Does Federalism Affect E-Government in Germany?

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Abstract

International comparisons show that the reasons why e-government development in Germany does not occupy the desired "top spot" in rankings lie primarily in the inadequate provision of online services with little corresponding user orientation. In order to provide better and faster public services in Germany, the Online Access Act was introduced in 2017, which stipulates that the federal, state and local governments must provide 575 services electronically via administrative portals by 2022. However, this deadline has not been met. This study suggests that Germany's federal political structure is significant and that swift and successful implementation of e-government systems in the future will require additional energy, willingness and effort for systematic, comprehensive and intensive coordination between the various levels of government. This applies both to the development of digital solutions for public services and to the reuse of "one-for-all" services already provided for their broad availability across states and municipalities.

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Introduction

In Germany, there has recently been a lively debate about why e-government development in this country does not occupy the desired "top position" in an international comparison and why the implementation of e-government measures and strategies is progressing relatively slowly.[1] However, systematic analysis of these issues is relatively rare in this country, leaving policymakers, practitioners, and researchers searching for satisfactory answers to these questions. This study aims to address these problems and, in this context, to make a contribution to e-government development in Germany.

The following steps and approaches are used to analyze. First, in contrast to the "traditional" obstacles which mainly relate to the availability and quality of telecommunications infrastructure and human resources, the UN E-Government Development Index (EGDI), and in particular its main component, the Online Service Index (OSI), show that the immediate causes lie in the inadequate provision of online services with little appropriate user-friendliness and user-orientation in Germany (UN 2022). This is also largely confirmed by the EU's E-Government Maturity Score (EGMS), which rates online public services based on user orientation, transparency, key technological enablers and cross-border services (EC 2022a).

Second, German policymakers seem to have recognized these weaknesses. In 2017, the Online Access Act (Onlinezugangsgesetz - OZG)[2] was introduced to drive the digitization of public administration while reducing red tape for businesses and citizens, and delivering faster, higher-quality public services more efficiently. This law specifies that the federal, state and local governments must offer a total of 575 public services electronically via administrative portals by the end of 2022. However, this law failed to achieve the goal in time, while success in implementation at the various administrative levels remained rather limited.

In the German federal system, in accordance with the so-called principle of subsidiarity (Nam et al. 2001), not only the federal government but also the states and especially the municipalities in many cases assume the role of providers of state and municipal services and act as an "interface" to citizens and businesses (Röhl 2022). Compared to unitary states, Scholta et al. (2019, 3274) point out that "federalism and e-government [...] come up with two contradicting characteristics that are especially existent in Germany. First, citizens and businesses want to receive e-government services easily but the identification of government entities that are responsible for service delivery in federal states is difficult. Second, e-government has to react to fast developments, but decision-making is distributed and rather slow in federal states". This, in turn, indicates that Germany's federal political structure has significance for the swift and successful implementation of the

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[1] See e.g., https://www.handelsblatt.com/politik/deutschland/verwaltungsdschungel-lesen-leiden-lochen-buerokratie-wahnsinn-in-deutschland/28736298.html.

[2] See https://www.onlinezugangsgesetz.de/Webs/OZG/DE/startseite/startseite-node.html.

e-government system (see also Kubicek and Wind 2004). In the future, this will require more comprehensive and intensive coordination among the different levels of government - not only for the development of digital solutions for OZG services but also for the broad and rapid adoption of the already provided "one for all" services across states and municipalities.[3] Such well-orchestrated efforts will also help to improve the competitiveness of the German e-government system.

