

Interoperability Data for Turkey, 2012

1. Interoperability as a strategic goal	
1.1. Strategic Priority on Interoperability	Yes
<p>The country's Information Society Strategy for the period 2006-2010 includes among its basic priorities "Citizen-Focused Service Transformation" and "Modernization in Public Administration" with the issuing of a Guide on interoperability standards as part of the second priority, while few interoperability-related actions are foreseen in the Action Plan complementing the former strategy [1, 2]. The Interoperability Guide, being mandated by the Circular of the Prime Minister, as part of the Turkish e-Government strategy and action plans, and having thus legal foundation, is mandatory for all new government information systems. Additionally, the 9th Development Plan (2007-2013), although not explicitly referring to interoperability, foresees the development of an effective, interoperable, integrated and secure e-Government structure to allow information sharing and provision of services in a digital environment [3].</p> <p style="text-align: right;">[1, 2, 3]</p>	
1.2. National Interoperability Strategy Status	Not planned (2011)
2. National Interoperability Frameworks	
2.1. National Interoperability Framework Status	
2.1.1. Title	Birlikte Calibilirlik Esaslari Rehberi – Principles of Interoperability Guide [1, 3, 4]
2.1.2. Version	2.0 (2011)
2.1.3. Release Date	February 2009 (Version 1.0 was published in August 2005) (2011)
2.1.4. Focus / Scope	Unknown (2011)
2.1.5. Audience	Government sector (2011)
2.1.6. Status	Published
<p>(Initiated by the Turkey eTransformation Project under the Information Society Program and aiming to enable public entities to establish information systems capable of sharing information and documents on electronic media).</p> <p style="text-align: right;">[1, 3, 4]</p>	
2.1.7. Responsible Agency	Information Society Department of the State Planning Organisation (http://www.bilgitoplumu.gov.tr/) [1, 3, 4]
2.2. Compatibility of National Interoperability Framework with the European Interoperability Framework	Not available
<p>Unknown</p> <p style="text-align: right;">(2011)</p>	
3. Interoperability Projects and Activities	
3.1. Number of interoperability-related projects of local or national scope	High
National-Public Administration Portal:	

- **e-Government Gateway** (e-Devlet Kapisi), acting as a single point of access to e-Government services for citizens and enterprises, as well as enabling public sector agencies to interact with each other and exchange information. As of May 2010, the e-Government Gateway includes a total of 174 services of 23 different agencies as well as information about administrative procedures and links to the services provided directly through websites of each individual public agency and enables secure transactions through electronic signatures [3].
- **YereINET** (Interactive portal for Turkish Local Governments), an interactive knowledge exchange network that collects data on local governments and serves local civil servants, academicians, and citizens without any fee or password as single access point (<http://www.yereinet.org.tr>) [16].

E-Government Backbone:

- **MERNIS**, the Central Civil Registration System for automating census events and storing census information along with **KPS** (ID Information Sharing System) as an extension of it, assigning a unique ID number for all citizens to be used in many eServices and thereby increasing enormously the speed and efficiency of the services provided to them, and **AKS** (Address Record System), designed to link address data with unique ID number for legal and real persons. All three systems as an integrated whole constitute one of the backbones of e-Government (http://www.nvi.gov.tr/Hakkimizda/Projeler,Mernis_Genel.html?pageindex=4) [3, 6].
- **Public Secure Network**, to serve as the backbone of the country's e-Government architecture and to connect various government agencies within a secure communication infrastructure using standardized meta-data protocols [3].

Research & Education Network:

- **e-Okul** (Turkey's eSchool) Project, through which all the identification and school registration information (e.g. class, branch etc.) of each student in formal education has been recorded into a central information system, allowing among others transferring students to another school to be carried out electronically by the system (<http://eokul.meb.gov.tr>) [13].

