

Interoperability Data for Romania, 2012

1. Interoperability as a strategic goal	
1.1. Strategic Priority on Interoperability	Yes (2011)
<p>The new <i>eRomania strategy (Strategia nationala eRomania) 2010-2013</i>, which was released in January 2010, is a key driver for interoperability efforts in Romania. It builds on existing eGovernment initiatives, such as SEN (National Electronic System), which is a common platform for providing several eServices to businesses and citizens via a portal. CNMSI (National Centre for Management of Information Society - Centrul National de Management pentru Societatea Informationala) aims to formalize and extend existing interoperability assets.</p> <p style="text-align: right;">(2011) [8]</p>	
1.2. National Interoperability Strategy Status	<i>Not available</i>
2. National Interoperability Frameworks	
2.1. National Interoperability Framework Status	
2.1.1. Title	Romanian National Interoperability Framework [8]
2.1.2. Version	<i>Not applicable</i>
2.1.3. Release Date	<i>Not applicable</i>
2.1.4. Focus / Scope	<i>Not applicable</i>
2.1.5. Audience	<i>Not applicable</i>
2.1.6. Status	Under development (2011) [8, 9]
2.1.7. Responsible Agency	National Centre for Management of Information Society (Centrul National de Management pentru Societatea Informationala – CNMSI), part of Ministry of Communications and Information (Ministerului Comunicatiilor si Societatii Informationale – MCSI) (2011) [8]
2.2. Compatibility of National Interoperability Framework with the European Interoperability Framework	<i>Not available</i>
3. Interoperability Projects and Activities	
3.1. Number of interoperability-related projects of local or national scope	Moderate
<p>National-Public Administration Portal:</p> <ul style="list-style-type: none"> - SEN-SDK (Romania's National Electronic System) - a unique centralized access point for users to electronic information and services provided by the public administration through a common web-based front end (http://www.e-guvernare.ro/sdk/indexen.htm) [3]. <p>E-Government Backbone: -</p> <p>Research & Education Network:</p> <ul style="list-style-type: none"> - Centre for Advanced Studies on Electronic Services [1]. - NED (Romanian National Education Database) a suite of software tools that allows the Romanian Ministry of Education, Research and Youth to permanently have a clear and complete image of the Romanian Education System (http://harta.bdne.edu.ro/harta/) [4]. 	

Environmental Geoportal: EU-Funded

Marine Data Management Infrastructure: EU-Funded

Legislation & e-Justice System: EU-Funded

e-Health System: -

e-Tax Portal & Infrastructure: -

Other projects:

- **SEAP** (The national public eProcurement system – ‘Sistemul Electronic de Achizitii Publice’, also known as ‘eLicitatie’) [1].
- **Project ‘Braşov City Hall just a click away’** (‘Primăria Braşov la un click distanţă’), an initiative enabling Braşov citizens to use a range of public eServices [1].
- **VPO** (VPO electronic payment platform) - the information system of public use, part of the eGovernment system, which allows natural and legal persons to perform online payments using their bank card towards Romania’s central and public administration. (<https://www.ghiseul.ro/ghiseul/public>) [2].
- **RoSTEPS** (Romanian State Treasury Electronic Payment System) software application and system for accounts administration implemented by the Romanian State Treasury within the Romanian Ministry of Public Finance, through which all the financial operations that were previously managed manually, in a scriptural on-paper way with human intervention, are now automated, which means they are faster, more secure and cost a lot less. (<http://www.bisnet.ro/SIS.htm>) [5].

[1, 2, 3, 4, 5]

3.2. Number of EU-funded interoperability-related projects

Moderate (2011)

