Digital Transformation and Service Design Practice in Public Sector

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The digital transformation wave is impacting municipal administration structures and strategies. Governments and cities are aiming to digitize their internal systems and communications with residents, and given the rapid pace of digitalization in all aspects of society, the public sector is expected to follow suit. However, e-government throughout the world has proven that this transformation is far from simple. Some practices, such as those in service design, may promote and support the issues by encouraging and facilitating a different way of thinking and doing things. This enrichment is explained and examined in the service design project "MeinungsMobil," which was carried out in collaboration with the City of Cologne. MeinungsMobil is a citizen participation project that promotes engagement with city decision-making and is usable for all departments in the city. During the development phase, the project's goals were to address the inclusion of citizen engagement, which was both physical and digital, and to provide individuals the freedom to select how they wanted to interact with the city based on their circumstances. To understand municipal administration digital transformation, a lot can be learned from the problems and restrictions encountered during the process, such as the transfer of design prototypes to realized service, and the service design methodology used to discover solutions based on present facilities.
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How Digital Transformation and Service Design in the Public Sector are Related

The discipline of service design has been around for more than twenty-five years and has gone through various phases of experimentation, framing, and expansion. It is a field that is constantly growing. Service design is an evolving organism that adapts to people and their needs. The UK Design Council aptly described the discipline as "all about making the service you deliver useful, usable, efficient, effective and desirable."[3] Service design roles can differ slightly in different fields. Manuela Aguirre, lead systemic designer at Designit believes that, "service design is a vehicle to reduce inequalities in the public sector, to work across organizational silos, to enable a culture of collaboration and to enable participation of citizens."[4] Aguirre also claimed that collaboration, participation, and human-centeredness are the values embedded in a service design approach. Service design is about finding out what customers need and adapting processes and products to meet those needs. Service design in the public sector needs to consider both parties: the city's possibilities and conditions, and the citizens' needs and wants.

Digital transformation, on the other hand, is often about digitizing existing processes and products, thus making them more efficient. Anastasia Bondar, a service designer in the City of Cologne, illustrated why service design and digital transformation could benefit each other by referring to the administration project Einfache Leistungen für Eltern (ELFE), meaning Simple Benefits for Parents. The administration project was about the digitalization of child benefit applications and has aimed to relieve parents of the bureaucracy in the time around becoming a parent. According to Bondar, "digitizing this process without service design would result in exactly the same amount of work for parents. Using service design, the bureaucratic steps are analyzed, reconsidered, and reduced as much as possible in order to give parents more time for their newborn." This example demonstrated that with service design, digital transformation is about rethinking and re-inventing

3 Marc Stickdorn, Markus Edgar Hormess, Adam Lawrence, and Jakob Schneider, *This Is Service Design Doing: Applying Service Design Thinking in the Real World*, (Sebastopol: O'Reilly Media, 2018), 53.

4 Majid Iqbal, Stephan Jenniskens, and Dounia Ouchene, "Service Design Impact Report: Public Sector" (Service Design Network, October 2016), 24, https://www.service-design-network.org/uploads/sdn-impact-report_public-sector.pdf.

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services in a holistic user- and system-centered way. Service *design thinking* can make a fundamental contribution to digital transformation and has proven indispensable for transferring services into the online world. At the same time, digitalization also greatly influenced the service design discipline as it brought up new questions, tools, and possibilities for solving problems.

Governments across the world are digitizing transactions and services to improve governing bodies' contracts with the general public. A growing number of nations, including Brazil, Ireland, Greece, and the United Kingdom, are exploring strategies for the design and delivery of services that streamline the user experience and consolidate their public sector web estates into a single government domain.[5] E-governance is intended to save money by shifting channels and providing more efficient services. An initial wave of digitization has benefited individuals and the government, but much work still needs to be done. If a service has fundamental faults, merely shifting it to a digital channel will not improve the services. To make services useful to users, they must be developed with people—and entire communities—in mind from the start. This entails examining policy, design, and service delivery, as well as bringing together the many diverse government sectors involved. A tool that may be used for this is service design.[6] Citizens' evaluations of their service experiences are heavily influenced by the service design features of e-government services, and this has significant implications for outcomes like perceived service quality and citizen satisfaction with e-government[7].

