2016 update.

NIFO Factsheet – Germany

The website of the German Ministry of the interior has several pages dedicated to IT policy and interoperability. Including the IT Planning Council, the Federal Government Commissioner for Information Technology , as well as other relevant topics (IT and security, eGovernment, Federal IT, etc.)

See:

- http://www.bmi.bund.de/EN/Topics/IT-Internet-Policy/it-internet-policy_node.html
- http://www.cio.bund.de/Web/DE/Architekturen-und-Standards/architekturen_standards_node.html
- http://www.bmi.bund.de/EN/Topics/IT-Internet-Policy/IT-Planning-Council/it-planning-council_node.html

Main interoperability highlights

Germany has no formal National Interoperability Framework defined. The governance of IT and interoperability is established across levels of government. At federal level, the Federal IT Steering Committee and Federal IT Council are responsible for the Federal IT Framework, the coordination of large-scale IT projects. They are also deciding on the IT strategies, architectures and standards and coordinating interagency demand for IT, and the portfolio of IT services, under the auspices of the Federal Government Commissioner for Information Technology.

Across levels of government, the IT Planning Council (consisting of the Federal Government Commissioner for Information Technology and a representative from each of the 16 German Länder) is responsible for cooperation among federal, state and local governments on IT and e-government, with the aim of providing user-friendly electronic administrative services and cost-effective, efficient and secure IT operations for public administration, including deciding on standards for IT interoperability.

Germany has established the following activities to promote interoperability on the different levels set forward by the EIF:

- Technical interoperability is achieved by Germany's standardisation initiative SAGA 5.0[1], which is mandatory at Federal level and recommended for other levels of government. In addition, the IT Planning Council coordinates across levels of government and decides on standards for IT interoperability.
- Semantic interoperability is supported by the XÖV initiative.
- Organisational interoperability is supported by the National Process Library initiative.

[1] SAGA 5.0, http://www.cio.bund.de/DE/Architekturen-und-Standards/SAGA/SAGA%205-aktuelle%20Version/saga_5_aktuelle_version_node.html

- Legal interoperability is partly governed by the IT Planning Council and the IT Council[2] respectively.

The main tool to improve the technical interoperability in Germany is Standards and Architectures for eGovernment Applications (SAGA) 5.0[3]. Contrary to its previous version, the current version 5.0 is setup in a more modular way split up in three parts. SAGA now starts with a "5" as the major version number, followed by a sequential number that is incremented with each amendment or revision of a module. This means that updates of each module can be performed independently of one another. The current version consists of three parts that can be downloaded separately:

- "Grundlagen[4]": describes the objectives, frameworks, principles, and processes for the creation and updating of SAGA;
- "Konformität[5]": explains how the SAGA conformity of software systems can be backed up and explained;
- "Technische Spezifikationen[6]": the actual requirements and recommendations of IT specifications are for new and existing software systems, and products for custom development.

Germany pursues a number of initiatives on interoperability that are detailed below (see other initiatives on interoperability).

Summary of the NIF

As mentioned above, the NIF of Germany is not a single document but a compilation of initiatives that constitute the ongoing efforts concerning interoperability.