Barriers to E-Government Success

E-government aims to connect citizens and businesses with the various government agencies[4] to obtain all kinds of government services in an automated and automatic way, in addition to completing the government work itself, which depends on information and communication networks to reduce costs, improve performance, speed of delivery and effectiveness of implementation. Moreover, "the provision of public services through e-government is a strategic goal of governments […], who are always aiming to upgrade the services provided both in terms of improving citizen communication with the government and insuring service quality without jeopardizing security and putting sensitive personal data at risk. [More precisely] their goals are to inform their citizens, to serve citizen needs, and to increase transparency but also to integrate into administrative practices the latest IT developments and increase the degree of digitization" (Balaskas et al. 2022, 1). The "traditional" e-government services include:

- direct services to the public, such as receiving applications for licenses and certificates, paying taxes and registering property, paying fines, and postal and utility bills,
- facilitate the payment and implementation of public sector procurement,
- creating open government, e.g., by publishing laws and regulations and making statistical data available on the Internet, and
- technical support, information and communication of volunteer and security centers and the courts (Almarabeh and AbuAli 2010).

Despite continued improvement in global trends, UN (2022) argues that, as measured by its EGDI, not all countries in the world are able to achieve the same sustainable

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[3] According to Scholta et al. (2019), German federalism tends to lead to a situation with many different approaches to similar administrative processes, which are rather hostile to any centralization efforts and may not be an ideal environment in which digitization can thrive and play out its benefits. The idea of "government as a platform" (O'Reilly 2011) is suggested as a possible solution, where a federal government provides only the digital infrastructure and possibly data, and leaves it to other public and private entities to populate the system with useful applications - see, for example, Estonia's "X-Road," which serves as a data backbone for government agencies and departments, but also for private entities such as banks.

[4] Four types of e-government services can be distinguished based on the addressed parties: Government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G), and government-to-employee (G2E). Each of those has to satisfy different needs and requires different approaches (see Alshehri and Drew 2010).

development gains from e-government development, and that the benefits to communities and vulnerable populations are disproportionate and uneven, as also shown by Turner et al. (2022). The Covid-19 pandemic, in particular, has further highlighted the divide between and within countries at regional, national, and local levels.[5] Reasons for this are besides others, digital divide and e-literacy problems among citizens[6] and their groups (Gounopoulos et al. 2020; Alharbi et al. 2016), and the additional legal and policy measures needed to protect privacy and ensure the security of personal data (Bélanger and Carter 2008; Malik et al. 2016). Furthermore, studies by Dada (2006), Hung et al. (2006), and Heeks (2002) identify several crucial reasons for the failure of e-government programs, which include:

- weak digital infrastructure, lack of qualified personnel and training programs,
- lack of change management efforts (see also below),
- lack of "user acceptance" as well as awareness and recognition by citizens of the value and benefits of e-government,
- high turnover of public sector IT staff due to uncompetitive pay and poor working conditions compared to the private sector,
- lack of expertise in the public sector, which is why e-government projects are often outsourced to the private sector, and
- large discrepancies between design and reality as a result of adopting a standard solution from a country with a more advanced e-government system.

Using Korea's recent experience as an example, Turner et al. (2022) emphasize that e-government implementation is not just a technical matter. Access to the necessary technologies is certainly crucial, but it is the drivers of innovation and the willingness and ability of governments to respond that are the main reasons for success and failure. Moreover, the challenges of digital transformation - including in e-government - are likely to be far more profound than simply transforming analog to digital processes, and such a transition will ultimately involve "holistic" changes in technologies, products and services, capabilities, value creation mechanisms, and "government business models" (see also Clauß and Laudien 2017). And while digital business mod-

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[5] Due to the Covid-19 pandemic, "there have been radical changes in the way state mechanisms operate, as many governments have found themselves facing unpreceded challenges while being largely unprepared to ensure both the smooth and safe operation of the health sector but with a lack of physical presence, a situation that highlighted the need for quality goods and services offered by governments all over the world. This sudden change in everyday life has been a challenge for every government in its effort to bring about the necessary changes in the way its services and information systems operate and for the provision of necessary services to citizens in a new, digital way" (Balaskas et al. 2022, 2).