In order to fully understand these new challenges, this chapter is focuses on the case study "MeinungsMobil" (which translates to "mobile for opinions"), a service design project in the public sector. Birgit Mager, President of the Service Design Network (SDN), emphasized that service design increasingly contributes to the public sector, especially when it comes to digitalization

5 OECD, "Digital Government Review of Slovenia: Leading the Digital Transformation of the Public Sector," (Paris: OECD Digital Government Studies, 2021), https://doi.org/10.1787/954b0e74-en.

6 Majid Iqbal, Stephen Jenniskens and Dounie Ouchene, "Service Design Impact Report: Public Sector," 85.

7 Frank K.Y. Chan, James Y. L. Thong, Susan A. Brown, Venkatesh, Viswanath. "Service Design and Citizen Satisfaction with E-Government Services: A Multidimensional Perspective." *Public Administration Review* Volume, 81. Issue 5 (September/October 2021), 874–894, https://doi.org/10.1111/puar.13308.

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and innovation.[8] This case study investigates how to create a balance between customer needs and digitalization, and how service designers can use digital change to their advantage, including which questions and challenges still need to be solved.

MeinungsMobil: Service Design for the City Administration

Strategic designer Caroline Paulick-Thiel, who does consulting and facilitation of digital transformation projects and promotes new governance models, pointed out the power of service design in public systems. Across the design disciplines, there are many tools to reach out and engage the citizens appropriately.[9] It is clear to many governments now that the most effective work for creating a better society is going far beyond traditional stakeholder hearings and internal meetings. It is about applying participatory approaches, involving diverse groups of people, and connecting end-users and stakeholders in the entire creative process (depending on the project). Therefore, the question is not whether to let the public participate but how to *design* participation processes most efficiently.

MeinungsMobil was a service design project of Köln International School of Design (KISD) in collaboration with the City of Cologne. The seven-month-long project dealt with the topic of mobile public citizen participation and service design thinking and aimed to directly approach citizens as users of municipal services. MeinungsMobil was designed as a bicycle trailer that can be driven to the location of the planned participation. This enabled co-creative work, which was necessary to find holistic solutions that met citizens' needs, including in the context of digital transformation within a city's administration. Through a modular set of participation and service design methods integrated into the MeinungsMobil, three designated levels of participation were explored: information, consultation, and co-creation. The project was an outcome of a larger program with the City of Cologne and the German government, which dealt with digitalization in the city administration with the help of service design. In order to understand how MeinungsMobil

8 Birgit Mager, "The Future of Service Design," in *The Future of Service Design*, ed. Birgit Mager (Köln: KISD, TH Köln, 2020), 17.

9 Yushi Chen and Sara Lucia Arbelaez Llano, "Service Design and Government," in *The Future of Service Design*, ed. Birgit Mager (Köln: KISD, TH Köln, 2020), 40.

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came about and what requirements were placed on the project, it is necessary to take a look at the legislation in Germany regarding digital transformation.

Germany, like many countries, remains in need of development in terms of e-government. The public sector still has a lot of catching up to do regarding the digital transformation of government services. Therefore, it participated in the Online Access Act (OZG),[10] which has aimed to make public administration more accessible by translating forms and documents from analog formats into user-friendly digital formats, making the application process for government services and benefits easier.[11] By 2023, it is expected to provide 575 types of digital administration services, enabling citizens and businesses to use these services from anywhere at any time with just one account. Since businesses will be able to make requests and notifications to authorities more efficiently, the administrative load on businesses should be reduced. Investing in digital transformation is ensuring that people are informed and have the essential insights into which government entities store and access data. The implementation process is aiming to be transparent, participatory, and user-centric. Other programs in Germany that have set out to accomplish digital transformation in government and society at large are including support for digital education infrastructure in schools, digital education programs for the elderly, support for digital cultural projects, and funding of more human-technology interaction (HTI)[12] innovations to empower and educate people.

