Germany: The Path to Open Data Leadership

Björn Fleischer and Yolanda Rother

1 Introduction

Digitization offers tremendous opportunities and potential for synergies to develop. Policymakers therefore must actively support this structural change and adopt a framework in which we can all live, learn, work and do business in the digital world, and in which everyone can participate in the digital transformation.

Digital Agenda 2014–2017, August 2014

The Federal Republic of Germany is a nation to look to when it comes to global leadership—a world leader in exports,[1] one of the strongest economies in the Eurozone,[2] the world's champion in soccer. In the realm of digital innovation, however, the picture is more ambiguous. In its Digital Agenda 2014–2017, the German government has emphasized that digital leadership plays a significant role for Germany's future political, social, and economic development (Digital Agenda 2014–2017). However, according to the Digital Economy and Society Index published by the European Commission, Germany merely ranks 10th in comparison to the 28 EU member states (European Commission Digital Agenda Scoreboard 2015).[3] Similarly, the UN's e-government ranking exposes that Germany's progress

---

[1] https://www.cia.gov/library/publications/the-world-factbook/rankorder/2078rank.html

[2] http://www.weforum.org/content/top-10-most-competitive-economies-europe-2

[3] "DESI 2015 - Digital Single Market - European Commission." Digital Single Market. European Commission, 19 Feb. 2015. Web. 23 Aug. 2016.

B. Fleischer
Ministerium für Inneres und Kommunales des Landes Nordrhein-Westfalen, Düsseldorf, Germany

Y. Rother, M.P.P. (✉)
Hertie School of Governance, Berlin, Germany
e-mail: y.rother@mpp.hertie-school.org

has significantly fallen in its most recent ranking in 2014 (United Nations e-Government Survey 2014).

A similar ambiguous picture exists with regard to Germany's efforts to establish itself as a prospective leader of digital and open government. Thus, in June 2013, the German government agreed to adopt the G7 (previously G8) open data charter.[4] The basic idea of open government and open government data is to establish a modern cooperation among politicians, public administration, industry, and citizens by fostering transparency, democracy, participation, and collaboration through the use, reuse, and redistribution of data (Bauer and Kaltenböck 2012; Open Definition 2014). Alongside the U.K., the U.S., Canada, France, Italy, Japan, and Russia (which exited the group in 2014) Germany adopted the G7 open data charter with the following five principles:

1. Release of public data in open and machine-readable formats;
2. High quality and quantity of data;
3. Usability of data by all;
4. Release of "key data sets";
5. Release of data for innovation.[5]

In a "National Action Plan to Implement the G8 Open Data Charter," Germany has announced the following four commitments to integrate the five G7 principles:

Commitment 1: Sending a clear signal in favor of open data in Germany
Commitment 2: Publishing datasets
Commitment 3: Publishing the data on a national portal
Commitment 4: Consultation, engagement, and experience-sharing.

With the G7 charter's termination on 31 December 2015, the purpose of this paper is to track where Germany stands in its commitments, and how Germany implements the G7 open data principles by drawing on government documents and conducted expert interviews. The paper is structured as follows: First, it reviews the development of the current open data ecosystem in Germany in Part 1. This section also establishes an overview of political actors involved in the open data policy development. Part 2 introduces Germany's federal open government data portal *GovData*. Part 3 conducts a qualitative examination of Germany's commitments to identify the extent to which the G7 principles have already been adopted. Ultimately, this study reviews the progress that Germany has made towards each of its four commitments to the five principles in the Open Data Charter.

---

[4]http://www.verwaltung-innovativ.de/SharedDocs/Publikationen/Pressemitteilungen/nationaler_aktionsplan_open_data_englisch.pdf?__blob=publicationFile&v=1
[5]https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex

1.1 Part One: The Digital Development of Germany

1.1.1 Germany: Economic Background and Political Structure

Population	80,900,000[6]
GDP in USD	3,730,260,571,356.5[7]
GDP per Capita in USD (2013)	46,268.64[8]
Number of wireless broadband subscriptions (2014)	51,828,819[9]
Households with Internet	89%[10]
Enterprises with Internet	98%[11]
Individuals using the internet at least once a week	82%[12]
… for obtaining information from public authorities	52%[13]
…for downloading official forms from public authorities	32%[14]
UN E-government Development Index (2014)	21 of 193[15]
UN E-participation Index (2014)	24 of 193[16]
EU Digital Economy and Social Index (2015)	10 of 28[17]

1.2 Digital Development of Germany in Numbers

Few countries have had such an international impact as the Federal Republic of Germany. The high-income country[6] is globally acknowledged as a leader and role model for its efficiency and economic stability. Germany is one of the largest national economies in Europe. It is a founding member of the European Union and the Eurozone.[7] At the federal level, legislation is exercised by the parliament[8] with respective legislative and executive bodies at state level. Institutionally, the federal German political structure presents challenges that have been prominently described as 'Joint-Decision Trap' (Scharpf 1988). Comprehensive reform in the German federal system requires the assent of multiple veto-players at the local, state, and federal level. Thus, the successful implementation of new digital strategies requires an effective consensual approach that is supported by suitable institutions across all layers of government. As a result, digital reform in Germany has been accompanied by institutional reform as well.

---

[6]http://data.worldbank.org/country/germany
[7]http://europa.eu/about-eu/eu-history/1945-1959/index_en.htm
[8]https://www.bundestag.de/htdocs_e/bundestag/function/legislation

1.2.1 Three Waves of Digital Government: From eGovernment to Digital Agenda

To understand the development of open data policy in Germany, a look to the country's prior digital journey is indispensable. The first wave of digital government transformation took place from 1996 to 2006 and paves a decade of beginnings. In 1996, public officials looked to information and communication technology (ICT) to bring about change in public administration. In 2000, chancellor Gerhard Schröder announced the *eGovernment Initiative BundOnline 2005*, the first federal e-government program for modernizing public administration by the year 2005. The strategy called for making all web-enabled administrative service provisions accessible via the website *Bund.de*. This effort was followed up in 2003, when Schröder and the heads of state adopted the *Deutschland-Online* strategy, providing a framework for all administrative layers to enhance coordination and cooperation for unified eGovernment policy-making.

The second wave of digital development in German public administration consisted of a number of legislative efforts between 2006 and 2012. On 1 January 2006, the federal Freedom to Information Law went into effect, giving citizens the right to access official federal information. Eleven states have adopted corresponding Freedom to Information laws. In June 2006, chancellor Angela Merkel and the ministers of all federal states signed the *Deutschland-Online Action Plan*, giving new impetus to the adoption of electronic procedures in public administration. On 18 February 2009, the Federal Cabinet adopted a new broadband strategy of the federal government, which aims at providing both households and businesses high-capacity broadband connections. Today, 98 % of German enterprises use the Internet, while 89 % of households have access to the Internet (Eurostat 2013).