[6] In the EU, only 54% of all individuals have at least "basic digital skills." This indicator depends, among other things, on how often people interact with the Internet. There are also large disparities between countries (while Finland leads with just under 80%, Romania is at the bottom with well under 30%; Germany is also at the bottom with under 50%), and between demographic groups in terms of age (16-24: 71% vs. 65-74: 25%), place of residence (urban: 61% vs. rural: 46%), level of education (low: 32% vs. high: 79%) and employment status (active in employment: 62% vs. unemployed: 49% vs. retired: 29%) (EC 2022b).

els from large platform companies to cloud providers to AI startups are playing an increasingly important role, in some countries, including Germany, the digitization of government sectors and the expansion of e-government for citizens and businesses are proving to be rather slow (Đurašković et al. 2021). In this context, the existing e-government system should ideally also be reviewed in terms of its future viability and, if necessary, significantly changed, starting with organizational structures and work processes and extending to a review of the technologies used and the options for equipping employees for the future (see also Becker et al. 2021).[7]

Germany's E-Government Ranking in International Comparisons

The global competition of e-government system at the national level is most popularly measured by the UN E-Government Development Index (EGDI) which is a composite index based on the weighted average of three normalized indices. One-third is derived from the "Telecommunications Infrastructure Index" (TII) based on data provided by the International Telecommunication Union (ITU),[8] one-third from the "Human Capital Index" (HCI) based on data provided mainly by the United Nations Educational, Scientific and Cultural Organization (UNESCO),[9] and one-third from the "Online Service Index" (OSI) based on data collected through an independent online assessment conducted by the United Nations Department of Economic and Social Affairs (UN-DESA), which evaluates the national online presence of all 193 UN Member States, supplemented by a questionnaire for them. The questionnaire assesses various characteristics of online service delivery, including holistic government approaches, open

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[7] Despite some successful projects such as the ELSTER electronic tax return, Zanker (2019) also estimates that many goals for the online provision of public services and the digitization of administrative processes have not yet been achieved in Germany. Nevertheless, he sees that work in public administration is already highly digitized, and points out that around 90% of employees work with electronic communication media and almost two-thirds with digital work tools. The digital penetration of work processes will continue to increase with the introduction of new IT applications in almost all areas, he adds. Using case studies, he examines how work in public administration is changing through the use of digital communication and interaction channels with citizens (in municipal citizens' offices), the (partial) automation of clerical tasks (in financial administration) and the digitization of file management (in the job center). He notes different effects of digitization on work in public administration, depending on the activity. These include: (1) the automation of work processes, combined with the elimination of activities or the reduction of holistic task completion, (2) the sharp increase in the proportion of screen-based work with the associated physical stresses, and (3) the increased transparency of work with expanded possibilities for control up to and including more options for location- and time-flexible work with the ambivalent consequences of more self-determination versus more blurring of the boundaries between work and private life.

[8] The TII "is an arithmetic average composite of four indicators: (i) estimated internet users per 100 inhabitants; (ii) number of mobile subscribers per 100 inhabitants; (iii) number of wireless broadband subscriptions per 100 inhabitants; and (iv) number of fixed broadband subscriptions per 100 inhabitants." (UN 2022, 196).

[9] The HCI "consists of four components: (i) adult literacy rate; (ii) the combined primary, secondary and tertiary gross enrolment ratio; (iii) expected years of schooling; and (iv) average years of schooling" (UN 2022, 197).

government data, e-participation, multi-channel service delivery, mobile services, usage and digital divide, and innovative partnerships using ICT (UN 2022).[10]

According to UN (2022), Europe has not only the most homogeneous e-government development but also the highest average EGDI value (0.8602), as well as the highest average HCI and TII values (0.9030 and 0.8648, respectively). Of the 43 European countries surveyed, 35 are in the "very high" EGDI group (Table 1 shows the leading 20 countries in this group including Germany).[11] The first eight countries in the same table (i.e., Denmark, Estonia, Finland, Sweden, the UK, the Netherlands, Iceland, and Malta) belong to the "15 global leaders" in e-government development (together with Rep. of Korea (rank 3), New Zealand (4), Australia (7), USA (10), Singapore (12), United Arab Emirates (13), and Japan (14)). In this global comparison of the EGDI, Germany ranks 22nd in 2022 and has thus improved slightly compared with 25th place in 2020. Table 1 additionally shows that Germany's less favorable e-government competitiveness (e.g., compared to the leader Denmark, and also Austria with the comparable federal structure) is mainly due to its low OSI values, while some improvement in TII would also be desirable. Germany's OSI reached a value of 0.7905 in 2022, compared to a value of 0.9797 for Denmark and 0.8827 for Austria, while Estonia had the highest OSI of 1.000 in the same year.