Public participation and involvement, as well as the digital transformation of states and society, are two key components of Germany's Open Government implementation. Since North Rhine-Westphalia has an Open Government Pact, it has open government activities and networks. Cologne, which is located within this state, has an innovation office that is responsible for city administration transformation initiatives. The City of Cologne is currently working on 182 innovation projects, and thirty-four of these are digitization-focused. They are aspiring to design future administration

10 The Organization for Economic Co-operation and Development (OECD) defines open government as a culture of governance based on innovative and sustainable public policies inspired by the principles of transparency, accountability, and participation. Germany has been a participant in the OZG since December 2016.

11 "What Is the Online Access Act?," Federal Ministry of the Interior and Community, accessed June 29, 2022, https://www.onlinezugangsgesetz.de/Webs/OZG/EN/home/home-node.html;jsessionid=D4FFF25C8D3CC04D36BD25F57F051048.2_cid364.

12 HTI is about studying people's interactions with technology in order to better understand and enhance technology's fit with its users.

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that has digital transformation capabilities and expedites and simplifies citizen-administration interactions. They have also created new services for individuals and have digitized and modernized the organization. These initiatives involve digitizing city department files, construction, urban cleaning, online registration, and communications, as well as virtual communication and online counseling for citizens.

The City of Cologne recognized the importance of service design in establishing successful services, and the innovation office approached Birgit Mager to support them using service design practices. They signed a three-year contract with KISD, which involved a six- to eight-week project every semester and enabled students to work on projects with the city focusing on innovation in the public sector. As part of these projects, students are focusing on consulting and assisting the City of Cologne in changing its structures and working methods. MeinungsMobil was a result of this collaboration's medium-term project.

MeinungsMobil: Challenges for Service Design Practice

In order to understand the impact of digital transformation in service design practice in detail, the design process of MeinungsMobil can be considered. It is best described using the common service design thinking model "Double Diamond." The whole process began with this challenge. While the first step (or "diamond") was dedicated to information gathering and ideation to clarify a defined problem, the second diamond is emphasizing on iterative design, conceptualization, and information processing. This process ends with a design solution. At MeinungsMobil, the first diamond, "Discover and Define," and the first part, "Develop," of the second diamond, were implemented from April to June 2021 as a mid-term project at KISD in collaboration with the city of Cologne and twenty-three students.[13] The second diamond, "Develop and Deliver," was developed between July and October 2021 by a team of six

13 Participating students: Michael Möckel, Christoph Laszig, Theresa Tropschuh, André Freiha, Julius Walsch, Tim Walta, Duane Carlos Meurer, Giulia Barone, Mariana Taveira, Paulina Porten, Jihee Hwang, Lilli Koskinen, Ying-Yu Chiang, Jiye Kim, Cora Gläser, Christian Wild von Hohenborn, Ben Simon Schrieber, David Stoffel, Johanna Pirwitz, Sahar Nikzad, Giulia Senni, Francisca Lucas Dias. Project supervisor: Prof. Birgit Mager, Janina Rösch, Anastasia Bondar. City administration: Maik Dick, Anastasia Bondar, Paul Wehner, Maria Knaup, Jennifer Stehr, Leonie Firmenich.