The third wave of digital government transformation began in 2013. The federal open data portal *GovData—The Data Portal for Germany* (original: GovData—Das Datenportal für Deutschland) was launched in February 2013, making government-held data available to the public for re-usability in machine-readable format. The E-Government Act came into force on 1 August 2013. The E-Government Act will transform a number of administrative practices until coming into effect completely in 2020, inter alia making it obligatory for authorities to offer citizens and businesses an electronic payment option, electronic access to documents, electronic files management, and extensive online information. With this law, administrative matters will become more accessible, granting citizens a new channel to contact authorities, regardless of location or opening times. A Eurostat study from 2014 shows that more than half of the citizens use the Internet to obtain information from public authorities, while one third of the citizens download official forms from public authority websites (Eurostat 2013).

On 20 August 2014, the Federal Cabinet approved the *Digital Agenda for 2014–2017*. The Federal Ministry of the Interior, the Federal Ministry of Economic Affairs and Energy, and the Federal Ministry of Transport and Digital Infrastructure

formulated the strategy. On 17 September 2014, the Federal Cabinet adopted the *Digital Agenda's* companion program *Digital Administration 2020*, which provides in-depth measures to the policy area *Innovative Public Administration*. The aim of *Digital Administration 2020* is to fundamentally transform administrative practices through digital measures. Open data plays a fundamental role in achieving this target.

1.2.2 Digital Government Actors

In order to establish digital reform across all layers of government, the IT Planning Council was established in 2009. Because digital issues cut across the division of responsibilities between the federal and state governments as originally established in the German Basic Law (Grundgesetz), it had to be created through a formal treaty between the federal and the state governments and was accompanied by an amendment of Article 91c of the Basic Law.[9]

The main tasks of the IT Planning Council (see Fig. 1) are:

- Coordinate the cooperation between federal and state level in all questions concerning information and communication technologies;
- Convene and decide on independent and multi-disciplinary standards of IT interoperability and security standards;
- Steer eGovernment projects in the realm of the National eGovernment Act;
- Plan and develop the infrastructure of public administration.[10]

The IT Planning Council works on annual steering projects of significant impact and value to federal, state, and municipal level. Since 2014, open government has been a central steering project, as well.[11] The IT Planning Council established an open government working group with representatives from federal and state to facilitate communication and share best practices in biannual meetings. Thus, according to the international barometer of the Open Data Institute,[12] Germany has been classified as a high capacity country that has established its open data policy with strong political backing.

A key innovation resulting from the IT-Planning Council was the creation of the public sector Chief Information Officer, or CIO. Public sector CIOs are the drivers behind the digital transformation. Thus, the respective federal and state delegates to the IT-Planning Council are usually the CIOs of the respective states, mostly

---

[9]The Treaty ("Staatsvertrag" is available at http://www.it-planungsrat.de/SharedDocs/Downloads/DE/ITPlanungsrat/Staatsvertrag/Staatsvertrag.pdf?__blob=publicationFile).

[10]http://www.it-planungsrat.de/DE/ITPlanungsrat/itPlanungsrat_node.html

[11]http://www.it-planungsrat.de/DE/Projekte/Steuerungsprojekte/Steuerungsprojekte_NEGS/OpenGovernment/opengovernment.html?nn=1308406

[12]Open Data Barometer.
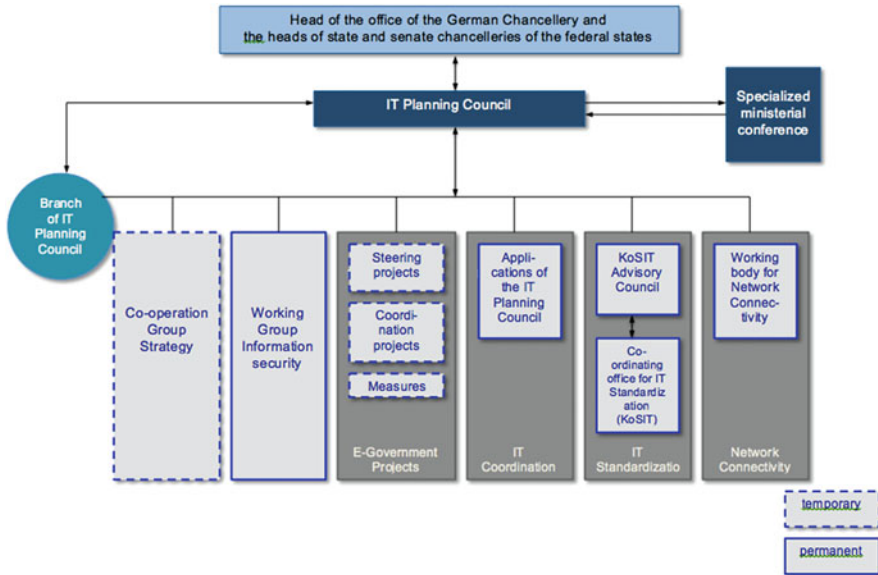
Fig. 1 The Structure of the IT-Planning Council (*Source*: Adapted from http://www.it-planungsrat.de/DE/ITPlanungsrat/itPlanungsrat_node.html;jsessionid=188BD73FB185D6197CECEA8DE8048C8D.2_cid321. Retrieved on September 18th 2015

located within the respective Ministry of the Interior. Since 2015, state secretary Klaus Vitt is the federal Chief Information Officer.

1.3 Part Two: The Development of Germany's Open Data Policy

1.3.1 Open Data Policy in Germany

> The federal administration and all its executive agencies must take the lead, on the basis of legislation, in providing open data in standard, machine-readable formats and under open licensing conditions. We want to provide an open data portal for the federal, state and local governments.
>
> *Shaping Germany's Future*, November 2013[13]

The initiation of Germany's federal open government data policy is closely linked to visible efforts for open data from the U.S. Shortly after entering office in January 2009, U.S. President Barack Obama signed the "Memorandum on

---

[13]http://www.verwaltung-innovativ.de/SharedDocs/Publikationen/Pressemitteilungen/nationaler_aktionsplan_open_data_englisch.pdf?__blob=publicationFile&v=1

Transparency and Open Government."[14] In an attempt to maintain internationally competitive in the policy-making arena, Germany initiated political discussions for a national open data strategy in 2009. On 24 September 2010, the IT Planning Council highlighted the importance that "public administration cooperates with business and the research community" in order to achieve open government and government transparency (IT Planungsrat, National eGovernment Strategy 2010–2015).[15] This resulted in the Dresden Agreement at the fifth annual IT summit in 2010, with the objective of creating a centrally accessible web-based open government data platform, which resulted in the federal portal *GovData—The Data Portal for Germany*.[16]