Table 1: Germany's Ranking in the Comparison of UN E-Government Development Index in 25 Selected European Countries (2020 and 2022)

Year	OSI (Online Service)	HCI (Human Capital)	TII (Telecom Infrastructure)	EGDI (E-government Development)	EGDI world ranking
					Denmark
2020	0.9706	0.9588	0.9979	0.9758	1
2022	0.9797	0.9559	0.9795	0.9717	1
					Finland
2020	0.9706	0.9549	0.9101	0.9452	4
2022	0.9833	0.9640	0.9127	0.9533	2
					Sweden
2020	0.9000	0.9471	0.9625	0.9365	6
2022	0.9002	0.9649	0.9580	0.9410	5
					Iceland
2020	0.7941	0.9525	0.9838	0.9101	12

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[10] The OSI "is DESA/DPIDG's proprietary quantitative tool designed to provide evidence-based data on online e-government service provision of [the UN Member States]. The [latest] edition of the OSI features 180 questions calling for binary response, […] wherein each assessed country is awarded points for each targeted feature or service available through its official online service channels. The assessed country receives a score of 1 for each service or feature that is readily available and accessible through an official online e-government service channel. If the targeted feature is not present or accessible at the time of the assessment, a score of 0 is awarded" (UN 2022, 191). DESA = UN Department of Economic and Social Affair and DPIDG = UN Division for Public Institutions and Digital Government.

[11] The eight European countries with comparatively lower EGDI values include Albania, Andorra, Bosnia and Herzegovina, Montenegro, North Macedonia, San Marino, Monaco, Moldova, and North Macedonia. They do not belong to this so-called "very high" EGDI group of 35 nations.

Year	OSI (Online Service)	HCI (Human Capital)	TII (Telecom Infrastructure)	EGDI (E-government Development)	EGDI world ranking
2022	0.8867	0.9657	0.9705	0.9410	5
Estonia					
2020	0.9941	0.9266	0.9212	0.9473	3
2022	1.0000	0.9231	0.8949	0.9393	8
Netherlands					
2020	0.9059	0.9349	0.9276	0.9228	10
2022	0.9026	0.9506	0.9620	0.9384	9
UK					
2020	0.9588	0.9292	0.9195	0.9358	7
2022	0.8859	0.9369	0.9186	0.9138	11
Malta					
2020	0.8118	0.8290	0.9232	0.8547	22
2022	0.8849	0.8734	0.9245	0.8943	15
Norway					
2020	0.8765	0.9392	0.9034	0.9064	13
2022	0.8007	0.9528	0.9102	0.8879	17
Spain					
2020	0.8882	0.8989	0.8531	0.8801	17
2022	0.8559	0.9072	0.8895	0.8842	18
France					
2020	0.8824	0.8612	0.8719	0.8718	19
2022	0.8768	0.8784	0.8944	0.8832	19
Austria					
2020	0.9471	0.9032	0.8240	0.8914	15
2022	0.8827	0.9070	0.8505	0.8801	20
Slovenia					
2020	0.8529	0.9256	0.7853	0.8546	23
2022	0.8666	0.9439	0.8239	0.8781	21
Germany					
2020	0.7353	0.9362	0.8856	0.8524	25
2022	0.7905	0.9446	0.8957	0.8770	22
Switzerland					
2020	0.8294	0.8946	0.9482	0.8907	16
2022	0.7677	0.9128	0.9450	0.8752	23
Lithuania					
2020	0.8529	0.9218	0.8249	0.8665	20
2022	0.8347	0.9251	0.8636	0.8745	24
Liechtenstein					
2020	0.6588	0.8489	1.0000	0.8359	31
2022	0.7329	0.8726	1.0000	0.8685	25
Luxembourg					
2020	0.7647	0.8097	0.9072	0.8272	33
2022	0.8319	0.8245	0.9462	0.8675	26
Latvia					
2020	0.5824	0.9172	0.8399	0.7798	49
2022	0.8135	0.9284	0.8378	0.8599	29
Ireland					
2020	0.7706	0.9494	0.8100	0.8433	27
2022	0.7796	0.9618	0.8287	0.8567	30

