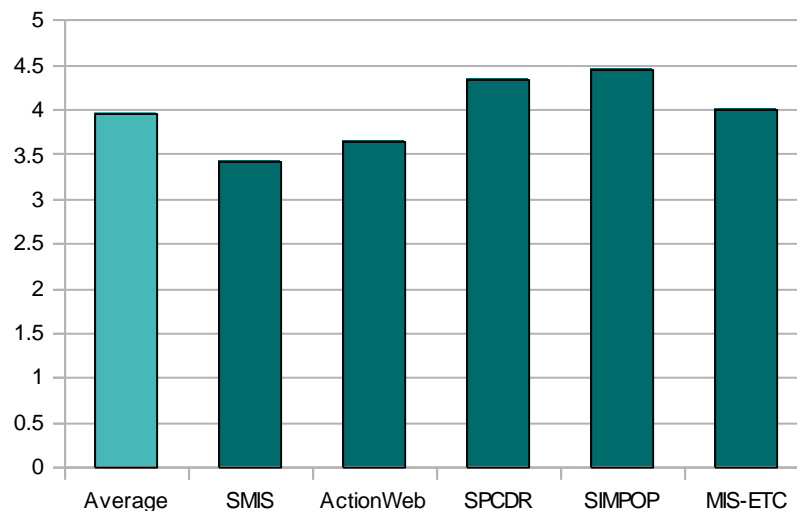
A poorer performance is recorded in relation to the frequency of minor incidents, which averages around 4 on a scale from 1 to 5, meaning "seldom", but not "very seldom". This indicates that at least for some of the systems, there are a significant number of cases of users that meet incidents regularly. One cause for this could be the web-based nature of most of the systems, thus relying on the proper functionality of the whole network of communication inter-connections, sometimes crossing the country from one end to the other. One failure of a device or a cable somewhere in the network could bring the electronic system unusable for some of the users.

Note: Details are based on information gathered from documentary analysis, interviews and focus group.

Another cause could be the software failures of some technical solutions that were left in a non-mature stage of development, due to the lack of appropriate services for continuous development of the software (needed both for repairing the hidden bugs discovered later and for updating the software to the changes appeared in the real world environment during time).

Note: Details are based on information gathered from documentary analysis, interviews and focus group.

Figure 3.3.7.1. Frequency of malfunctions that impede the proper use of the system (on a scale from 1 to 5; the higher, the better: 5 means "very seldom", 4 means "seldom")



References

<i>Data sources and methods</i>	<i>Questionnaires – see Annex 2, “Questionnaires”</i> <i>Checklists – see Annex 1, “Completed Checklists”</i> <i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i> <i>Focus group – see Annex 5, “Focus Group Agenda”, Annex 6, “Focus Group Presentation” and Annex 7, “Focus Group List of Participants”</i> <i>Documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See conclusion 3.2 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>See recommendation 2.6 in section 2 of Chapter 5, “Recommendations”</i>

3.3.8 Technology

All the systems are based on web-based software, which is the more modern technical solution allowing for a high decrease of administration costs, broad accessibility and high flexibility in the evolution of the system. The drawback of this technology relates to high demands at the level of the central node (the servers) and the reliance on a properly functioning network reaching even the most distant users. But the continuous and fast improvements in the ICT networks and systems in Romania should allow for easier fulfilment of these demands.

In terms of technical support, various solutions were approached. Bigger systems, like SMIS and MIS-ETC, have already migrated their hardware to specialised data centres; but the services are still managed internally. Other systems, like ActionWeb and SIMPOP, are entirely externalised. The hardware is hosted in other institutions that detain locations that are appropriate for this purpose. And all the services are provided by specialised IT companies, including services of continuous development (e.g. system and software updates). There is also the case of SPCDR, which is managed entirely internally (hardware and services).

More details are available in each of the checklists in Annex 1.

References

<i>Data sources and methods</i>	<i>Interviews with administrators of electronic systems – see Annex 3, “Interview Structure”, and Annex 4, “List of Interviews”</i> <i>Documentary analysis – see Annex 8, “List of Analysed Documents”</i>
<i>Conclusions</i>	<i>See conclusion 3.2 in section 3 of Chapter 4, “Conclusions”</i>
<i>Recommendations</i>	<i>As there are no pending issues (see conclusion: “all the systems prove to be satisfactory”), there is no point for recommendations.</i>