On 8 August 2012, the German Federal Ministry of the Interior announced its intent to create an open government data portal to make public sector information available to citizens and government agencies. The law on Access to Geodata (GeoZG) from 7 November 2012 established the terms of use for the provision of federal geodata (GeoNutzV), which has been a significant step towards open government data in Germany. On 19 March 2013, the federal geodata executive decree (GeoNutzV) makes geographical government data publicly available. The Freedom to Information law from August 2013 cleared a substantial legislative way for the establishment of an open data portal. As a result, Germany launched its federal open data portal *GovData—The Data Portal for Germany* in a public beta phase just 4 months prior to adopting the G7 open data principles. Today, *GovData* is Germany's central federal portal for open government data. Initiated on 19 February 2013, it has been in regular operating service since 5 January 2015 and released its 10,000th dataset in February 2015. To provide for its regular maintenance, an administrative agreement (GovData Verwaltungsvereinbarung 2014) was put into effect on 30 May 2014.[17]

Originally, the launch of *GovData* was accompanied by substantial criticism as it was decided to remove the word "open" from the portal's name. In response, members of the open data community established the counter-website www.Not-Your-GovData.de arguing that: "Up until now, a lot of the relevant datasets have still not been made available or at least are not released under an open license."[18] Revisiting the allegations 2 years later demonstrates that *GovData* took significant steps to combat these concerns. Today, *GovData* hosts more than 15,000 datasets and documents from federal, state, and local governments, many of which are classified as "high value" datasets, government datasets of high relevance.

Moreover, the portal's operating unit was relocated to the city-state of Hamburg. Hamburg is the most advanced city-state when it comes to transparency and open

---

[14]https://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment

[15]http://www.it-planungsrat.de/SharedDocs/Downloads/DE/Strategie/National_E-Government_Strategy.pdf?__blob=publicationFile

[16]IT-Gipfel Dresdner Vereinbarung.

[17]https://www.govdata.de/neues/-/blogs/verwaltungsvereinbarung-govdata-tritt-in-kraft

[18]http://not-your-govdata.de/en/

government, and plays a symbolic role as a transparency champion throughout the nation. The Hamburg Transparency Law (HmbTG) was put into effect on 6 October 2012, replacing Hamburg's Freedom of Information Act. It presents a significant paradigm shift for public administration by placing government agencies under the obligation to make documents and data available online and without cost. Together with the Fraunhofer-Institut for Open Communication Systems FOKUS, the new *GovData* office is situated in an exceptionally innovative legislative environment.

2 Part Three: Analysis of German Commitments to the G7 Open Data Charter

2.1 Germany and the G7 Open Data Principles

Open data are an untapped resource with huge potential to encourage the building of stronger, more interconnected societies that better meet the needs of our citizens and allow innovation and prosperity to flourish. G8 Open Data Charter

In June 2013, eight nations including Germany adopted the open data charter at the G7 (previously G8) summit in Lough Erne, Northern Ireland. The charter agreed on a set of open data principles that lay the foundation for the release and reuse of government data. The countries that signed the charter argued that, "access to data allows individuals and organizations to develop new insights and innovations that can improve the lives of others and help to improve the flow of information within and between countries" (gov.uk 2013). The charter addresses five principles for the implementation of open data by 31 December 2015:

1. Open Data by Default: Foster expectations that government data be published openly while continuing to safeguard privacy;
2. Quality and Quantity: Release quality, timely, and well-described open data;
3. Useable by All: Release as much data in as many open formats as possible;
4. Releasing Data for Improved Governance: Share expertise and be transparent about data collection, standards, and publishing processes;
5. Releasing Data for Innovation: Consult with users and empower future generations of innovators.[19]

2.2 How Germany Implements the G7 Open Data Principles

In a National Action Plan, Germany announced four commitments to implement the principles of the G7 open data charter (National Action Plan to Implement the G8

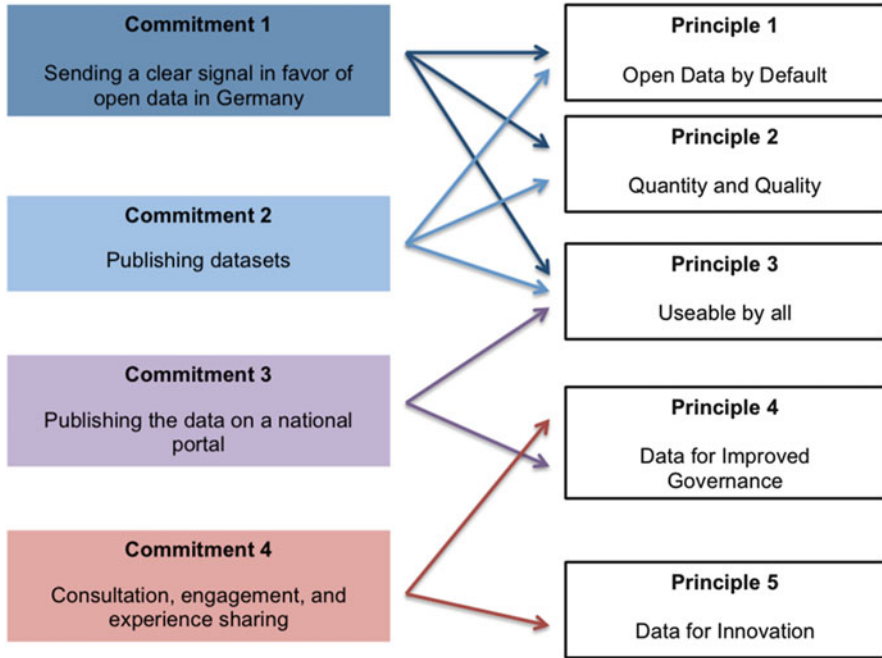[19]https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex

Fig. 2 Germany's Commitments to the G7 Open Data Principles (author's own illustration)

Open Data Charter 2014). Each commitment builds on at least two of the G7 principles, which has been made visible in Fig. 2.

2.3 Commitment One

The first commitment aims to send a clear signal in favor of open data. There are five measures to reach the first commitment. The first measure affirms the release of government data as a voluntary commitment, whereas the principle "open by default" guides any future release of government-held datasets. The second measure points to previous legislation such as the Act on Access to Geodata and the Freedom to Information Law having paved the way to publishing government data. A third measure discusses the release of a government study on the significance of open data. In July 2012, the Ministry of the Interior commissioned a 572-page study on *Open Government Data Deutschland* (Bundesministerium des Innern 2012). A fourth measure designates federal open data contact persons in higher government departments by the end of the third quarter in 2014. The last measure commits to publishing a guide to open data issues through IT systems procurement, which is particularly relevant in light of the increasing growing open data portals in Germany.