Source: UN (2020 and 2022), authors' own compilation.

The main challenges of the German e-government system lie in the inadequate provision of online services with little appropriate user-friendliness and user-orientation. To verify this problem more clearly, the EU E-Government Maturity Score (EGMS) is used as a supplement. The EGMS is also designed to assess the "online public services" offered in European countries based on four dimensions, which can be described by the following guiding questions (EC 2022a):

1. User-centricity: To what extent are services offered online? How mobile-friendly are they? And what online support and feedback mechanisms are in place?
2. Transparency: Do public administrations provide clear, openly communicated information about how their services are delivered? Are the processes of policy making and digital service development transparent, as well as how citizens' personal data is processed?
3. Key enablers: What are the technological enablers for the delivery of e-government services?
4. Cross-border services: How easily can citizens from abroad access and use online services? And what online support and feedback mechanisms exist for cross-border users?[12]

For the survey, citizens from participating countries assess the digital government services by rating 14,252 websites for 9 selected "life events" related to key areas of government. These include: (1) regular business operations, (2) health, (3) moving, (4) transportation, (5) starting a small claims case, (6) starting a business, (7) career, (8) studying, and (9) family (EC 2022a).

Table 2: Germany's Ranking in Comparison of the UN Online Service Index and the EU E-Government Maturity Score in 35 Selected European Countries (2022)

	EU EGMS		UN OSI	
	Score (in %)	Ranking	Index	Ranking
Malta	96	1	0.8849	7
Estonia	90	2	1.0000	1
Luxembourg	87	3	0.8319	16
Iceland	86	4	0.8867	6
Netherlands	85	5	0.9026	4
Finland	85	6	0.9833	2
Denmark	84	7	0.9797	3
Lithuania	83	8	0.8347	15
Latvia	80	9	0.8135	18
Norway	79	10	0.8007	20
Spain	79	11	0.8559	13
Portugal	78	12	0.7954	21

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[12] For more detailed explanations, definitions and classifications for these four dimensions, as well as for the main elements and indicators considered, see EC (2021).

	EU EGMS		UN OSI	
	Score (in %)	Ranking	Index	Ranking
Austria	76	13	0.8827	8
Belgium	74	14	0.6899	32
Sweden	74	15	0.9002	5
Turkey	72	16	0.8600	12
Ireland	71	17	0.7796	24
France	70	18	0.8768	9
Slovenia	67	19	0.8666	10
Hungary	66	20	0.7465	28
Germany	63	21	0.7905	23
Czech Republic	63	22	0.6693	34
Bulgaria	61	23	0.7092	30
Italy	61	24	0.8659	11
Croatia	61	25	0.8108	19
Slovakia	60	26	0.7260	29
Poland	55	27	0.7929	22
Switzerland	55	28	0.7677	27
Greece	52	29	0.7753	26
Cyprus	50	30	0.7792	25
Servia	49	31	0.8514	14
Albania	46	32	0.8182	17
Romania	42	33	0.6814	33
Montenegro	38	34	0.5528	35
North Macedonia	35	35	0.7020	31

Source: UN (2022); EC (2022); authors' own compilation.