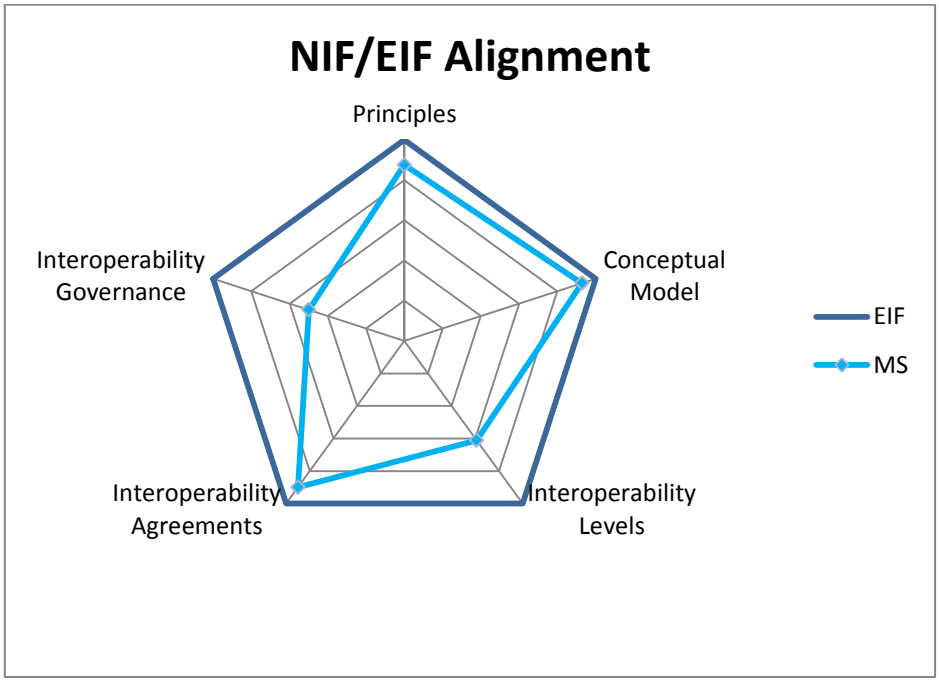
SAGA 5[7] however is the main framework for interoperability that is mandatory for all software systems of the German Federal administration.

SAGA's is used in procurement, creation and development of software systems. The SAGA specifications apply to all new software systems. A software system is new, if there is no ancestor or if the predecessor is fully replaced without reusing software units of the previous system. SAGA conformance of an application is evaluated on the basis of the models, procedures and standards described in module "SAGA Konformität".

[2] IT Council, http://www.it-planungsrat.de/DE/ITPlanungsrat/Organisation/KoSIT/KoSIT_node.html
[3] SAGA 5.0 press release, http://www.cio.bund.de/SharedDocs/Kurzmeldungen/DE/2011/20111104_it_rat_beschliesst_saga_5.html (accessed 5/11/2012)
[4] Grundlagen 5.1.0 http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/SAGA/saga_modul_grundlagen_de_bund_5_1_0_download.pdf?__blob=publicationFile (accessed 5/11/2012)
[5] Konformität 5.1.0 http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/SAGA/saga_modul_konformitaet_de_bund_5_1_0_download.pdf?__blob=publicationFile (accessed 5/11/2012)
[6] Technische Spezifikationen 5.0.0 http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/SAGA/saga_modul_tech_spez_de_bund_5_0_download.pdf?__blob=publicationFile (accessed 5/11/2012)
[7] http://www.cio.bund.de/Web/DE/Architekturen-und-Standards/SAGA/saga_node.html

Alignment NIF/EIF

The German NIF has a very strong alignment with the EIF on the 'principles', 'conceptual model' and the 'interoperability agreements'. There is a good alignment on the 'interoperability levels'. There is a partial alignment with the EIF on governance.



Since the 2016 update, SAGA fully aligns with ten of the twelve EIF principles. These ten principles are: Subsidiarity and proportionality, User-centricity, Inclusion and accessibility, Security and privacy, Administrative simplification, Transparency, Preservation of information, Openness, Reusability and Effectiveness and efficiency. SAGA aligns partially with one of the EIF principles, Technological neutrality and Adaptability. The principle of multilingualism is not taken into account.

The SAGA 5.0 module Grundlagen no longer presents a conceptual model as was present in previous versions of SAGA. The technical specifications document of SAGA makes clear that a Service Oriented Approach is taken. The document on the "Rahmenarchitektur IT-Steuereung Bund[8] v1.0" does contain the model represented by the different architectures. The Deutschland-Online (DOL) strategy aims to create a fully integrated eGovernment landscape in Germany, so that electronically captured data can be exchanged between the administrations of the Federal Government, federal states and municipalities in a consistent manner and across all levels. XöV now provides for XML standards that interconnect loosely coupled service components and a separate entity (BSI) is responsible for general IT security. The interoperability levels are partially described in SAGA 5.0 module "Grundlagen". SAGA focuses on technical interoperability as technical standards are defined in the module "Tech-

[8] http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/rahmenarchitektur_itsteuerung_bund_grundlagen_download.pdf?__blob=publicationFile

nische Spezifikationen[9]". There are however a number of other initiatives that each support their specific interoperability level.