A central principle of the G7 open data charter is that open data is free and usable by all. To this end, open datasets require licensing. On *GovData,* there are more than 20 different license models that are classified as "open content that can be freely used, modified and shared by anyone for any purpose," in accordance with the *Open Definition* set forth by the Open Knowledge Foundation.[20] The most frequently used data license is "Germany Version 2.0" for nearly 6,000 datasets. After the open data community criticized *GovData's* limited first license, the Federal Ministry of the Interior developed *Data license Germany—attribution—version 2.0* in July 2014. This license permits reusability without restrictions or other limiting conditions and has been approved by the Open Definition Advisory Council of the Open Knowledge Foundation, ensuring to meet international standards of open data.

The agreement for the mutual maintenance of *GovData* was put into effect on 30 May 2014, satisfying the second measure to meet the first commitment. The agreement safeguards mutual coordination and maintenance of *GovData* by apportioning the costs evenly amongst the federal level and the states. There are eight signing parties: the Federal Republic of Germany, and the states Baden-Württemberg, Berlin, Brandenburg, Hamburg, North Rhine-Westphalia, Rheinland-Pfalz, and Saxony. Mecklenburg-Vorpommern and Schleswig-Holstein have expressed their interest in joining the administrative agreement. Six states have yet to sign the administrative agreement. On why the remaining non-member states haven't yet signed, Jan-Ole Beyer from the Ministry of the Interior[21] states, "open data bears a paradigm shift for these administrations, and hasn't yet been placed as a priority on the political agenda." Further, he states, "Providing public access to data that was previously in government proprietorship may lead to unintended consequences. Governments fear that numbers may be misinterpreted, power could be shifted, and data could be manipulated." A recent study by the National Academy of Public Administration and ICF International confirms that "many federal CIOs fear that the pace and scope of digital transformation at their agencies is too much, but also acknowledge the value that those changes can bring to their organizations."[22]

In a third measure to meet the first commitment, designating federal contact persons for open government data sends a clear signal in favor of open data. In accordance with this commitment, 18 federal departments have designated individuals as contact persons for open data.

Concluding, Germany meets its first commitment of signaling open data well before the charter's termination on 31 December 2015. Several preconditions were met long before the G7 charter was adopted. Germany has implemented the first three principles of openness, quantity and quality, and reusability through its portal, encouraging a high amount of datasets released and through an open license. Initial troubles have been overcome over time through structural and legislative adaption.

---

[20]See http://opendefinition.org/ on September 18th 2015.

[21]Telephone-interview with Jan-Ole Beyer on March 20, 2014.

[22]http://www.fiercecio.com/story/federal-cios-want-fear-digital-transformation/2015-02-02

One central measure is Germany's agreement with eight member states for the maintenance of *GovData*. The relocation of the portal's office to the transparency-pioneer Hamburg sends a signal in favor of open data. Lastly, each federal department named one or two contact persons. Ultimately, Germany is on the right path to send a strong signal in favor of open data, and has thus achieved to meet the first commitment of its national action plan.

2.4   Commitment Two: Publishing Datasets

The second commitment of the national action plan is the aim to publish datasets. This commitment is threefold: it sees the release of "key" datasets, the release of additional datasets, as well as the release of a minimum two datasets from each higher authority. This commitment integrates the G7 principle "open by default" by encouraging governments to release as many datasets as possible. Moreover, it reinforces the G7 principles two and three, in that it aims for high quantity and quality as well as usability by all.

In accordance with the G7, Germany has identified datasets of high value. The national action plan identifies 13 key datasets of high relevance for release on *GovData* that stem from five core policy areas: the federal budget, geodata, election results, and federal statistics. In a simple query on *GovData*'s search function, each of the five core policy areas is represented on *GovData*.

The second part of the commitment seeks to release "additional" datasets. Additional datasets may have not been categorized as "high value" datasets in the realm of the G7, but are of equal importance to meet the goals of collaboration, participation, and transparency for Germany's open data efforts. The additional datasets stem from 11 policy areas, such as the Federal Foreign Office, the Federal Ministry of Food and Agriculture, or the Federal Ministry for Economic Affairs and Energy. A quick query indicates that all 11 policy areas are represented on *GovData*. A more in-depth query reveals that all specified additional datasets have been uploaded to *GovData*.

A third measure to enforce the publication of datasets is the obligation of each higher federal authority to release at least two datasets by the end of the first quarter 2015 on *GovData*. The Federal Foreign Office, for instance, has uploaded two files. One of them is a list of state names. This list is available as a PDF (non-reusable), as an excel file (reusable), and as a CSV document (reusable). This example validates that government departments are abiding by their time schedule, and are meeting the commitments laid out by the national action plan, while integrating the principles laid out by the G7.

In sum, Germany is on track for incurring its second commitment, which seeks to release a wide variety of datasets. The growing amount of datasets available on *GovData* is remarkable, with new datasets uploaded on a daily basis. When *GovData* first launched its platform, it barely hosted 3500 data sets, mostly from readily available datasets from the Federal Agency for Cartography and Geodesy and the Federal Statistical Office. In February 2015, *GovData* reached its 10,000th

dataset.[23] In July 2015, the national portal soared above 15,000 datasets and documents. Committing federal agencies to publish at least two datasets is a significant move towards more open data in public administration. Moreover, it fosters a paradigm shift that encourages public administration to actively engage with open data, while bearing in mind the principles of open data. The remaining challenge lies in a more simplified search function for finding datasets at first attempt. It appears that the search engine on *GovData* reacts sensitively when an exact title is entered, and the subsequent "error message" is discouraging. Since a redesign of the website is already planned, these changes will certainly be incorporated.

2.5   Commitment Three: Publishing the Data on a National Portal

The third commitment of the national action plan aims to publish data on a national portal. There are two measures to meet this commitment: first, the federal portal *GovData* acts as a central open data portal for datasets from federal, state, and local government, while secondly, a unified metadata structure is provided. This commitment incorporates the G7 principle "usable by all," by fostering that all government levels upload datasets to a federal portal. Moreover, it enforces the release of as much data in as many usable formats. This commitment further integrates the principle of releasing data for improved governance, a principle that aims to share expertise and be transparent about data collection, standards, and publishing processes.

