

Appendix A. Case Overview

Table A1. Overview of cases. Sources: Urban-rural typology based on Bundesinstitut für Bau-, Stadt- und Raumforschung (2025); inhabitants based on Statistisches Bundesamt (2026)

City#	urban-rural typology	inhabitants (rounded)	smart city strategy	digitalisation strategy	funding
City1	predominantly urban	43.000	No <i>intermunicipal cooperation as smart region</i>	No	unclear
City2	intermediate	38.000	planned	Yes <i>shall serve as foundation for smart city strategy</i>	unclear
City3	intermediate	30.000	No <i>integrated urban development concept with measures focusing on digitalisation</i>	No	Yes
City4	predominantly rural	56.000	No	Yes	unclear
City5	intermediate	40.000	No <i>many smart city projects in various fields</i>	Yes	Yes
City6	intermediate	73.000	No <i>founding of a subsidiary company of the city entrusted with smart city development</i>	Yes	unclear
City7	intermediate	43.000	Yes	Yes <i>part of a city-wide future strategy</i>	unclear
City8	predominantly urban	309.000	Yes	Yes	Yes
City9	intermediate	74.000	No <i>many smart city projects in different fields</i>	No <i>intermunicipal cooperation on digital administration; digitalisation strategy for schools and education</i>	Yes

References

Bundesinstitut für Bau-, Stadt- und Raumforschung, 2025: Laufende Raumbbeobachtung des BBSR (Continuous Spatial Monitoring of the BBSR). Retrieved from <https://www.bbsr.bund.de/BBSR/DE/forschung/raumbbeobachtung/Raumabgrenzungen/raumabgrenzungen-uebersicht>

Destatis – Statistisches Bundesamt, 2026: Gemeindeverzeichnis (List of Municipalities). Retrieved from <https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/Archiv/GVAuszugQ/AuszugGV1QAktuell.html>

Appendix B. Interview Guideline

The guideline served only as an orientation for the discussion. Depending on the interviewees input and answers, guiding and probing questions were omitted when interviewees had already provided sufficient detail, and the order of questions was sometimes changed. The list of measures presented here as question 7 was developed in the first two pilot test workshops and served only as a starting point for each discussion.

1. Could you please briefly introduce yourself, explain what you do for a living, and describe your daily responsibilities?
 - a. probing question: To what extent does your work involve digitalization?
2. To have a shared understanding of what we are discussing, we define trust as the willingness of a person or an organization to be vulnerable towards a trustee based on judgements of their ability, benevolence and integrity. We are interested in such trust relationships in the city context. They can exist between citizens, civil society actors, businesses, public administration, and/or science institutions. When you think about your daily tasks, where do you see yourself in this context, which role do you have?
 - a. probing question: As a starting point, try thinking from the perspective of your role as a citizen.
3. What are typical interactions in your daily work with external parties where trust is particularly relevant?
 - a. probing question: Please describe these in detail.
 - b. probing question: Where does trust come into play, and where does digitalization play a role?
4. When you think about the relationships you have with other actors in the city, in what situations have they trusted/distrusted you?
5. When you think about the relationships you have with other actors in the city, in what situations have you trusted/distrusted others?
6. Are there any issues you encounter regarding trust? What are they?
7. To strengthen existing relationships with others, people can take specific measures. Here is a list of possible measures to strengthen relationships of trust that have been mentioned in other interviews so far. What do you think about these measures?
 - a. probing question: Are measures missing?
 - b. probing question: Should measures be removed from this list?

List of measures

- Good service. For example, having positive service experiences could build trust among customers.
 - Engagement and collaboration. For example, strong citizen participation or having intermunicipal cooperations could strengthen trust.
 - Strategies. For example, measuring the impact of smart city projects or having a clear smart city strategy could improve trust.
 - Digital channels. For example, offering digital service/communication channels or designing existing channels in a more appealing way could strengthen customers' trust.
 - Transparency. For example, actively providing information or explaining decisions could build trust.
8. Please first rank the measures according to their importance for building trust.
 9. Please rank the measures again based on which you already implement in your city.
 - a. Probing question on measures ranked lower: Why aren't you utilizing these measures yet?
 10. Do you see any potential for conflict between local politics and public administration in the prioritization and implementation of these measures?

11. In your opinion, which measures should other stakeholders take?
 - a. probing question: For which of these measures is the willingness of others to participate necessary?
12. Where in the city context do you see the primary responsibility for strategically managing and sustaining trust?
 - a. probing question: Why would you say is actor x mainly/solely responsible for managing trust?
13. Thank you very much for your time and input so far. We would like to give you the opportunity to express any thoughts and ideas that you think are important but that have not been discussed so far? Do you have any questions left?