Environmental Geoportal: -

Marine Data Management Infrastructure: EU-Funded

Legislation & e-Justice System:

- **UYAP** (National Judiciary Information System), a nationwide central e-justice information system, developed, in order to enable connection and correspondence among all judicial institutions and other governmental departments through a secure network, provide access to all legal sources (legislation, case law, bulletins, circulars and judicial records, and offer an electronic environment for all judiciary processes and transactions, and thus improve the functioning and efficiency of the judiciary and create a fast, effective, reliable, accurate and less bureaucratic judicial system for the concerned institutions and individuals (<http://www.uyap.gov.tr/>) [3, 9, 10].
- **Central Legal Entity Information System** in Mersin Trade Registry Office, as a central database for trade registries, depending on the use of a unique identification number for all legal entities and enabling online application for trade registry services [3].

e-Health System:

- **Pharmacy Automation System**, allowing online transactions between pharmacies and the Social Security Institution, so that the medical costs are directly settled among the aforementioned organizations [3].

e-Tax Portal & Infrastructure:

- **Tax Offices Automation Project (VEDOP)**, with various applications (e.g. e-Declaration application, Internet Tax Office etc.) and **eTax infrastructure**, a nationwide communications network integrating 599 offices of the Revenue Administration, and enabling to streamline administrative workflows and submit tax returns online [3].

Other projects:

- **e-Correspondence** project, which aims at making official communications between Turkish public authorities electronic, was launched at www.eyazisma.gov.tr. The e-Correspondence project (e-Yazışma, in Turkish), which is currently in the pilot stage, is intended to develop a common set of rules for the implementation of the secure exchange of electronic documents between state institutions, thus entailing the use of electronic signature and encryption mechanisms [3].
- **VOIP** and Virtual Private Network Project, aiming at merging all the foundations of the General Directorate in the same backbone network via VPN (Virtual Private Network) nodes, and enabling them to communicate with each other and with the General Directorate easily and virtually for free (<http://www.sydgm.gov.tr/tr/html/298>) [7].
- **TRNASP** (The Turkish National Agency Software Project), the central e-transformation project of the Turkish National Agency, integrating online services with the agency's internal processes with a strategic focus (<https://online.ua.gov.tr/trnasp/>) [5].
- **PARDUS** Project, delivering the first Linux distribution, specifically targeted at Turkish GNU/Linux users to be used by the FLOSS community in Turkey and to be deployed and used in government and other public services, pertaining to the Turkish military and defense, the radio and telecommunications, health and education sectors, as well as by private vendors (<http://www.pardus.org.tr/eng/>) [11].
- **e-MIA** (Turkey's eMinistry of Interior Affairs) Project, ran by Turkey's Ministry of Interior, in order to standardize and speed up its internal processes, set up efficient e-government procedures, improve access to information stored in electronic files and save costs in terms of time, personnel, archiving (<http://www.tccb.gov.tr/>) [12].
- **ETUM**, the e-Transformation Frame Programme in Uskudar Municipality, aiming at providing online e-government (e-municipality) operations and comprising six individual projects: 1. Web portal, e-Municipality services and e-City MAP, 2. IVR (Interactive Voice Response) system, 3. Kiosk units, 4. Mobile Municipality System, 5. The Land Registry and Cadastre Directorate Integration, 6. Digital Archiving and Document Management System (<http://www.uskudar.bel.tr/>) [14].
- **TRAMER** (Motor TPL Insurance Information Center), an interoperable infrastructure established in 2004 with an eye to ensuring uniform implementation in MOTOR TPL Insurance and to handling a healthy pricing process by collecting insurance data in a central database and providing to its users with data query and reporting service (<http://www.tramer.org.tr>) [15].
- **e-Bildirge (eFiling) portal**, the Social Security project for employers, enabling the former to send the insurance premium documents of employees of both public and private institutions via the Internet and to make accrued cost payments via automatic payment or Internet banking, while also enabling monitoring of accrual-revenue information and past debts [3].
- **IL-BIS** (İller Bank Information system) project, to transform İller Bank to an e-institute, by changing existing institute culture, business model and process, product and services in favor of employees, citizens, partners and social shareholders, and achieving integration between units (<http://www.ilbank.gov.tr/>) [18].
- **Virtualgdsas** (Virtualization Project in GDSAS), aiming to put all systems of the GDSAS (General Directorate of the Social Assistance and Solidarity) into virtual environment, in order to respond quickly to the increased needs of capacity, minimize the disruption time and use the idle capacity, and thus better serve the expansion of the services of the GDSAS (<http://www.sydgm.gov.tr/tr/html/340/Sanallastirma+Projesi>) [19].