With *GovData*, the national action plan meets its third commitment to have an active national portal that serves as a central connecting portal for federal, state, and local level, as shown in Fig. 3. Open data initiatives are emerging at a promising speed on state level throughout Germany. On *GovData*, about one third of the datasets are directly from the federal level, while two thirds stem from state and municipal levels. In order to integrate datasets from one portal to another, a so-called harvesting-principle is required. Harvesting feeds readily accessible datasets from a local portal into the federal portal in a unified manner for re-use—seamlessly, automatically, and with little to no delay in time. Harvesting makes it possible to dock data from one portal to another. Moreover, when creating a national open data library, a common language that describes data must be disseminated. Metadata is the structure that ensures the semantic interoperability of datasets. The federal portal *GovData* published a guideline on how to go about its metadata structure in 2013.

In order to report on the progress of this commitment, a closer look at the interaction between federal, state, and local portals is required. To this end, this article presents two case studies. The first case examines the largest financial
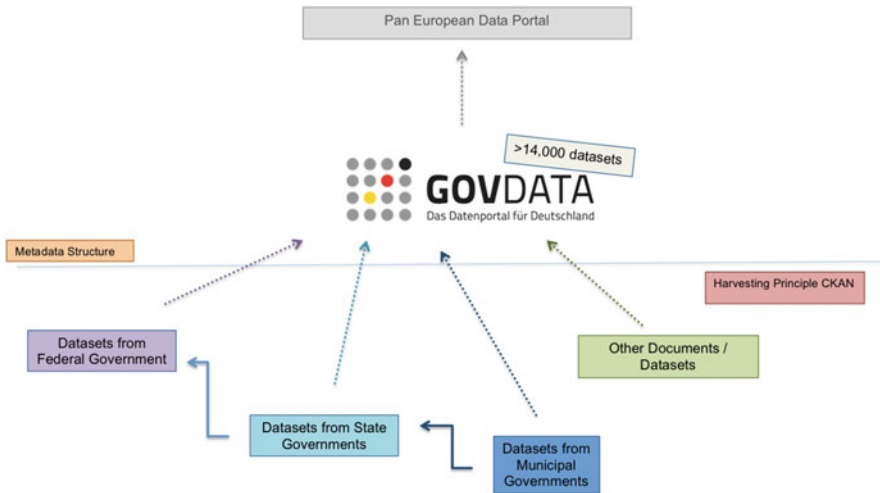
---

[23]https://www.fokus.fraunhofer.de/e644d4801f446a2a

Fig. 3 How GovData interacts as the Federal Data Portal (author's own illustration)

contributor to *GovData*, the state of North Rhine-Westphalia (short: NRW). The second case examines the city of Bonn, a city that is located within North Rhine-Westphalia.

Case Study: Open.NRW

North-Rhine Westphalia is the largest contributor to *GovData*, shortly following the contributions of the Federal Government. The largest state in Germany, NRW is home to 17.614 million inhabitants. It is the largest conurbation in Europe, and most of its population lives in urban cities with more than 500,000 inhabitants.

2.6 Development of Open Data Policy in NRW

On 27 May 2014, the Open.NRW strategy of the state parliament was adopted (Open.NRW 2014). The strategy itself has evolved in a process of co-creation with the public in a series of workshops with representatives from Civil Society and the public sector throughout 2013 and 2014. Its main feature is that is seeks to address every aspect of Open Government, namely the goal of increasing government transparency as well as participation and collaboration between the citizenry and the public sector (e.g. Lathrop and Ruma 2010). Conceptually, it is based on the following three pillars: the first is the Open Data pillar, which aims to increase the transparency of government by actively publishing an array of data concerning life in North Rhine Westphalia. The second pillar aims to expand the involvement of citizens in the formulation of laws and policies using digital forms of public participation and online civic engagement. The third pillar seeks to bring innovative forms of distributed collaboration into government by exploring the use of online expert networks to crowd source expertise and thus to improve the quality and efficiency of decision-making.

The key challenges in NRW are the same as on the federal level: implementing reform of such magnitude requires patience and the cooperation and consent of key actors from multiple branches of the public sector. In order to coordinate the activities of the different government sectors and to consult on all aspects of the development of open government projects, the Open.NRW Office (Open.NRW Geschäftsstelle) was established under the auspices of the NRW Chief Information Officer (CIO) Hartmut Beuß. Its role is to provide the different ministries with expertise and to support them with the necessary means and resources to develop and implement new projects in the three thematic pillars. Its key responsibility is the development and maintenance of the open data platform in NRW, the Open. NRW Portal.[24] Thus, the Open.NRW Portal serves as the central open data hub in NRW currently providing more than 800 open datasets supplied by the 13 ministries of the government of North-Rhine Westphalia. At the same time, it ensures that available open data from the municipalities in NRW can be collected and supplied to the federal data portal, *GovData*. By relying on a similar data management system—CKAN—as GovData as well as most local open data initiatives, the Open.NRW portal ensures that its data can easily be shared via the CKAN API. Moreover, there are no compromises with regard to data openness available on the Open.NRW Portal. All datasets available in the Open.NRW portal conform to the ten principles of Open Government Data as put forth by the Sunlight Foundation in 2010.[25]

A central feature of the strategy adopted in NRW is the effort to keep key actors engaged in an ongoing conversation about the best way to proceed with the implementation of open government projects. For example, when the Open.NRW portal was launched (https://open.nrw) on 16 March 2015, a group of 100 expert stakeholders from public administration, civil society and the business community were invited to discuss the portal and the current state of the implementation of the Open.NRW strategy.[26] At the same time, the Open.NRW office coordinates the activities of numerous interministerial working groups in an effort to allow all engaged actors in the respective ministries to share information, best practices and thus to build a learning network structure that is able to maintain an effective consensus about the direction taken. Thus, Christian Dinnus, head of the Open. NRW office thus explained in an interview: "Especially in the beginning, the personal exchange was the most important." This approach yields remarkable success. Apart from the comparatively high number of datasets that has been made available within a short time on the Open.NRW Portal, the public has scrutinized two large-scale laws in 2015 alone in an online consultation process: first, the online consultation concerning the reform of regional public television (the

---

[24]The Open.NRW Portal is available at https://open.nrw/

[25]See https://sunlightfoundation.com/policy/documents/ten-open-data-principles/. Last accessed on September 18th 2015.

[26]See the documentation of the event at available at https://open.nrw/de/content/dialogwerkstatt-bringt-viel-feedback. Last accessed on August 19th 2015.

so-called 'WDR Law') and second, the online consultation of the new E-Government law for North-Rhine Westphalia.[27] Finally, a number of remarkably successful projects have been started as pilots: in order to improve safety at the working place, a highly successful expert platform has been launched that links experts in labor law with employees in the public and private sector.[28] Moreover, in an effort to crowd source expertise and the collection and processing of information, two recent web-based applications have been piloted that allow citizens to register with the public authorities areas in NRW that they deem worthy of benefiting from higher standards of environmental protection.[29] On the basis of these experiences and lessons, a new application is in development that extends their functionalities and improves their efficiency and effectiveness.