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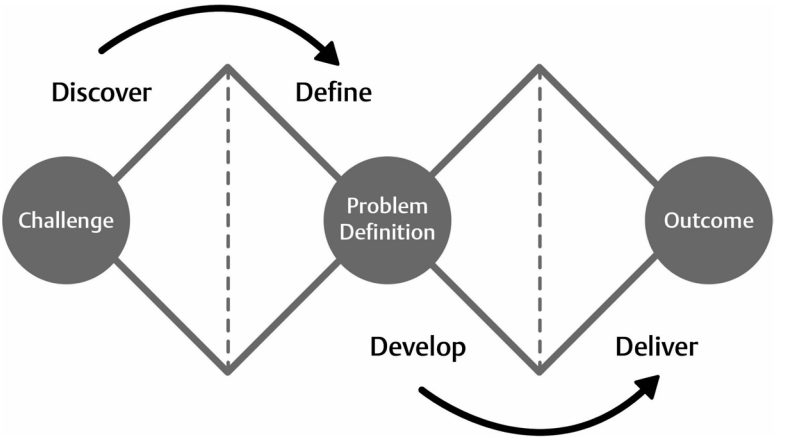
KISD student designers.[14] The development phase was conducted iteratively. The following section explains and analyzes the work process based on these two phases.



Double Diamond: a design process model popularized by the British Design Council in 2005.[15]

Discover, Define, and Develop

The "Discover, Define, and Develop" phases involved research, conducting interviews, co-design workshops with stakeholders, prototyping, and testing. The project's starting point was the question, "How can we design a participation process and tools for the City of Cologne resulting in the most benefits?"

During the "Discover" phase, digital tools such as Zoom, Miro, and Conceptboard were particularly enriching to the service design practice. They enabled conducting interviews with an international and diverse spectrum of experts from the industry, such as FutureGov from the UK, GovLabAustria,

14 Team members: Theresa Tropschuh, Julius Walsch, Paulina Porten, Johanna Pirwitz, Janina Rösch, and Anastasia Bondar.

15 Sahar Nikzad and Paulina Porten, Graphic, 2021.

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and the Center Cork County Council & Snook from Ireland.[16] These interviews aimed to discover these organizations' approaches to service design and their methods of engaging citizens to participate in city projects. The experts shared their daily experiences with working in the public sector. Moreover, partners from the city administration of Cologne and participation experts from Germany collaborated simultaneously, co-creatively, and remotely during an online co-creation workshop. The workshop focused on answering the question: "How can the City of Cologne involve citizens in city planning processes?" For the workshop, the participants were given four use cases in which citizen participation needed to be improved. During the "Discover" phase, the design practice benefited significantly from digital facilities as it provided flexible communication with customers and experts, access to research resources, and enabling low-threshold collaboration and co-creation.

This first phase led to the "Define" phase, where main insights about what was needed for successful participation and service design thinking in the context of public space and digitalization were collected. These requirements can be considered as a result of the discovery and focus on the question of how to design participation resulting in the most benefits:

1. Quick and active public involvement.
2. Multiple opportunities for the public to communicate their ideas.
3. The power of physical spaces.
4. The importance of digital public collaboration, and
5. The combination of analog and digital tools to reach all citizens.

With these in mind, the first iteration of the development process was conducted with the final outcome of three prototypes related to mobile participation and service design thinking. The prototypes included:

16 A total of nine interviews were conducted with: Future Gov (UK), Scottish Government (Scotland), Tech4 Germany (Germany), Cork County Council & Snook (Ireland), GovLab (Austria), CityLAB Berlin (Germany), Verschwörhaus Ulm (Germany), and UpLab (Germany).

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- A physical cart that was easy to transport around the city.
- Service design thinking methods (digital and analog ways to engage citizens through participation).[17]
- Two digital platforms including an app for the citizens to contribute digitally via their mobile phones, and an app for city staff that supported the physical service and mobile application.