3.2.1. Indicative projects

- **Organic.Edunet** (Oct 2007 – Sep 2010), a multilingual federation of learning repositories with quality content for promoting awareness and education of the European youth about Organic Agriculture and Agroecology. Organic.Edunet has focused on achieving interoperability between the digital collections of OA and Agroecology content that producers in various EU countries have developed, as well as on facilitating access, publication, search, retrieval and use of this content in multilingual learning contexts through a single European reference point (<http://www.organic-edunet.eu>) [8].
- **ESDIN** (European Spatial Data Infrastructure with a Best Practice Network, Sep 2008 – Feb 2011), a collaboration network between mapping and cadastral agencies, academic institutions and technology providers, aiming to put into practice the INSPIRE Directive towards the implementation and usage of interoperable geographical data by Spatially-enabled Societies (<http://www.esdin.eu>) [9].
- **NET-EUCEN** (European Network for Enhanced User Centricity in eGovernment, April 2010 -) to create, animate and manage a working network of stakeholders in the Governance, User Centricity and Policy Modelling domains belonging to all European countries, and covering the whole range of Services for Users (S4U), and with the aim, among others, to identify opportunities for interoperability and standardization in the aforementioned domains, raise awareness, and provide guidelines and recommendations (<http://www.net-eucen.org/>) [10].
- **ECRN** (European Civil Registry Network, May 2009 -), offering an innovative solution to run the first secure electronic exchange of acts (birth, marriage, divorce, death) that complies with the Wien Convention 1976 on Multilingual Documents and representing the interoperability layer among the national systems (<http://www.ecrn.eu>) [11].

- **PenalNet** (secure e-communication in Criminal Law Practice, Jan 2008 – Jan 2010), constituting the first European network for secure, fluent and efficient e-communication intended for criminal lawyers, supported by a digital certificate-based platform, wherein EU criminal lawyers may register and communicate securely, which helps strengthen the cross-border confidence and guarantees identification, confidentiality, integrity and non-repudiation. PenalNet is aligned with the European Interoperability Framework for Paneuropean e-government services that sets the standards needed so that public administrations, enterprises and citizens can interact across borders, in a pan-European context (<http://www.penalnet.eu/>) [12].
- **SELIS** (“SEcure ELEctronic Invoicing Service”), a cross-border service for the secure exchange of eInvoices, based on an innovative architecture that adopts the most advanced standards for the secure provision of interoperable services (<http://selis.unipi.gr/selis/main/index.html>) [13].
- **EMPOWER** (A semantic service-oriented private adaptation layer enabling the next generation, interoperable and easy-to-integrate software products of European software smes) (May 2009- April 2011) proposing an innovative framework and the enabling technologies that will allow the European Software SMEs to create their next generation, loosely-coupled, interoperable and easy-to-integrate Commercial-off-the-Shelf software products, leveraging the quality of the application software and the integration services delivered to their customers (<http://www.ep-empower.eu/>) [14].
- **EGEE-III** (Enabling grids for e-science III) (May 2008 – April 2010) in order to expand, optimize and simplify the use of Europe's largest production Grid by continuous operation of the infrastructure, support for more user communities, and addition of further computational and data resources and to prepare the migration of the existing Grid from a project-based model to a sustainable federated infrastructure based on National Grid Initiatives (<http://www.eu-egee.org/>) [15].
- **SeaDataNet** (Pan-European Infrastructure for Ocean and Marine Data Management, April 2006 – March 2011), aiming to develop an efficient distributed Pan-European Marine Data Management Infrastructure for managing large and diverse marine research data sets, and to network the existing professional data centers of 35 countries, active in data collection, and provide integrated databases of standardized quality on-line (<http://www.seadatanet.org/>) [16].
- **SeaDataNet II** (Pan-European infrastructure for ocean and marine data management, Oct 2011- Sept 2015) aiming to upgrade the present SeaDataNet infrastructure into an operationally robust and state-of-the-art Pan-European infrastructure for providing up-to-date and high quality access to ocean and marine metadata, data and data products originating from data acquisition activities by all engaged coastal states, by setting, adopting and promoting common data management standards and by realising technical and semantic interoperability with other relevant data management systems and initiatives on behalf of science, environmental management, policy making, and economy (<http://www.seadatanet.org/>) [17].
- **EURIDICE** (European inter-disciplinary research on intelligent cargo for efficient, safe and environment-friendly logistics, Feb 2008 – Oct 2011), to improve the logistics, business processes and public policy aspects of freight transportation through the establishment of an information services platform that will support “on the fly” combination of services between user, context and cargo utilizing a number of advanced features and technologies, e.g. SOA architectures incorporating mobile technologies, interoperability between heterogeneous environments, advanced security features, semantic web and domain ontologies, advanced context technologies, distributed intelligent agencies etc. (<http://www.euridice-project.eu/>) [18].
- **CLARIN** (Common language resources and technology infrastructure, Jan 2008 – June 2011), with the goal to develop and operate a shared distributed infrastructure, making available language resources and technology to the humanities and social sciences research communities, based on data and interoperability standards (<http://www.clarin.eu/external/>) [19].