The interoperability agreements described are well aligned with the EIF. SAGA does encourage the use of open specifications and has defined the life cycle of specifications.

Germany does have a partial governance framework as such defined. The IT council owns SAGA and is responsible for the definition of its scope and its development. It is also responsible for promoting SAGA.

More detailed information on NIF / EIF alignment is provided on the NIFO Community on JoinUp on the Compare NIFs page.

Example of alignment: Establishment of sector specific and cross-sectoral communities

Germany supports the establishment of sector specific and cross-sectoral communities that aim to facilitate semantic interoperability. The German online standardisation project (Deutschland-online Standardisierung) contains XÖV (XML for public administrations) working groups that aligned on the following:

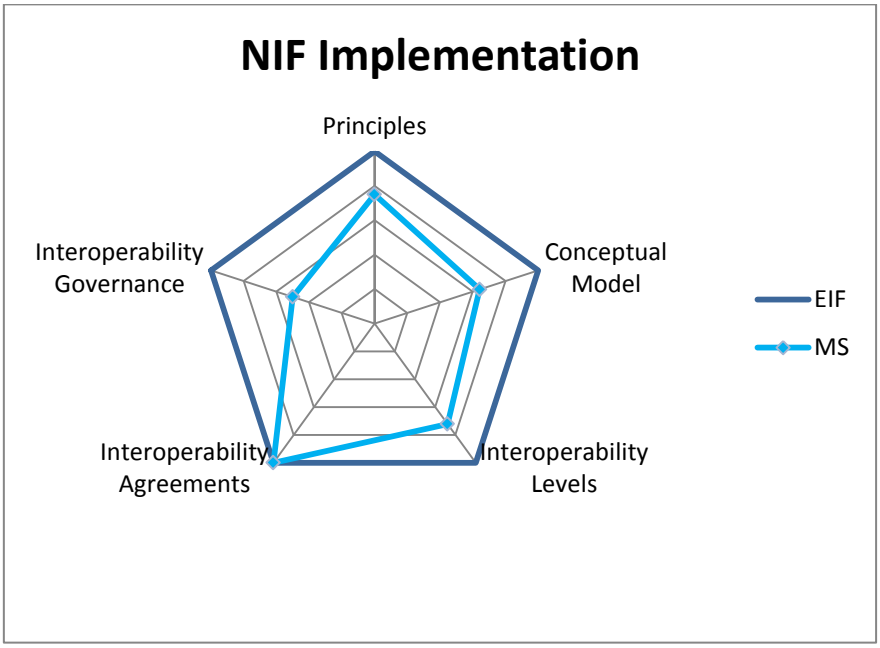
- Data conference working group to define general data models (XÖV Core components) for all public services
- Delivery and implementation of XÖV standards working group to address the practical use of the completed XÖV standards.

See http://www.cio.bund.de/DE/Architekturen-und-Standards/Daten-und-Prozessmodellierung/XML-in-der-oeffentlichen-Verwaltung/xml_verwaltung_inhalt.html

Implementation of NIF

Concerning the implementation of the NIF, all categories are covered, with the interoperability agreements very well covered.

[9] Technische Spezifikationen 5.0.0 http://www.cio.bund.de/SharedDocs/Publikationen/DE/Architekturen-und-Standards/SAGA/saga_modul_tech_spez_de_bund_5_0_download.pdf?__blob=publicationFile (accessed 5/11/2012)



In the principles dimension, examples exist for all principles except for multilingualism. The majority of these implementations are large-scale, which means a systematic implementation of the principle for each of the newly launched project.

In the conceptual model dimension, component-based service models and technologies for loosely coupled services are used whenever possible. Authentic sources such as base registries implement almost always an XÖV open standard and could therefore be used by others.

In the interoperability levels dimension, multiple elements are supported by the implementation examples of the XÖV standards and legislation requires that every IT project models and improve processes prior to IT implementation.

For the interoperability agreements dimension, the SAGA method is cited as implementation example, and more specifically the method to select technologies and standards.