In summary, the main focus of the prototypes was to combine analog and digital ways of engagement using technologies like augmented reality and artificial intelligence based on the insights gained in the "Discovery" phase. The design challenge was building a trustworthy relationship between the city and the citizens of Cologne. This entailed a careful balance between modern solutions and adapting to the future of digitization while still being relatable for all citizens. The key was to combine simple participatory methods with an appealing physical brand identity, using digitization as a bridge between citizens and the city. For a public service design tool like MeinungsMobil that is aiming to engage all kinds of users, the right balance between the increasingly digital world and the physical space was particularly important.

Develop and Deliver

In order to understand how to optimally balance digital and analog engagement and the challenges that service design practice was facing, the final implementation of MeinungsMobil in the city administration must be considered. This is described as the "Develop and Deliver" phase, which included iterative feedback sessions with the city administration, the development of prototypes, testing, and the final implementation of MeinungsMobil as a participation and service design tool in the City of Cologne.

17 The developed methods are: MeinungAR, MeinungsStimme and MeinungsRöhren. MeinungAR is an interactive augmented reality-driven solution for image-based voting processes. MeinungsStimme is a voice and artificial intelligence-aided concept for an easy and direct way of leaving opinions. MeinungsRöhren is a rather traditional voting poll attached to the MeinungsMobil. It is a common and effective way of asking the citizens' opinion.

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Testing the final implemented service, MeinungsMobil, with Cologne citizens, 2021.[18]

The second project section started with a workshop with city administration where previous prototypes were reconsidered and revised in the form of requirement analysis. This analysis pointed out that the previous advanced digital approaches did not match the facilities and needs of the city administration and citizens. While thinking outside the box and coming up with new perspectives is needed for a successful digital transformation, service design practices also need to react to community needs and consider their point of view concerning digital technologies. As the prototypes had an advanced technical approach, using technologies like augmented reality and artificial intelligence, future users would need detailed onboarding to be able to implement and evaluate the methods adequately. However, MeinungsMobil aimed for quick and accessible participation and co-design, the reason why the methods had to be rethought in iterative feedback sessions with the city administration. Compared to the first phase, the second phase mainly focused on the right balance between analog and digital components regarding the needs of the city administrations and citizens. The outcome of the requirement analysis covered the following aspects:

18 Theresa Tropschuh, Photograph of MeinungsMobil, 2021.

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1. MeinungsMobil should expand the existing participation possibilities of the City of Cologne through more innovative methods. The existing co-creation tools should become mobile.
2. MeinungsMobil is supposed to enhance the dialogue with and between citizens by creating a mobile/temporary meeting and information places in a public space.
3. MeinungsMobil should link digital and analog participation (e.g., with the municipal participation website "Meinung für Köln"[19] tablet and Internet access).
4. MeinungsMobil should function in a cross-project and modular way.
5. The documented results/evaluations of participation should be able to flow into further planning processes.

Veedels Check project for MeinungsMobil.[20]

19 "Meinung für Köln" is a digital participation platform that the City of Cologne uses to gather citizens' opinions and comments on projects, accessed June 30, 2022, https://www.meinungfuer.koeln.

20 "Hey Köln!," Beteiligungsportal der Stadt Köln, accessed June 29, 2022, https://meinungfuer.koeln/hey-koeln.

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During the development phase, several challenges arose. First of all, the implementation involved planning and constructing a bike trailer that fit traffic regulations, which led to various structural challenges. MeinungsMobil was designed in detail in 3D software and manufactured using computer-controlled production techniques. These digital tools made it possible to precisely translate the prototype into the final product. Additionally, the digital platform and methods were adjusted to the needs of the city administration and citizens trying to find a more accessible way of combining digital and analog engagement. Instead of creating new participation services from scratch, the city administration's existing participation tools were considered. Compared to the earlier prototypes, the final implemented methods were more aligned with the city administration's existing structure and way of engaging citizens by, for example, linking to the municipal participation website "Meinung für Köln" (Opinions for Cologne) onsite.