Table 2 compares the two internationally recognized "online public service indices," i.e., the UN OSI (2022) and the EU EGMS (2022), for the 35 European countries. Due to different survey and measurement methods, characteristics and dimensions of the public services to be highlighted in particular, and, above all, the selection of public service elements for compiling the index, there are of course many outliers, and a direct comparison of OSI and EGMS is only possible to a limited extent, which in turn requires a very cautious interpretation. Nevertheless, this comparison clearly demonstrates that public online services in Germany (with EGMS rank 21 and OSI rank 23 among 35 European countries) urgently need to be improved.

Impact of Online Access Act on Delivery of Online Services
Germany has recently seen some political efforts related to e-government: in 2017, a political commitment to the digital state was made with the Online Access Act (OZG), in 2018 a "Minister of State for Digital Affairs" was appointed, and the country adopted the EU regulation on a single digital portal (SDG). In addition, the new governing coalition (SPD-Greens-FDP) most recently officially announced a change of pace in 2021. Nevertheless, the implementation of e-government in Germany is making slow progress. In particular, the aforementioned performance weaknesses in the provision of public services and other Germany-specific obstacles to the rapid establishment of e-

government appear to be readily identifiable when taking a systematic look at the respective implementation status of OZG services (see also Röhl 2022a).

The OZG is designed to drive forward the digitization of public administration and play a central role in reducing bureaucracy for companies, employees, and citizens; providing public services more efficiently; and improving their quality and speed.[13] This law stipulates that the federal, state and local governments must offer a total of 575 public services electronically via administrative portals by the end of 2022. However, this deadline has not been met. The OZG services are bundled into 35 "life events" (Lebenslage) for citizens and 17 "business events" (Geschäftslage) for companies, and assigned to 14 overarching topic areas.[14] They are to be implemented online as part of two digitization programs. In the "Digitization Program Bund," all services with regulatory and enforcement authority at the federal level will be digitized across all 14 areas and under the responsibility of the federal government. In the "Digitization Program Föderal," services with regulatory and/or enforcement competence at the state or local level will be digitized (Bundesministeriums des Innern, für Bau und Heimat 2018). This resulted in the following distribution of 575 OZG services:

- 115 "Type 1 services," regulatory and implementation competence with the federal government

- 370 "Type 2/3 services," regulatory competence with the federal government and implementation competence with the states and local authorities

- 90 "Type 4/5 services," regulatory and implementation competence at the state and local levels (see also selected examples in Table 3).

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[13] An additional important aim of OZG is the development of a uniform, nationwide portal network. The EU has also been pursuing this approach throughout Europe since 2018 with the Single Digital Gateway (SDG). Therefore, SDG and OZG aim to go hand in hand and complement each other. As in the EU, the German portal network is also intended to offer uniform standards for authorities and citizens, thus reducing costs and simplifying operation for users. With Federal Information Management (FIM), data can be entered in a standardized manner and accessed and processed by any authority nationwide.

[14] These topic areas are: (1) family & child (lead tandem: Federal Ministry of Family Affairs, Senior Citizens, Women and Youth + Bremen); (2) education (Federal Ministry of Education and Research + Saxony-Anhalt); (3) work & retirement (Federal Ministry for Labor and Social Affairs + North Rhine-Westphalia); (4) construction, housing & real estate (Federal Ministry of the Interior and Community + Mecklenburg Western Pomerania); (5) engagement & hobby (Federal Ministry of the Interior and Community + North Rhine-Westphalia); (6) mobility & travel (Federal Ministry for Digital and Transport + Hesse & Baden-Württemberg); (7) health (Federal Ministry of Health + Lower Saxony); (8) law & order (Federal Ministry of Justice & Federal Ministry of the Interior and Community + Saxony); (9) immigration & emigration (Federal Foreign Office & Federal Ministry of the Interior and Community + Brandenburg); (10) business management & development (Federal Ministry for Economic Affairs and Climate Action + Hamburg); (11) tax & customs (Federal Ministry of Finance + Hesse), (12) research & promotion (Federal Ministry of the Interior and Community + Bavaria); (13) environment (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection + Schleswig Holstein & Rhineland Palatinate; and (14) cross-sectional services (Federal Ministry of the Interior and Community + Berlin) – see also https://www.onlinezugangsgesetz.de/Webs/OZG/DE/themen/digitalisierungsprogramm-foederal/themenfelder/themenfelder-node.html.