- **EMK** (e-Municipality in Kadikoy) a platform to provide access to municipal services (tax payment, Complaint and suggestion application, e-Library, Inquiry of Land-Use Plan etc.) to the citizens of the populous city of Kadikoy and ensure citizens' saving time and satisfaction (<http://v2.kadikoy.bel.tr/>) [17].
- **Online Environmental Licenses Project**, enabling businesses to conduct their work related to environmental permits and transactions online from a single portal in 14 provinces and with the prospect of being scaled to all 81 provinces (<http://eizin.cevreorman.gov.tr>) [3].

[3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]

3.2. Number of EU-funded interoperability-related projects

Moderate (2011)

3.2.1. Indicative projects

- **e-CODEX** (e-Justice Communication via Online Data Exchange, Dec 2010 – Nov 2013), to design a fully technically interoperable European e-Justice system (building on the national solutions to develop a pan-European interoperability layer) with the goal to improve the cross-border access of citizens and businesses to legal means in Europe as well as to improve communication, data exchange and interoperability between legal authorities within the EU (<http://www.ecodex.eu/>) [20].
- **ISURF** (An interoperability Service Utility for Collaborative Supply Chain Planning across Multiple Domains supported by RFID Devices, Feb 2008 – July 2010), providing a knowledge-oriented inter-enterprise collaboration environment to SMEs to share information on the supply chain visibility, individual sales and order forecast of companies, current status of products in the manufacturing and distribution process and the exceptional events that may affect the forecasts in a secure and controlled way (<http://www.srdc.com.tr/isurf/>) [21].
- **iCARDEA** (An Intelligent Platform for Personalized Remote Monitoring of the Cardiac Patients with Electronic Implant Devices, Feb 2010 – Jan 2013), aiming to expose CIED (Cardiac Implantable Electronic Devices) data through standard interfaces (based on the HL7, ISO/IEEE 11073 standards and the IHE IDCO Profile) to develop an intelligent platform to semi-automate the follow-up of CIED patients with context-aware, adaptable computer interpretable clinical guideline models. (<http://www.icardea.eu/>) [22, 23].
- **OPERAMAR** (An interOPERable approach to the European union MARitime security management, March 2008 – May 2009), meant to provide the foundations for pan-European Maritime Security Awareness by addressing the insufficient interoperability of European and national assets with a view to generating unified data models for seamless exchange and contributing to address the discrepancies of the behavioural, organisational, and cultural issues [24].
- **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 of Enterprise collaboration and Interoperability services becoming an invisible, pervasive and self-adaptive knowledge and business utility at disposal of the European networked enterprises from any industrial sector and domain in order to rapidly set-up, efficiently manage and effectively operate different forms of business collaborations, from the most traditional supply chains to the most advanced and dynamic business ecosystems (<http://www.coin-ip.eu/>) [25].
- **CASPINFO** (Caspian environmental and industrial data & information service, Sep 2009 – Feb 2011), aiming at strengthening the regional capacity and performance of marine environmental data & information management, by building a Caspian Sea network of leading environmental and socio-economic research institutes, governmental departments, oil & gas industries, and international bodies, and establishing an Internet based Data & Information Service, serving as a repository for relevant, available marine environmental and industrial (meta-) data, while ensuring interoperability and harmonization with other European systems and international meta-data standards (<http://www.caspinfo.net/>) [26].