The final MeinungsMobil design included a bike trailer and a series of participation and service design methods. The broad selection of integrated methods would enable them to be used in all levels of city administration. There was an information stand set up with the possibility to display flyers and attach posters and plans, and citizens could easily be informed about projects. Quantitative opinion polls could be conducted with integrated opinion tubes. Whiteboards provided a basis for short co-creation workshops to develop ideas together on site. Moreover, audio-visual content could be incorporated thanks to an integrated laptop (convertible). An integrated router offered the possibility to conduct hybrid formats and, for example, to connect speakers via live stream. The city began utilizing MeinungsMobil in March 2022 as a tool to involve residents in co-creative decision-making in various initiatives. Veedels Check was the first initiative that encouraged young citizens (12+ years old) to link to a digital map and mark locations they liked or disliked. MeinungsMobil remained in Mülheim, one of the city's key districts, to inform people about the program, encourage them to participate, and create improvements in Cologne based on young people's ideas.

Conclusion

All in all, the service design project MeinungsMobil case study underlined that digital transformation in city administration can be challenging. It is particularly important for the service design practice to find the right balance

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between innovation and community needs and facilities. We observed that a digital solution might solve many problems quickly and efficiently, but might not be easily applicable to all users. As service designers, it is important to be aware of this gap and to figure out: "How many changes can I make without it being overwhelming and losing users along the way?" In the context of digital transformation and service design in city administrations, one of the biggest challenges was finding the right balance between expanding the space for technical tools and the citizens' needs.

In German city administration, there is still room for improvement in terms of digital transformation. It is particularly important to understand that it is necessary to co-creatively work on digital transformation in order to get holistic solutions that meet the needs of the citizens. Even if MeinungsMobil had to compromise on its original digital approach, it can still be seen as a contribution to digitalization. It is enabling the City of Cologne to approach the citizens in the public space and ask for feedback. Engagement within this process is particularly important to meet the users' needs.

Despite large-scale increases in IT spending, the German public's utilization of current digital services has been slowly dropping in recent years. Being one of the world's most significant economies, Germany has frequently been rated in the low-to-mid-range digital government rankings.[21] Although the German government has begun a large-scale reform of its public service delivery model, one of the biggest challenges confronting the German public sector in undertaking this transformation journey is the country's federal system, which leaves each state to devise its own digitalization strategies.[22] On the other hand, citizens do not utilize many online public services and administrative applications because they are unavailable or require additional technology to be associated with the electronic identification and a personal service account.

These accessibility challenges require a high level of administrative literacy that many individuals do not need for their otherwise private online

21 Ines Mergel, "Digital Transformation of the German State," in Public Administration in Germany, ed. Sabine Kuhlmann et al., Governance and Public Management (Cham: Springer International Publishing, 2021), 331–55, https://doi.org/10.1007/978-3-030-53697-8_19.

22 Harry Baldock, "Digitally Transforming the German Public Sector: The Path to a Smarter Society," Totaltelecom, January 20, 2022, https://www.totaltele.com/512217/Digitally-transforming-the-German-public-sector-The-path-to-a-smarter-society.

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interactions. Of course, this is not the only reason why individuals are hesitant to use government services. German citizens and people in many countries around the world have a long history of being worried about handing over data to the government out of fear of becoming "transparent citizens."[23]

Five main areas where service design may help with innovation in the public sector include policy-making, cultural and organizational reform, training, capacity building, and civic engagement. One of the most essential ways for the public sector to re-invent its services is through digitalization, which has become one of the primary interfaces between public service providers and citizens.[24] As Birgit Mager emphasized: "Digital transformation is something that every sector and service is facing. This transformation also affects the public sector and its services which need to transform into digital in order to be accessible to the public. Service design contributes here by zooming out and seeing the bigger picture by integrating the different stakeholders and by working co-creatively on solutions that bring real value for the users."

23 Baldock.

24 Iqbal, Jenniskens, and Ouchene, "Service Design Impact Report: Public Sector," 8.

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