- **COIN** (Collaboration and interoperability for networked enterprises, Jan 2008 – Dec 2011) aiming to study, design, develop and prototype an open, self-adaptive, generic ICT integrated solution to support the above 2020 vision, starting from notable existing research results in the field of Enterprise Interoperability and Enterprise Collaboration (<http://www.coin-ip.eu/>) [20].
- **OASIS** (Open architecture for accessible services integration and standardization, Jan 2008 – Dec 2011) aiming to enable and facilitate interoperability, seamless connectivity and sharing of content between different services and ontologies in all application domains relevant to applications for the elderly and beyond (<http://www.oasis-project.eu/>) [21].
- **CLOUD4SOA** (A Cloud Interoperability Framework and Platform for user-centric, semantically-enhanced, service-oriented applications design, deployment and distributed execution, Sep 2010 – Aug 2013), aiming to resolve the interoperability and portability issues that exist in current Clouds infrastructures and on introducing a user-centric approach for applications which are built upon and deployed using Cloud resources (<http://www.cloud4soa.eu/>) [22].
- **ALICANTE** (Media Ecosystem Deployment Through Ubiquitous Content-Aware Network Environments, March 2010 – Feb 2013), proposing a novel concept towards the deployment of a networked Media Ecosystem, and targeting the development of an interoperable middleware for the adaptation of advanced, distributed media resources to the user's preferences and heterogeneous contexts (<http://alicante.labri.fr/>) [23].
- **IOT.EST** (Internet of Things Environment for Service Creation and Testing, Oct 2010 – Sep 2014), aiming at developing a test-driven service creation environment (SCE) for Internet of Things enabled business services. The SCE will enable the acquisition of data and control/actuation of sensors, objects and actuators. The project will provide the means and tools to define and instantiate IoT services that exploit data across domain boundaries and facilitate run-time monitoring which enables autonomous service adaptation to environment/context and network parameter (e.g. QoS) changes and will also prototype its major concepts and will evaluate the results for exploitation towards future IoT service creation, deployment and testing products (<http://ict-iotest.eu/iotest/>) [24].
- **Plan4all** (Plan4all geoportal), focusing on the harmonization of spatial planning data based on the existing best practices in EU regions and municipalities and on the base of results of current research project. (<http://www.plan4all.eu/>) [25].
- **GS Soil** (Assessment and strategic development of INSPIRE compliant Geodata-Services for European Soil Data) aiming, through state-of-the-art methodologies and best practice examples, to improve harmonization of national datasets and make them more accessible and exploitable within Europe. Therefore, the consortium contributes to the INSPIRE implementation with specific reference to a cluster of data themes on nature conservation (as per the INSPIRE Annexes) (<http://www.gsoil.eu/>) [26].

(2011) [10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28]

4. National Interoperability Practices

4.1. Number of Interoperability Cases with Good Practice Label

Low

- **NED** (Romanian National Education Database) a suite of software tools that allows the Romanian Ministry of Education, Research and Youth to permanently have a clear and complete image of the Romanian Education System (<http://harta.bdne.edu.ro/harta/>) [4]. (ePractice Good Practice Label 2007)
- **RoSTEPS** (Romanian State Treasury Electronic Payment System) software application and system for accounts administration implemented by the Romanian State Treasury within the Romanian Ministry of Public Finance, through which all the financial operations that were previously managed manually, in a scriptural on-paper way with human intervention, are now automated, which means they are faster, more secure and cost a lot less (<http://www.bisnet.ro/SIS.htm>) [5]. (ePractice Good Practice Label 2009)