2.7   *The Open Data Exchange Between* GovData *and* Open.NRW

A key to the successful implementation of Open Government principles in NRW is successful cooperation between the state and the local level. In order to institutionalize effective ways to reach consensus, the CIO Hartmut Beuß has called for a working group of representatives of the major municipal associations—i.e. the German Association of Cities and Towns (DST), the Association of German Counties (DLT) and the Federation of German Cities and Communes (DStGB)— and representatives of the government of North-Rhine Westphalia to work out an Open Government Pact that stipulates a number of key goals and associated measures to improve the transparency and openness of governance within the state. True to the inclusive approach of the Open.NRW Strategy, the group, in a first step, devised a working paper and gathered public feedback in an online consultation process in order to enrich the paper with new ideas and approaches from civil society and the scientific community.[30] The next step will consist in distilling key inspirations from the public feedback in order to finalize an Open Government Pact that provides effective guidance for the both the NRW state government and its municipalities for the next 5 years.

The case study of *Open.NRW* shows that the open data portal is still at an early stage. The *Open.NRW* strategy states the political will to publish all government data in an 'open by default' manner, which in the same stride integrates the

---

[27]For the 'WDR Law' see https://wdrgesetz.nrw.de (Last accessed on August 19th 2015). For the E-Government Law see https://egovg.nrw.de (Last accessed on August 19th 2015).

[28]See the homepage of the Network at http://www.komnet.nrw.de/ (Last accessed on August 19th 2015).

[29]See http://alleen.naturschutzinformationen-nrw.de/ and http://www.altbaumfinder-nrw.de/ (Last accessed on August 19th 2015).

[30]See the homepage of the consultation process at https://open-pakt-gov.nrw.de/. Last accessed on August 20th 2015.

principle that data shall be usable by all (Open.NRW 2014). The principle of quantity and quality is indirectly a goal of *Open.NRW* as it aims to build a full catalogue of datasets, including datasets from the municipal level. Lastly, the principles of improving governance through the release of data and encouraging data for innovation lay at the fundament of the Open.NRW strategy that aims for innovative collaboration with its citizens. On a federal-to-state level, the open data portal *GovData* and *Open.NRW* successfully integrates the fundamental G7 principles.

Case Study: *OpenData.Bonn*

Located in North-Rhine Westphalia, Bonn was the capital of Germany from 1949 to 1990. Today, a multitude of government agencies still operate from Bonn, collecting a plethora of public information and data. *OpenData.Bonn* is the open data portal of the city of Bonn. Found at http://opendata.bonn.de/, *OpenData.Bonn* is an interesting case for evaluating the local-to-federal interaction process. Bonn is one of four municipalities in North-Rhine Westphalia that harvests its data on the federal portal GovData. Bonn also cooperates with the open data portal of NRW (https://open.nrw).

2.8   Development of Open Data Policy in Bonn

On 18 November 2013, Bonn's city council agreed on a set of open government data guidelines. Five months later, on 28 May 2014, the open data portal OpenData. Bonn.de was launched. Bonn is one of the first municipalities to implement an open data portal in Germany. The OpenData.Bonn strategy is built on the three pillars of transparency, collaboration, and participation, like *GovData* and *Open.NRW*. The strategy was agreed on 30 January 2014. In June 2014, *Open Data Bonn* was launched.

In an interview with Sven Hense from the office of *Open Data Bonn*, he notes, "the goal of open data is to involve citizens wherever possible—from political decision making processes to everyday requests". Since OpenData.Bonn's launch in May 2014, the portal has grown to 124 accessible datasets (on July 19 2015 at http://opendata.bonn.de/dataset). The majority of the datasets are accessible for immediate use and reuse, while one fifth of datasets are available in PDF format. All of *Open Data Bonn*'s datasets can be found on the federal portal, *GovData* as well as on the state portal of North-Rhine Westphalia.

The citizens of Bonn play an active role when it comes to placing public requests for improving their city with open data, the city's mobile app *Stadt Bonn* and the website *Anliegen.Bonn.de* (see Fig. 4). Requests include fixing a broken streetlight, the removal of graffiti, or reporting an owner-less bike or vehicle. Both *Stadt Bonn* and *Anliegen.Bonn.de* use the international standard client-to-server terminal *Open311*. The *Open311* terminal creates a so-called *georeport* (image), which automatically processes each request on the city council's server and visualizes it in real-time on a map. With more than 4000 completed requests, the city of Bonn has fostered an innovative service design and delivery that encourages citizens to
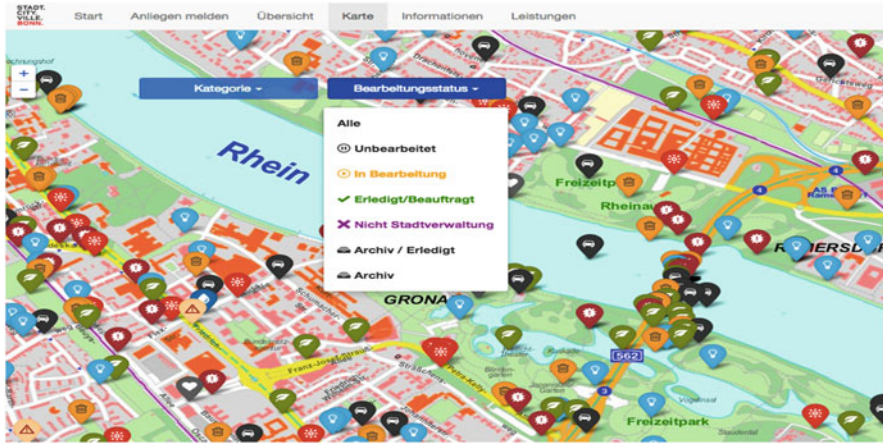
Fig. 4 Screenshot of Anliegen.Bonn.de (http://anliegen.bonn.de/)

participate and collaborate. The service is based on the free Open Source software "Mark-a-Spot" that provides "a fully responsive mobile and desktop tool for public civic issue reporting and crowd-mapping."[31] Thus far, Bonn is among a small number of cities in Germany to offer this service, and has offered to become a reference for other municipalities throughout Germany, as the potential capabilities for internal organization are very high.

Open data has fundamentally transformed the interaction between citizen and administration in the city of Bonn. Government administration itself profits from open data by increasing the effectiveness and efficiency. However, Sven Hense notes that there remain fundamental challenges for the municipality of Bonn. A challenge lies in the cultural change with public administration, which Hense notes may lead to "a loss of administrative ownership." The simple fact that a previously internal dataset is publicly published with color codification leads to an improvement of the quality of data, as codification has to be understandable for a large public. Sven Hense notes, "open data does not run on its own," which is critical to keep in mind.