Implementing governance is achieved by the IT planning council: it governs the IT landscape on the federal and regional levels and IT interoperability initiatives (e.g. SAGA) at federal level. The budget committee of the Bundestag closely monitors the implementation of the IT consolidation.

More information on all the implementation and monitoring examples is provided on the NIFO Community on JoinUp on the Compare NIFs page.

Example of Implementation/Monitoring: Access to authentic sources

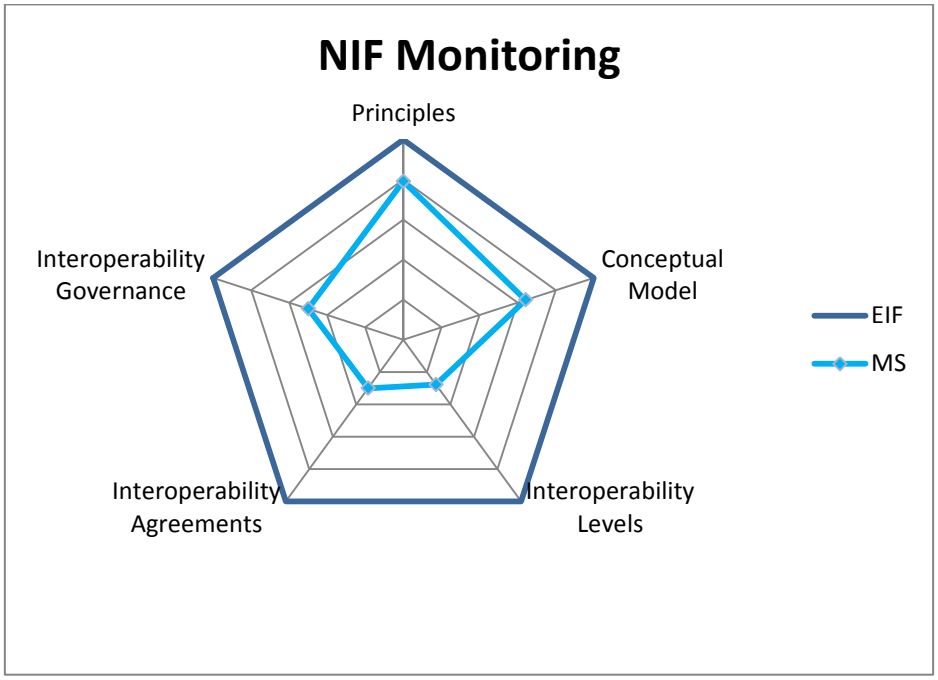
In Germany, the access to authentic sources is monitored in the following way:

- The action plan of the IT Planning Council is updated annually, and its implementation is monitored by the Office of the IT Planning Council.
- One of the projects and future applications is "open government", making available authentic sources of information to a broad public.

See http://www.it-planungsrat.de/DE/Home/home_node.html

Monitoring of NIF

Some elements of monitoring were identified.



Many of the principles are monitored through the 'Strategy' cooperation group that was launched by the IT Planning Council to coordinate, control and monitor the measures implementing the NEGS[10] (National eGovernment Strategy).

In the Conceptual Model dimension, the EIF elements of "access to authentic sources" and "access control" are monitored by the IT Planning Council and the National Cyber Defence Centre respectively.

Interoperability levels and agreements are monitored by the IT planning council and by the Federal Office of Administration for aspects related to the use of XÖV standards, and by the Court of Auditors for ensuring an adequate change management methodology is applied.

[10] NEGS: http://www.it-planungsrat.de/DE/NEGS/NEGS_node.html

On the overall governance aspect, the budget committee of the Bundestag closely monitors the implementation of the IT consolidation.

More information on all the implementation and monitoring examples is provided on the NIFO Community on JoinUp on the Compare NIFs page.