- **VPO** (VPO electronic payment platform) - the information system of public use, part of the eGovernment system, which allows natural and legal persons to perform online payments using their bank card towards Romania's central and public administration. (<https://www.ghiseul.ro/ghiseul/public>) [2, 6]. (Capgemini Good Practice Label 2010)

[2, 4, 5, 6]

4.2. Best Interoperability Practice

4.2.1. Title

RoSTEPS (Romanian State Treasury Electronic Payment System) (2011)

4.2.2. Description

RoSTEPS (Romanian State Treasury Electronic Payment System) software application and system for accounts administration implemented by the Romanian State Treasury within the Romanian Ministry of Public Finance, through which all the financial operations that were previously managed manually, in a scriptural on-paper way with human intervention, are now automated, which means they are faster, more secure and cost a lot less (<http://www.bisnet.ro/SIS.htm>).

(ePractice Good Practice Label 2009)

(2011)

4.2.3. Status

Ongoing since December 2004. Operational since May 2005.

(2011)

4.2.4. Indicative interoperability aspects covered

- Technical
- Organizational
- Legal
- Standardization

(2011)

4.2.5. Impact

Impact:

Given the size and spread that the financial operations of the State Treasury have on a nation-wide level, the impact of an application that increases its efficiency and effectiveness is very large.

- A direct result of implementing the application is the reduction of the transit time for all operations (expenditures or collection) from 3 days down to 1 day (the same day). This enables the Treasury to perform an active management of the financial flows, having available the necessary amounts as soon as they enter the system. The monetary exceeding is placed on the free financial market and is generating additional income, to support the state budget, even to the level of self-financing of the whole State Treasury institution. When the Treasury identifies a need for financing, to cover a negative balance period (with collections less than expenditures), it needs to borrow the necessary amounts from the market, and pay interests for that. The payments of interests for the contracted loans have managed to decrease by 30% using RoSTEPS. The money are available as soon as the transaction is operated, and based on a well documented analysis (with the forecasting tool, who also has a self-adjusting feature) the Treasury can enter the market in a moment where the interests have a low value, thus keeping the costs at a reasonable level. All the State Treasury's customers (including private and public sector, but also the social services, unemployment, health, etc.) benefit from a faster access to the services provided: tax reimbursement (including VAT reimbursement, a major engine that can block or unblock the economic flow), tax collection, payments for public and private sector, etc.
- Another heavy-impact benefit is the fact that the Treasury is not creating anymore an additional pressure on a budgetary level, by managing to self-finance and support its own functioning. Any extra cost that is reduced or eliminated by using the appropriate software tool is reducing the budgetary pressure, with positive impact on basically all the Romanian citizens.
- A nation-wide impact is the ease and streamlining of financial flows throughout the whole Romanian economy. By cashing in and paying off all the collections and payments in the same day as the operation is ordered, the money goes in and out the economic flow immediately, with a multiplication effect on the whole financial and economic environment of Romania.
- Another impact is the stabilization of the interest rates in the financial and banking sector, as a result of a proper management of the Treasury funds. When the Treasury needs to involve money from the free market for its own operations, having the ability to search and find the lowest interests rates available is keeping the general percentage of interests at a reasonable level (it is a well-known fact that no bank will go lower with its interest rates than the interest that the State Treasury is willing to pay for a loan) – and this has also an impact on a national scale.

Results:

- To evaluate the weight the State Treasury within the Ministry of Public Finance is having on the financial market in Romania, we can say that it accounts for 24% of all collections and 32% of all payments on a national level (being by far the biggest actor on a financial market that has 42 banks and 1 treasury).
- Analyzing the statistics for 2006-2008 timeframe, we see that the consolidated traffic of operations for the State Treasury has recorded a positive dynamics, with a growth of 42.32%, while in the same time the value of commissions perceived by the State Treasury for its operations has only increased by 14.74% in absolute value, which in fact accounts for a relative decrease of commissions level by 65%, as compared to the period when there was no application in place.

This was accomplished mainly by having a system that manages optimally the available resources and the financing requirements, and the software application and the whole RoSTEPS concept is a 100% "responsible" for that achievement. The State Treasury is a system that is not allowed to fail. Only 3 days of not performing its operations and holding down the payments will result in a major failure of the economical environment in Romania, so the entire activity of the Treasury comprehends a systemic risk that is of outmost importance.