Table 3: Examples of Different Types of OZG Services Related to Various Taxes and Tax Returns

Life event for citizens: "tax return"	
Public services related to	*Type of services*
Income tax	2/3
(Relief amount for single parents)	2/3
(Employee savings allowance)	2/3
Church tax	2/3
Gift tax	2/3
Tax allowances	2/3
Tax identification number	1

Business event: "tax & customs"	
Public services related to	*Type of services*
Levy for German Wine Fund [1]	1
Alcopop tax [2]	1
Taxation of lotteries, gambling and sports betting	2/3
Beer tax	1
Sprits tax	1
Energy tax	1
Field and production levy [3]	2/3
Trade tax [4]	2/3
Coffee tax	1
Capital gains tax	2/3
Corporate income tax	2/3
Culture and tourism tax	5
Spa tax	4
Value added tax	2/3
Sparkling wine tax	1
Tax deferral	2/3
Electricity tax	1
Tobacco tax	1
Accommodation tax	4
Sales tax	2/3
(Sales tax identification number)	1
(Validity of a sales tax identification number)	1
(Sales tax book)	2/3
Entertainment tax [5]	4

Note: [1] The German Wine Fund is a self-help organization of the German wine industry. It promotes the quality and sales of German wines through joint, competition-neutral marketing measures at home and abroad; [2] Alcopops are a beverage containing sugar and alcohol, for which incur taxes; [3] The field levy and the production levy are taxes from mining law; [4] Trade tax is levied on the income of commercial enterprises (trade income tax); [5] An entertainment tax can be levied by cities and municipalities in their own jurisdiction on the basis of a corresponding statute.
Source: Bundesministerium des Innern, für Bau und Heimat (2018); authors' compilation.

As part of the Digitization Program Föderal, the federal and state governments have also defined a division of tasks for the services classified as type 2 and type 3 (tandem "federal government department" and "state" per topic area). In view of the already

scarce personnel and IT capacities, special care is taken to avoid duplication of effort. States that have taken the lead for a specific topic area are each developing digital solutions for the OZG services contained therein (as so-called "one for all" services) with the support of the lead federal government department (see also footnote 14). The results (including the FIM information) are then made available to the other federal states for subsequent use - also in accordance with the principle of task sharing - so that cross-state availability is achieved. Such an initiative will not only lead to standardization of public services, but also to a streamlined implementation and organization process (also based on sharing experiences and learning from others) that will realize the so-called economies of scale in the e-government system.

Table 4 demonstrates the OLZ service gaps across multiple layers of government as well as the regional disparities of their provisions among the German states. By December 2022, 105 of the 575 OZG services had been successfully made available "nationwide" (i.e., at the federal level). In addition to these nationwide services, 58 additional services were available "statewide" in Hesse, for example, at that time. In addition, another 85 OZG services were offered in individual municipalities in Hesse, bringing the total number to 248 different services. The leader in this implementation ranking is North Rhine-Westphalia, where the total number of 375 OZG services was primarily due to a very high level of service available on the local level (= 251 services), while statewide, however, only 19 services were available beyond the 105 standardized services nationwide. This, in turn, shows the high potential for rapid adoption of the services already available in individual cities and municipalities for accelerated digitization throughout the state of North Rhine-Westphalia (Röhl 2022a). The worst performer was Saarland, where apart from the online availability of 105 nationwide services, not a single OZG service was available statewide or at the local level.[15]

Table 4: Online Availability of OZG Services in Different German States - Status December 2022

	Available nation-wide	Available statewide	Locally available (at least in one municipality)	Total
North Rhine-Westphalia	105	19	251	375
Bavaria	105	73	108	286
Baden-Württemberg	105	15	133	253
Hesse	105	58	85	248
Lower Saxony	105	20	120	245
Rhineland Palatinate	105	26	93	224
Thuringia	105	52	45	202
Saxony	105	45	50	200
Mecklenburg Western Pomerania	105	30	56	191
Schleswig Holstein	105	44	37	186

[15] Current data on OZG implementation can be obtained from the "OZG Dashboard" of the Federal Ministry of the Interior and Community – see https://dashboard.ozg-umsetzung.de/.