Other initiatives on interoperability

The administrative portals[11] of all authorities in the federal, state and municipalities are linked to a "virtual portal". Through individual user accounts it possible to log on and to authenticate with the necessary security level for the respective administrative service. To achieve this, the federal government receives an exclusive competence for the design of access including for municipalities. This takes place in the context of the reorganisation of the federal-state financial relations and is backed by a constitutional amendment (Art. 91 c para. 5 GG to the administrative services provided by federal and state governments). The necessary co-operation between the Federal Government and the Länder is ensured by means of the obligation to consent in the Federal Council. Govdata.de (https://www.govdata.de/) is the German open data portal that provides access to national datasets. The portal gives currently access to more than 18.000 datasets (https://www.govdata.de/daten), which are also accessible via ODIP (https://data.europa.eu/euodp/en/data), the pan-European single point of access to European datasets. More than 20 applications, which is double compared to the situation of 2015, have used one or more datasets that are available on the portal (https://www.govdata.de/apps). The portal also hosts 18.000+ data and a hundred of documents.

The German Federal Office for Information Security (BSI-Bundesamt fuer Sicherheit in der Informationstechnik) is joined to the FIDO (Fast IDentity Online) Alliance (https://fidoalliance.org). This industry consortium (existing since 2013) intends to revolutionize online security with open standards for simpler, stronger authentication.

To achieve semantic interoperability in the electronic data exchange within and with the public administrations, common rules for developing and maintaining standards for electronic data interchange (XÖV standards) are developed and coordinated. The XÖV standards for the different administrative domains are stored in the XRepository. The XRepository became a member of the Joinup-ADMS platform end of 2015. This membership allows sharing the XÖV standards across Europe.

XÖV standards are open, royalty free standards, which describe the electronic data exchange within and between different administrative bodies and/or between administration and industry. Openness means that the development process and the access to the standard are open, e.g. every standard can be down-loaded for free from the XRepository. A certification process ensures proper quality of the standard. Some certified standards are mandatory for certain domains and/or are referenced or required by law.

[11] http://www.bmi.bund.de/SharedDocs/Pressemitteilungen/DE/2016/12/buergerportal.html

From a legal level, the technical, semantic and organisational interoperability initiatives are steered by the **IT Council** on the federal level and by the **IT planning Council** on the level of the cooperation between the federal government and the federal states (Länder). Their main tasks towards achieving interoperability is to put forward standards, which are used in public procurement, to develop commonly used software systems to solve particular problems (e.g. a records management system) and to manage the different interoperability initiatives.

Furthermore, it is key that standards, semantic agreements, organisational processes are aligned and managed appropriately to finally become effective. It is the responsibility of the Germany architecture initiative to manage Germany's central software and business architectures, e.g. to align business process to IT, to ensure that selected SAGA standards are actually used in software development and procurement, to add required standards to the SAGA process and to ensure that software-components are widely re-used.

The above-mentioned interoperability initiatives have the following scope:

- SAGA is mandatory only for the Federal Government. The counties (Länder) could use SAGA but it has no immediate effect for this administrative level.
- The XÖV standards are applicable for all administrative levels but are limited to certain domains, e.g. not all domains are covered by XÖV standards.
- The IT council coordinates IT on the federal level only; the IT planning council coordinates between the federal and the county (Länder) level.
- The Architecture Management Initiative is a federal initiative meant for the federal IT. A counterpart on the county level – dealing with Germany's federal IT infrastructure – is currently designed.

The IT Planning Council also owns the national E-government strategy. It is responsible for its scope, definition and implementation. Monitoring will be put in place in the future.

As a general principle, the IT planning council recommends the pooling of IT projects and IT development. Since 2015 onwards, the uniting of IT projects in a Föderale IT-Koordinierung (FITKO, federal IT coordination) is a reality in Germany[12].

The SDIS platform (http://egesundheit.nrw.de/sdis/) is a web-based application for managing and researching IT and Health IT standards. It provides existing IT standards and the specifications from the national funded projects. It aims at supporting the development of efficient eHealth applications and promoting exchange of information.

NIF responsible contact person for Germany

- Christian Engel (iti3@bmi.bund.de)
- Dr. Andreas Gehlert (andreas.gehlert@bmi.bund.de)

[12] http://www.it-planungsrat.de/DE/Projekte/Ma%C3%9Fnahmen/F%C3%B6derale%20IT-Kooperation/FITKO.html