- **WIMAGIC** (Worldwide interoperability microwave broadband access system for next generation wireless communications, Jan 2008 – Dec 2010), with the objective to develop novel and highly innovative technical solutions which will be backward compatible with the existing global broadband wireless access (BWA) standards (IEEE 802.16 and WiMAX) and linked to the specific end-user requirements to be incorporated into the emerging IEEE 802.16m standard (<http://www.wimagic.eu/>) [27].
- **PROTECTRAIL** (The Railway-Industry Partnership for Integrated Security of Rail Transport, Sep 2010 – Feb 2014), aiming to make single asset-specific solutions for railway security interoperable and to conceive and design a modular architectural framework, where each one of the latter can be plugged (<http://www.protectrail.eu/About-Protectrail>) [28].
- **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/>) [29].
- **MOBI3CON** (Developing mobile 3d data collection, processing and dissemination solution for construction SME-s, Jan 2009 – June 2011), aiming to develop a rugged and robust handheld 3D navigation and 3D data processing system, usable on construction sites, and enabling easy 3D data management, and interconnection and interoperability with generally accepted engineering software tools and existing 3D data processing systems respectively (<http://mobi3con.eii.ee/>) [30].
- **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 (<http://empower-project.eu/>) [31].
- **EGEE-III** (Enabling grids for e-science III, May 2008 – April 2010), 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 prepare the migration of the existing Grid from a project-based model to a sustainable federated infrastructure based on National Grid Initiatives. By strengthening interoperable, open source middleware, EGEE-III will actively contribute to Grid standards and will ensure that the European Grid does not fragment into incompatible infrastructures of varying maturity, but constitutes a world class, coherent and reliable infrastructure (<http://www.eu-egee.org/>) [32].
- **TRIDEC** (Collaborative, Complex and Critical Decision-Support in Evolving Crises, Sep 2010 – August 2013), targeting the construction of a communication infrastructure of interoperable services through which intelligent management of dynamically increasing volumes and dimensionality of information and data is efficiently supported and where groups of decision makers collaborate and respond quickly in a decision-support environment (<http://www.tridec-online.eu/>) [33].
- **BlogForever** (March 2011 - Aug 2013), to develop robust digital preservation, management and dissemination facilities for weblogs, capable of capturing the dynamic and continuously evolving nature of weblogs, their network and social structure, and the exchange of concepts and ideas that they foster; pieces of information omitted by current Web Archiving methods and solutions (<http://blogforever.eu/>) [34].
- **GENESIS** ("Enterprise Application Interoperability via Internet-Integration for SMEs, Governmental Organisations and Intermediaries in the New European Union") addressing the interoperability issues that hinder electronic transactions among enterprises and organizations today and focusing on the research, development and pilot application of the needed methodologies, infrastructure and software components that will allow the typical, usually small and medium European enterprise to conduct business transactions over the internet (<http://www.genesis-ist.eu/>) [35].

- **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 centres of 35 countries, active in data collection, and provide integrated databases of standardized quality on-line (<http://www.seadatanet.org/>) [36].
- **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/>) [37].
- **SALUS** (Scalable, Standard based Interoperability Framework for Sustainable Pro-active Post Market Safety Studies, Feb 2012 – Jan 2015) aim to provide a standard-based interoperability framework that will enable execution of safety studies for mining and analyzing real-time patient data in communication with disparate heterogeneous EHR systems. SALUS aims to provide functional interoperability profiles enabling exchange of EHRs, semantic interoperability solutions enabling meaningful interpretation of the exchanged EHRs, security and Privacy mechanisms ensuring EHRs are shared in an ethical and safe way, a novel framework for open-ended temporal pattern discovery for safety studies on top of EHR Systems, implementation of high potential use cases enabling secondary use of EHRs for post market safety studies (<http://www.salus-project.eu/>) [38].
(2011) [21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39]

4. National Interoperability Practices

4.1. Number of Interoperability Cases with Good Practice Label

Low

- **UYAP** (National Judiciary Information System), a nationwide central e-justice information system, developed, in order to enable connection and correspondence among all judicial institutions and other governmental departments through a secure network, provide access to all legal sources (legislation, case law, bulletins, circulars and judicial records, and offer an electronic environment for all judiciary processes and transactions, and thus improve the functioning and efficiency of the judiciary and create a fast, effective, reliable, accurate and less bureaucratic judicial system for the concerned institutions and individuals (<http://www.uyap.gov.tr/>) [3, 9, 10].
- **ETUM**, the e-Transformation Frame Programme in Uskudar Municipality, aiming at providing online e-government (e-municipality) operations and comprising six individual projects: 1. Web portal, e-Municipality services and e-City MAP, 2. IVR (Interactive Voice Response) system, 3. Kiosk units, 4. Mobile Municipality System, 5. The Land Registry and Cadastre Directorship Integration, 6. Digital Archiving and Document Management System (<http://www.uskudar.bel.tr/>) [14].