In sum, the two case studies on *Open.NRW* and *Open Data Bonn* demonstrate that Germany has successfully initiated a process across all layers of government to publish administrative data from the local, state, and federal level on a national data portal, *GovData*. Cooperation with the federal portal has successfully fostered standardization of meta-data structures and enabled effective harvesting methods that link data portals across the administrative levels.

---

[31]See http://www.markaspot.de/en. Last accessed on September 18th 2015.

2.9 Commitment Four: Consultation, Engagement, and Experience-Sharing

The fourth commitment of Germany's national action plan is consultation, engagement, and experience-sharing. It aims to conduct regular dialogue with civil society, business, the media, and the research community. This commitment integrates the G7 principle of releasing data for improved governance. By engaging in a regular dialogue with all stakeholders, expertise can be shared, leading to increased transparence about data collection, standards, and publishing processes. Moreover, the commitment integrates the principle of releasing data for innovation. By conducting regular dialogue with stakeholders, the commitment consults with users and empowers future generations of innovators.

Several measures have been identified to incur this commitment. First, close involvement with data users must be sought. In preparation of the launch of *GovData* as well as *Open.NRW,* both initiatives saw an extensive consultation with several stakeholders. In the case of OpenData.Bonn, feedback is regularly sought on social media platforms like Twitter. Secondly, the national action plan encourages state and local commitment to the G8 principles. In the case studies *Open.NRW* and *Open Data Bonn*, the principles were not explicitly noted in their strategies, yet included the principles indirectly. In a third measure, the national action plan aims to release relevant data for innovative services. These include transport and mobility, renewable energy sources, climate change, demographic change, infrastructure, public revenues and expenditures. In a quick query, *GovData* provides datasets from these six policy areas in machine-readable format that are up-to-date. The fourth measure seeks to identify the demand of data on *GovData*. To this end, the Federal Ministry of the Interior launched the Open-Data-Action-Plan, a complex process integrating an online process to gather ideas for open data projects and a series of thematic workshops with representatives from Civil Society in order to specify these ideas in order to generate new initiatives.[32] The fifth measure aims to foster developer days and open data competitions. Germany plans to host its second code week in October 2015 that seeks to bring developers together. In a sixth measure, the national action plan seeks to promote open government data through public-community partnerships. Lastly, the goal of cooperating internationally plays a large role in meeting this commitment.

The final commitment is an ongoing process that seeks further cooperation with civil society and other stakeholders. In sum, Germany has fared reasonably well in meeting its commitments to integrate the G7 principles. For any nation-wide open data ecosystem to grow and fulfill its potential, it must continue to connect with open data portals on other layers, in particular the European level and persist in reaching out to committed actors from Civil Society.

---

[32]See https://www.open-data-aktionsplan.de. Last accessed on September 18th 2015.

3   Conclusion

The world is witnessing the growth of a global movement facilitated by technology (. . .) and fuelled by information. Open data sits at the heart of this global movement.—G7 Open Data Charter 2013.

In 2013, the most powerful countries in the world adopted key principles for advancing the global open government movement. Germany adopted the five G7 principles by announcing four ambitious commitments in a national action plan. This commitment to a new paradigm of government openness saw the integration of core open government principles. Their implementation required political commitment, a shift away from old traditions, and a multidisciplinary management approach.

While the process of implementing open government principles was certainly accompanied by significant challenges, a novel institutional environment—such as the IT Planning Council—allowed for more effective coordination and thus paved the way for successfully putting the National Action Plan into effect. The IT-Planning Council played a crucial role by facilitating a working group of federal and state actors that launched the central data *GovData*. Thus, while the country's governance structure plays a substantial role, federalism offers a chance as well as a challenge: federalism in Germany allows individual states considerable leeway in implementing digital reform, which may be pivotal for being able to adapt to local circumstances. The interaction between federal and local level has shown that creating an infrastructure for open data that encourages more openness and transparency is a challenge in itself, but one that the government must focus on. Thus, in a federalist governance mode, coordinating the implementation of a policy bears its challenges as well as its opportunities. Integrating all three levels equally ultimately enhances the values of cooperative federalism, and can lead to further transparency, accountability, and economic growth.

Second, a key lesson to be drawn from Germany is the necessity of cooperation and an effective dialogue, both across all layers of government as well as between civil society and the public sector. Thus, the public criticism that emerged with the early launch of *GovData* could have been avoided by taking the widely accepted principles and standards of open government data more seriously.

Last but not least, continued efforts are necessary as well. The creation of a European open data portal has already begun to affect the national open data policy agenda. With a look to the implementation of Germany's open data commitment, the country aims to play an active role. A European open data portal strengthens the relationships amongst member-states and fosters accountability and transparency. Especially in light of financial constraints in Europe, an open data portal brings about digital advancement within public administration that seeks to empower citizens as well as public administrations, in order to create a long-lasting value for all.

In 2014, the G20 largest industrial economies followed a pledge to advance open data as a tool against corruption, and the UN recognized the need for a "Data

Revolution" (http://www.undatarevolution.org/) to achieve global development goals. Information has been considered "the lifeblood of a robust democracy and productive economy," (McMillan 2013) whereas the tools, resources, and responsibility for managing public information lie in the hands of government. Germany's policymakers are actively supporting this transformative change in order for all to be included in the digital world. Because ultimately, governments that embrace digital transformations will make better policies, better decisions, and serve their public better.

Works Cited

A Peaceful Europe—the Beginnings of Cooperation. *EUROPA*. Web. 31 July 2015. http://europa.eu/about-eu/eu-history/1945-1959/index_en.htm

Accenture. *Recherche zum Umsetzungsstand Open Data Portale der Bundesländer*. March 2015.

Angela Merkel. *Angela Merkel*. Web. 31 July 2015. http://www.angela-merkel.de/pers%C3%B6nlich.html

Bauer, F., & Kaltenböck, M. (2012). *Linked open data: The essentials: A quick start guide for decision makers*. Wien: Ed. Mono/monochrom.

Beyer, Jan-Ole. (2014, March 20). Federal Ministry of the Interior. Telephone Interview.