Lessons Learnt:

- Given the initial lack of banking business operations experience of the State Treasury team, RoSTEPS was conceived to embed a knowledge management (KM) subsystem. This KM subsystem provides for: Best practice procedures, applicable under business as usual or exception situations Generic business continuity plan and procedure e-learning environment both for operations (business) and administrative (technical) members of the State Treasury team Embedded tool for procedures creation, maintenance and updating Centralized resource database (assets, people, events, procedures etc)

The Knowledge Management subsystem proved itself invaluable to both business knowledge transfer and effective operational risk containment. Since its initial deployment the knowledge database was continuously enriched, providing the future adopters of RoSTEPS a practice proven business methodology and optimized experience. Should the solution be replicated for other EU State's Treasuries, the Knowledge Management feature will be a part that will not miss from the implementation.

- The initial project was resized to: Save investment costs by eliminating the testing and prototype platforms for RoSTEPS. This decision has adversely impacted the operational risk, since RoSTEPS has to at least yearly align to the new releases of the banking payment standards and to the new European ECB and EPC regulations.- Preserve the initial security access control, by eliminating the remote access features, meant to ensure agile exceptions diagnose and solving performed by the solution provider partner. This decision lead to higher recurring software support services costs and durations.
- The advantage of using standards, communication and business instruments, resulting in high interoperability with the business community, proved to be of great value during the conception, implementation, testing and operation of the solution. This also assures the sustainability of the system, as we are one step ahead with respect to the financial legislation and standards compliance, so the easy interoperability with future aligned systems is already accomplished. Should the solution be replicated for other EU State's Treasuries, the same approach considering the standards and best practices compliance will be pursued.

(2011)

5. e-Government Interoperability

5.1. Interoperability Level of core e-Government services to citizens / businesses	60.0% (2010) [29]
5.2. Connected Government Status	1.6% (2008) [30]

6. e-Business Interoperability

6.1. Intra-organizational Integration Level	40.0% [7]
6.2. Cross-organization Integration Level	42.0% [7]
6.3. Cross-organization Application-to-Application Integration Level	17.0% [7]
6.4. e-Invoicing Status	22.0% [7]
6.5. B2B Data Standards Usage	
6.5.1. EDI-based standards	<i>Not available</i>
6.5.2. XML-based standards	<i>Not available</i>
6.5.3. Proprietary standards	<i>Not available</i>
6.5.4. other technical standards	<i>Not available</i>
6.6. Interoperability Awareness	
6.6.1. Within their sector	<i>Not available</i>