[3, 9, 10, 14]

4.2. Best Interoperability Practice

4.2.1. Title

UYAP (National Judiciary Information System) (2011)

4.2.2. Description

UYAP (National Judiciary Information System), a nationwide central e-justice information system, developed, in order to enable connection and correspondence among all judicial institutions and other governmental departments through a secure network, provide access to all legal sources (legislation, case law, bulletins, circulars and judicial records, and offer an electronic environment for all judiciary processes and transactions, and thus improve the functioning and efficiency of the judiciary and create a fast, effective, reliable, accurate and less bureaucratic judicial system for the concerned institutions and individuals (<http://www.uyap.gov.tr/>).

[3, 9, 10]

4.2.3. Status

Operational since January 2004

(2011)

4.2.4. Indicative interoperability aspects covered

- Information Exchange
- Knowledge Management
- Collaboration Management
- Data Repositories
- Authentication and Security
- Enterprise Architectures

(2011)

4.2.5. Impact

Benefits – Patterns:

UYAP has reduced the administrative and communication costs which would otherwise be incurred in a paper-based system. With the on-line connection and correspondence of courts, expenses of bureaucracy and postal costs have been removed. Judicial record database has been integrated with database of UYAP and all information (e.g. birth certificates, land registries, driver licenses, etc.) can be retrieved online and instantly at every stage of the trials. Thanks to internal and external integration totally 30.286.424 Euro is saved annually. All cases in courts can be accessible on line by authorized judges without delay. The processes, statistics and correspondences that formerly took hours or days can now be done only in minutes through UYAP by using electronic means, leading to some 30% labour force savings and providing speed and reliance. Thanks to UYAP the judicial inspections can be tackled online and remotely. UYAP provides a very powerful tool to combat fraud and abuse of verdicts. Electronic filing allows all data to be stored up-to date, accurate and ready with the click of a button, for more than one person concurrently. Thanks to online connection to banks which enable electronic collection of case fees, handling of cash is unnecessary which prevents corruption and bribes. Problems associated with handling of paper are no longer a burden for the judiciary such as non-filing and misfiling of documents, loss of case files, retrieving them instantly and need for huge storage places. Lawyers and citizens can do every kind of legal business through the Internet by using their e-signature. Overall, UYAP has enhanced the authority of the state, ensured victims to reach the Justice immediately and made easy to punish offenders. Those mentioned developments, in terms of their consequences are progresses augmenting the confidence of the citizens for the judiciary and show that the impact is sustainable.

Lessons Learnt:

- Team work spirit and motivation is one of the most important factors for success: Motivation of the staff has been supported with some awards schemes and e-mail sharing that has been established for knowledge supply and motivation. A knowledge management strategy based on the teamwork principle rather than depending on individuals has been tried.
- Awareness rising is needed to overcome the resistance of the users to using informatics technologies: trainings programs, awareness campaigns, meetings and seminars were organised for this purpose.
- It is not so difficult to use and to get used the technology: While the computer literacy was only 5 % before UYAP in courts, it has been increased to level of 95 % thanks to basic computer and UYAP modules trainings. In addition there has been a strong share of know-how, consultative discussions and collaboration between ICT experts and judicial staff.

(2011)

5. e-Government Interoperability

5.1. Interoperability Level of core e-Government services to citizens / businesses	89.0% (2010) [40]
5.2. Connected Government Status	5.56% (2008) [41]

6. e-Business Interoperability

6.1. Intra-organizational Integration Level	38.0% [20]
6.2. Cross-organization Integration Level	29.0% [20]
6.3. Cross-organization Application-to-Application Integration Level	17.0% [20]
6.4. e-Invoicing Status	15.0% [20]
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>
6.6.2. Between sectors	<i>Not available</i>
6.6.3. For producing or providing products and services	<i>Not available</i>

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