Appendix C. Coding Scheme

Table A2. Full coding scheme

functions and relationships	
refers to the functions, i. e. general tasks, actors perform and the relationships between these actors.	
2 nd level code	exemplary quote
<p>decision-making refers to actors' participation in processes to define the (smart city) development plan, inspect the development and assess the impacts</p>	
<p>facilitation refers to actors' participation in the creation and provision of the infrastructure – both physical (e.g., broadband networks) and immaterial (e.g., personnel resources) – that is needed to provide services in the first place</p>	<p>The bird protection association has long used the building and approached us last year saying 'We need Wi-Fi because we want to install a webcam to stream a video of a bird nest on the building'. So, we made it possible. It is a city-owned building, so our IT got to work. Now the association uses the webcam independently based on our infrastructure. (Interview 9)</p>
<p>provision refers to actors offering a range of services to the general public, including businesses, societal actors, and universities/research institutions, and is ultimately an act of offering public value</p>	
<p>consumption refers to the acceptance and use of service offerings</p>	
technology	
refers to the use of smart technologies, devices or services that either impact the relationship between actors and their specific functions or are a result thereof.	
2 nd level code	exemplary quote
<p>smart mobility refers to the use of sustainable and innovative ICT in modern transport technologies to improve urban traffic, transport, logistic and communication systems with local and national accessibility</p>	<p>Today, nothing is possible without a smartphone. [...] You cannot get a railway ticket without a smartphone, just like many other daily things, especially regarding mobility. (I17)</p>
<p>smart living refers to the use of ICT for achieving quality of life in liveable and safe setting</p>	<p>We have networks to connect people for voluntary work. For instance, driving seniors, maintaining something and then there are people organizing cycling tours and things like that. [...] That is organized via WhatsApp. (I16)</p>
<p>smart environment refers to the use of ICT efficiently to take care for natural resources and the planetary culture</p>	<p>We got the opportunity by the city to install a webcam on the tower to film the tower falcons brooding there in the past eight years and publish them. And those videos are popular. We have around 100.000 views per year. (I9)</p>
<p>smart citizens refers to social and human capital and the level of qualification of women and men with different backgrounds, who are motivated to learn and participate in the co-creation of public life</p>	<p>I use the 'Wahl-O-Mat', to see where I fit in the party landscape and whether this is aligned with who I vote for. (I11)</p>
<p>smart governance refers to political strategies and policies, including expanded urban planning, which enable the co-production of public services, and tries to achieve democracy and transparency</p>	<p>Through the geoportal we provide data that we as a city have, but we are of course dependent on getting data from other organizations, too. (I5)</p>

smart economy refers to the use of ICT in promotion and production processes by companies	We have entered into a partnership with eBay regarding the regional online market. My interest was not in the regional online market, but in onboarding companies. That means, so to speak, lowering the inhibition threshold through cost-effective, good advice (I15)
specificity of technology refers to whether the described technology is entirely local or provided by non-local actors but used locally	
trust	
refers to the willingness of a trustor to be vulnerable towards a trustee based on judgements of the trustee's ability, benevolence and integrity	
2nd level code	exemplary quote
use of technology refers to actors using specific offerings based on their trusting beliefs	I think trust is very high when you are willing to submit your tax declaration electronically because there, sensitive information is included. That was a big hurdle for me initially. (I10)
ability trusting belief that refers to "a set of skills, competencies, and characteristics that enable a party to have influence within some specific domain" (Mayer)	My counterpart, mostly citizens, but also organizations, need to trust that what I do is objectively and professionally correct. (I3)
integrity refers to the trusting "belief that the trustee adheres to a set of principles that the trustor finds acceptable"	I think interacting with other party members in this protected context, there is instant trust that you know some values are simply shared. (I9)
benevolence refers to the trusting belief that a trustee wants to do good to the trustor, aside from an egocentric profit motive	Digitalization requires stricter formalisms. [...] In the past you had a credit case worker who you would ask 'Can I overdraw my account? A customer is not paying.' Then the credit case worker would unlock the account on a trust basis. You cannot do that today anymore. (I6)
distrust	
refers to an actor's unwillingness to accept vulnerability based on negative beliefs about the intentions or behaviors of others (based on Rousseau et al. 1998)	
2nd level code	exemplary quote
non-use or rejection of technology refers to actors not using or even rejecting specific offerings based on their distrusting beliefs	I would never want to vote digitally. (I11)
lack of integrity refers to the belief that the trustee may not adhere to a set of principles that the trustor finds acceptable	We definitely experience [distrust]. By local politics and administration, sadly, because in the industry, there are some black sheep. Maybe, in the past, somebody tried to fraudulently acquire land, had no contracts with customers and made up a story to gain an advantage. And that distrust ends up hitting us in the first contacts. (I13)
lack of benevolence/malice refers to the belief that a trustee may not want to do good to and instead intentionally harm the trustor	I assume most people [online] are not competent in my field, and 90% of comments are not benevolent towards me. (I10)

<p>lack of ability and unmet expectations refers to the belief or the experience that a trustee does not have the necessary competences and characteristics to act a certain way or is unwilling to use their competences for the trustee's good</p>	<p>I assume most people [online] are not competent in my field, and 90% of comments are not benevolent towards me. (I10)</p>	
<p>mechanisms refers to behaviors and cues that either build trust, inhibit the building of trust, or reduce risks in multilateral and reciprocal relationships</p>		
<p>2nd level codes</p>	<p>3rd level codes</p>	<p>exemplary quote</p>
<p>barriers to trust building refers to any behaviors or cues that impede the formation of trust</p>	<ul style="list-style-type: none"> • ineffective communication • lack of discretion • conflicts of interest • lack of communication • lack of (personal) relationship 	<p>Simplicity is a must. Anything digital that is complicated will not lead to trust but only to frustration. [...] The language used by administration and politics is a big hurdle to build trust. Sadly, they often have to use a very formal or legal language that is not understood by most people. (I14)</p>
<p>trust building refers to any behaviors or cues that aid the formation of trust</p>	<ul style="list-style-type: none"> • effective communication • trust transfer • demonstrating integrity • transparency • discretion • expectation management • demonstrating ability • long-term relationship • mutual trust • building relationships • positive experiences/ meeting or exceeding expectations • demonstrating benevolence 	<p>The city started off with a culture development plan [...] By now we are in regular contact [with other actors], both in person and digitally. We send out a newsletter to inform about funding opportunities as well as what is currently going on, all locally. That way we stay in contact. (I9)</p>
<p>reducing risk refers to any behaviors or cues that reduce risk perception by trustors</p>	<ul style="list-style-type: none"> • eliminating negative consequences • establishing rules reducing burden 	<p>Data are only provided in anonymized form. (I17)</p>