 **Interoperability Barometer**

6.6.2. Between sectors	<i>Not available</i>
6.6.3. For producing or providing products and services	<i>Not available</i>

References

1. ePractice.eu. (2011). "eGovernment factsheets: eGovernment in Romania", Edition 10.0, October 2011. Retrieved from <http://www.epractice.eu/en/factsheets/>.
2. ePractice.eu Cases: VPO electronic payment platform. Retrieved from <http://www.epractice.eu/en/cases/vpo> (Last Edited Date: 17 November 2008).
3. ePractice.eu Cases: Romania's National Electronic System. Retrieved from <http://www.epractice.eu/en/cases/senegubernare> (Last Edited Date: 29 September 2008).
4. ePractice.eu Cases: Romanian National Education Database. Retrieved from <http://www.epractice.eu/en/cases/ned> (Last Edited Date: 01 July 2009).
5. ePractice.eu Cases: Romanian State Treasury Electronic Payment System. Retrieved from <http://www.epractice.eu/en/cases/rosteps> (Last Edited Date: 30 November 2009).
6. Capgemini. (2010). "Digitizing Public Services in Europe: Putting ambition into action" (9th Measurement, December 2010). Retrieved from <http://www.capgemini.com/insights-and-resources/by-publication/2010-egovernment-benchmark/>.
7. European Commission – Eurostat: Information society statistics, Policy indicators. Retrieved from <http://epp.eurostat.ec.europa.eu/>.
8. ePractice.eu Factsheets: Romania Interoperability Factsheet. Retrieved from <http://epractice.eu/files/Romania.pdf>.
9. Gartner. (2009). NIFO project – Final report: "A Report for European Commission Directorate General for Informatics", Version 130, May 2009, Retrieved from <http://www.epractice.eu/files/NIFO%20project%20-%20Final%20report.pdf>.
10. ePractice.eu. Cases: Organic.Edunet*. Retrieved from <http://www.epractice.eu/en/cases/organicedunet> (Last Edited Date: 04 January 2011).
11. ePractice.eu Cases: European Spatial Data Infrastructure with a Best Practice Network. Retrieved from <http://www.epractice.eu/en/cases/esdin> (Last Edited Date: 15 December 2010).
12. ePractice.eu. Cases: European Network for Enhanced User Centricity in eGovernment. Retrieved from <http://www.epractice.eu/en/cases/neteucen> (Last Edited Date: 02 November 2010).
13. ePractice.eu. Cases: European Civil Registry Network. Retrieved from <http://www.epractice.eu/en/cases/ecrn2009> (Last Edited Date: 25 January 2010).
14. ePractice.eu. Cases: PenalNet: secure e-communication in Criminal Law Practice. Retrieved from <http://www.epractice.eu/en/cases/penalnet> (Last Edited Date: 20 April 2009).
15. ePractice.eu Cases: Secure Electronic Invoicing Service. Retrieved from <http://www.epractice.eu/en/cases/selis> (Last Edited Date: 06 February 2008).
16. European Commission - CORDIS: A semantic service-oriented private adaptation layer enabling the next generation, interoperable and easy-to-integrate software products of European software smes (EMPOWER). Retrieved from link (Update Date: 2011-06-14).
17. European Commission - CORDIS: Enabling grids for e-science III (EGEE-III). Retrieved from link (Update Date: 2011-07-19).
18. European Commission – CORDIS: SeaDataNet - A Pan-European Infrastructure For Ocean And Marine Data Management. Retrieved from link (Update Date: 2011-03-31).
19. European Commission – CORDIS: SeaDataNet II - A Pan-European Infrastructure For Ocean And Marine Data Management. Retrieved from link (Update Date: 2011-10-31).

20. European Commission - CORDIS: European inter-disciplinary research on intelligent cargo for efficient, safe and environment-friendly logistics (EURIDICE). Retrieved from link (Update Date: 2011-10-31).
21. European Commission - CORDIS: Common language resources and technology infrastructure (CLARIN). Retrieved from link (Update Date: 2011-11-22).
22. European Commission - CORDIS: Collaboration and interoperability for networked enterprises (COIN). Retrieved from link (Update Date: 2011-05-26).
23. European Commission - CORDIS: Open architecture for accessible services integration and standardisation (OASIS). Retrieved from link (Update Date: 2011-01-28).
24. European Commission - CORDIS: A Cloud Interoperability Framework and Platform for User-centric, Semantically-enhanced Service-oriented Applications Design, Deployment and Distributed Execution (CLOUD4SOA). Retrieved from link (Update Date: 2010-11-23).
25. European Commission - CORDIS: Media Ecosystem Deployment Through Ubiquitous Content-Aware Network Environments (ALICANTE). Retrieved from link (Update Date: 2010-05-28).
26. European Commission - CORDIS: Internet of Things Environment for Service Creation and Testing (IOT.EST). Retrieved from link (Update Date: 2011-10-31).
27. ePractice.eu Cases: Plan4all geoportal. Retrieved from <http://www.epractice.eu/en/cases/plan4all> (Last Edited Date: 16 February 2011).
28. ePractice.eu. Cases: GS Soil: Assessment and strategic development of INSPIRE compliant Geodata-Services for European Soil Data. Retrieved from <http://epractice.eu/en/cases/gsoil> (Last Edited Date: 18 January 2012).
29. Capgemini. (2010). "Digitizing Public Services in Europe: Putting ambition into action" (9th Measurement, December 2010). Retrieved from link.
30. United Nations. (2008). "eGovernment Survey 2008: From eGovernment to Connected Governance", New York 2008. Retrieved from link.