Hamburg	105	54	0	159
Berlin	105	40	0	145
Bremen	105	8	28	141
Saxony-Anhalt	105	3	30	138
Brandenburg	105	20	12	137
Saarland	105	0	0	105

Source: https://dashboard.ozg-umsetzung.de/; authors' own compilation.

Conclusion

International studies by the UN and the EC comparing the competitiveness of e-government clearly show that Germany's greatest weaknesses and challenges lie primarily in the inadequate provision of online services with little appropriate user-friendliness and user-orientation. In order to address this problem promptly, appropriately and also effectively, its policymakers introduced the Online Access Act (OZG) in 2017. This law, which aims to drive the digitization of public administration and provide better and faster public services for businesses, employees and citizens, stipulates that the federal, state and local governments must offer a total of 575 preferred public services (out of a total of around 6,000 identified by the federal government) electronically via administrative portals by the end of 2022. However, this deadline was not met; instead, only a part of the public services in the OZG could be developed at the various administrative levels and offered directly online (see Table 4).

In the German federal system, not only the federal government but also the states and especially the municipalities in many cases assume the role of providers of state and municipal services and act as an interface to citizens and businesses: For example, in 370 (out of 575) OZG services, the regulatory competence lies with the federal government, but the implementation competence lies with the states and municipalities. By the end of 2022, obvious and serious OLZ service gaps implemented across multiple levels of government as well as regional differences in their online services between the states and also the municipalities, are highly prevalent. As the latest EU E-Government Maturity Score (EGMS) also shows, central governments in Europe (including the German federal government) tend to be better positioned than their local and regional counterparts in terms of digital public service delivery (EC 2022a).

Austria also has a similar federal political structure with a different distribution of competencies among the various levels of government (for legislation of various public services and also their online provision). Nevertheless, this country's rank in online services as well as their availability and quality (measured, for example, by the UN OSI and the EU EGMS) have recently been rated relatively better than that of Germany. In addition to the earlier start of digitization of the public sector and its services (Rodousakis and Mendes dos Santos 2008; Röhl and Graf 2021), such "more positive" Austrian experiences again suggest that a more systematic online provision of public services can be achieved in Germany as well, especially with a greater focus on user-friendliness.

The OLZ will remain in place for longer, and Germany intends to provide many more public services beyond those listed in this Act. Its federal political structure will require additional energy and willingness for the speedy and successful implementation of the e-government system, as additional efforts for more systematic, comprehensive and intensive coordination between the federal and state levels and greater involvement of the municipal level are urgently needed in the future. This applies not only to the development of digital solutions for OZG and other public services, but also to the reuse of already provided "one for all" services to enable their broad and rapid availability across states and municipalities.[16] Such well-organized efforts, additionally equipped with modern technological enablers for the service delivery and better-qualified digital experts, will further contribute significantly to improving the competitiveness of the German e-government system in the international context.

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[16] Such a rapid spread of "one-for-all" services could be achieved with the help of artificial intelligence (AI). Röhl (2022b) points out that the digital services developed and made available via a federal online portal could be implemented with much less effort in all connected municipalities if the municipalities used the same software solutions, with AI-driven systems checking for compliance at the time of adoption and making adjustments as necessary to suit the particular circumstances, thus partially replacing the manual work of IT specialists in the municipalities. AI solutions are not yet being used for this purpose, however, and in general the development of AI in Germany, like digitization, is progressing far too slowly.

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