Bonn Startet Open Data Portal. (2015, July 31). *Behoerdenspiegelde RSS*. Web. http://www.behoerden-spiegel.de/icc/Internet/sub/97a/97a50705-2cbb-5641-d8c9-3b677b988f2e,,,aaaa aaaa-aaaa-aaaa-aaaa-bbbb-000000000011&uMen=f6810068-1671-1111-be59-264f59a5fb42& page=16&pagesize=10&startmon=06&startyear=2014&attr=.htm

CDU. Coalition Contract between CDU, CSU and SPD. https://www.cdu.de/sites/default/files/media/dokumente/koalitionsvertrag.pdf

Central Intelligence Agency. (2015, July 31). Central Intelligence Agency, Web. https://www.cia.gov/library/publications/the-world-factbook/rankorder/2078rank.html

DESI by Components. (2015, July 31). *Digital Agenda Scoreboard*. Web. https://digital-agenda-data.eu/charts/desi-components#chart={"indicator":"DESI_5_DPS","breakdown-group":"DESI_TOTALS","unit-measure":"DESI_SCORE","time-period":"2015"}

Eurostat—your key to European statistics. European Commission. Accessed July 31, 2015, from http://ec.europa.eu/eurostat/web/information-society/data/database

European Commission (2015, June 1). Web. 23 August 2016.

Federal Cabinet. (2014). Digital Agenda 2014-2017. Berlin: Federal Cabinet. Retrieved April 3, 2015, from http://www.digitale-agenda.de/Content/DE/_Anlagen/2014/08/2014-08-20-digitale-agenda- engl.pdf?__blob=publicationFile&v=6

Federal CIOs Want, but Fear, Digital Transformation. *FierceCIO*. Web. 31 July 2015. http://www.fiercecio.com/story/federal-cios-want-fear-digital-transformation/2015-02-02

Federal Ministry of the Interior. *BundOnline 2005—Umsetzungsplan für die eGovernment Initiative*. http://www.bmi.bund.de/SharedDocs/Downloads/DE/Themen/OED_Verwaltung/Geoinformation/BundOnline_2005_-_Die_Id_17060_de.pdf?__blob=publicationFile

Fraunhofer FOKUS. *Fraunhofer FOKUS*. Web. 31 July 2015. https://www.fokus.fraunhofer.de/e644d4801f446a2a

From OpenGovData to GovData: Why Germany Needs the OGP (and the OGP Needs Germany). (n.d.). *Open Government Partnership*. N.p., Web. 31 July 2015. http://www.opengovpartnership.org/blog/maria-schroder-and-christian-heise/2013/02/15/opengovdata-govdata-why-germany-needs-ogp-and-ogp

G8 Open Data Charter and Technical Annex. *GOV.UK*. Web. 31 July 2015. https://www.gov.uk/government/publications/open-data-charter/g8-open-data-charter-and-technical-annex

Germany. *Germany*, Web. 31 July 2015. http://data.worldbank.org/country/germany

Information Society Statistics—Eurostat. (2013). *Information Society Statistics—Households and individuals*.

Informationsfreiheitsgesetze in Den Bundesländern. Transparency International Deutschland. Web. 16 July 2015. http://www.it-planungsrat.de/DE/NEGS/NEGS.html

IT Planungsrat. http%3A%2F%2F.www.it-planungsrat.de%2FSharedDocs%2FDownloads% 2FDE%2FStrategie%2FNational_E-Government_Strategy.pdf%3F__blob% 3DpublicationFile

Joint Statement: Finally Setting the Standard to "open"!. *Not Your GovData*. Web. 31 July 2015. http://not-your-govdata.de/en/

Khan, S., & Foti, J. (2015, May). *Aligning demand and supply for better governance*. Independent Reporting Mechanism: Open Government Partnership.

Lathrop, D., & Ruma, L. (Eds.). (2010). Open government. Collaboration, transparency, and participation in practice. Cambridge: O'Reilly (CC BY-NC-ND 3.0).

McMillan, J.: Open public sector information: from principles to practice. Office of the Australian Information Commissioner. 2013. Accessed July 31, 2015, from http://apo.org.au/research/ open-public-sector-information-principles-practice

Navigation Und Service. *IT Planungsrat*. Web. 31 July 2015. http://www.it-planungsrat.de/DE/ ITPlanungsrat/itPlanungsrat_node.html

Navigation Und Service. *IT Planungsrat*. Web. 31 July 2015. http://www.it-planungsrat.de/DE/ Projekte/Steuerungsprojekte/Steuerungsprojekte_NEGS/OpenGovernment/opengovernment. html?nn=1308406

Navigation Und Service. *IT-Beauftragte Der Bundesregierung*. Web. 31 July 2015. http://www.cio. bund.de/Web/DE/Politische-Aufgaben/Rat-der-IT-Beauftragten/rat_d_it_beauftragten_node.html

Open Data Barometer Data. (2013, October 23). *The Open Data Institute*. Web. 13 July 2015. http://theodi.github.io/open-data-barometer-viz/

Open Government Data Deutschland. Germany. Ministry of Interior, 27 July 2012. Web.

Open.NRW. (2014). *Die Open.NRW-Strategie*. Düsseldorf: Ministerium für Inneres und Kommunales des Landes Nordrhein-Westfalen. Part I available at https://open.nrw/sites/ default/files/asset/document/open_nrw_t1_web.pdf. Part II available at https://open.nrw/sites/ default/files/asset/document/open_nrw_t2_web_0.pdf

Scharpf, F. W. (1988). The joint-decision trap: Lessons from German Federalism and European Integration. *Public Administration, 66*, 239–78.

Service-Navigation. *German Bundestag*. Web. 31 July 2015. https://www.bundestag.de/htdocs_e/ bundestag/function/legislation

Top 10 Most Competitive Economies in Europe. *Top 10 Most Competitive Economies in Europe*. Web. 31 July 2015. http://www.weforum.org/content/top-10-most-competitive-economies- europe-2

Transparency and Open Government. *The White House*. The White House, Web. 31 July 2015. https://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment

United Nations e-Government Survey. United Nations Public Administration Country Studies. Web. 31. Jul 2015. Retrieved at http://unpan3.un.org/egovkb/en-us/Reports/UN-E-Govern ment-Survey-2014

Verwaltungsvereinbarung GovData Tritt in Kraft. *GovData.de*. Web. 31 July 2015. https://www. govdata.de/neues/-/blogs/verwaltungsvereinbarung-govdata-tritt-in-kraft

Wandel Erfordert Kooperation Zwischen IT Und Controlling. *Die IT-Chefs Der Bundesländer: Klaus Vitt, Designierter Bundes-CIO*. Web. 31 July 2015. http://www.cio.de/g/die-it-chefs- der-bundeslaender,10567

Wirtschaftsleistung Der Europäischen Union (EU). *Wirtschaftsleistung Der Europäischen Union (EU)*. Web. 31 July 2015. http://www.crp-infotec.de/02euro/wirtschaft/wirtschaftskraft.html

Worldbank. http://data.worldbank.org/country/germany

Your Key to European Statistics. *Database*. Web. 31 July 2015. http://ec.europa.eu/eurostat/web/ information-society/data/database