


RESEARCH ARTICLE

# ‘Daseinsvorsorge’ as a care-based principle of transformation: Perspective toward a caring development of sustainable cities

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**Abstract** • Cities around the world are using smart city approaches to transform urban infrastructures toward sustainability. Critical academic studies of smart city projects often fail to integrate the aspect of care. Based on empirical evidence, I argue that *öffentliche Daseinsvorsorge* (public services provided to fulfil basic human needs) as a guiding principle of urban development can serve as a starting point for responsible research and innovation that considers questions of care. To do so, I first develop the concept of *Daseinsvorsorge*, which will serve as a critical lens to evaluate transformation projects from a perspective of care. Then I situate the concept in broader academic debates on responsible research and innovation (RRI) and technology assessment (TA). Furthermore, I propose *Daseinsvorsorge* as a concrete normative framework that reflects the role of municipal administrations and their responsibilities toward the citizens.

*Daseinsvorsorge als fürsorgebasiertes Prinzip der Transformation: Perspektive für eine fürsorgliche Entwicklung nachhaltiger Städte*

**Zusammenfassung** • Weltweit nutzen Städte Smart-City-Ansätze, um städtische Infrastrukturen in Richtung Nachhaltigkeit zu transformieren. Kritische wissenschaftliche Untersuchungen von Smart-City-Projekten lassen den Aspekt der Fürsorge bisweilen vermissen. Auf der Grundlage empirischer Erkenntnisse argumentiere ich, dass öffentliche Daseinsvorsorge als Grundprinzip der Stadtentwicklung einen Ausgangspunkt für verantwortungsvolle Forschung und Innovation bilden kann, die Fragen der Fürsorge berücksichtigt. Dafür konkretisiere ich zunächst das Konzept der Daseinsvorsorge, das als kritische Linse dienen soll,

um Transformationsprojekte aus einer Fürsorgeperspektive zu bewerten. Anschließend verorte ich das Konzept in Debatten über verantwortungsvolle Forschung und Innovation und Technikfolgenabschätzung. Darüber hinaus schlage ich Daseinsvorsorge als einen konkreten normativen Rahmen vor, der die Rolle der Stadtverwaltungen und ihre Verantwortungen gegenüber den Bürger\*innen einbezieht.

**Keywords** • Daseinsvorsorge, smart city, responsible research and innovation, care

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## Introduction

Globally, cities set ambitions carbon-neutrality and sustainability goals, driven by their crucial role in both causing and combating climate change and related challenges. The discourse on sustainable cities intertwines with digital transformations, with smart city development as a central strategy. Digital technologies, sensors, and data platforms aim to reduce emissions and enhance livability. Sustainability has gained prominence in smartification discussions, superseding associations with other global trends. It involves sensitive municipal areas and services, contextualized within the concept of ‘öffentliche Daseinsvorsorge’, which I will elaborate on later.

To support smartification and increase cities’ sustainability, the German government provides 820 million Euros funding to enable so-called *model projects*. Through so-called strategies – policy papers that lay out plans for the smartification – and their implementation, municipal actors shall pilot digital projects that can be circulated and scaled later.

Scholars have examined how smart city projects and the digitalization of the city impact modes of governance (Cardullo and Kitchin 2019; Clark 2020; Shelton et al. 2015). This article

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supports the argument that these reconfigurations of modes of governance are not determined by certain technologies per se but rather through how we design and implement them.

I argue for responsible implementation of digital projects for sustainable urban transformations. Responsibility in this context refers to the broader debate on how to not only critically assess but also include values in technology development (Dignum 2019; Liebert and Schmidt 2010). I propose the concept of öffentliche Daseinsvorsorge as one starting point for intersecting responsible research and innovation (RRI) with sustainable transformations and care.

## Who defines care provision and why?

Acknowledging the significance of care-taking activities reveals hidden power relations and dynamics underlying infrastructures and services that sustain communities. Care, in this sense, draws attention to its relevance for the wider economy and society's maintenance (Gottschlich et al. 2014, p. 10). In the article, I first introduce the concept of öffentliche Daseinsvorsorge. Second, make concept to make applicable to transformation projects. Third, I depict exemplary how this application could look like. Finally, I draw connections to RRI, technology assessment (TA) and care.

### Daseinsvorsorge in the German smart city discourse

Öffentliche Daseinsvorsorge literally translates into 'public provision for being' and represents a specific understanding of public service within Germany. It is both a legal term and a guiding principle within municipal administrations. Social scientists have studied its meaning from different perspectives (Neu 2009). Generally, it describes the responsibility of the state or municipality to provide services that citizens depend on to sustain themselves. The extent of these services remains contested (Mause 2018).

Originally, the concept was developed by Ernst Forsthoff in the 1930s, who studied the implications of industrialization for citizens. His core argument: citizens who are moving to cities for industry workplaces, lose their ability to sustain themselves due to the reduced available space they have. The provision of services for sustaining citizens becomes the mandate and the legitimization for administrative power. Instead of protecting the citizens against perils from the outside – which is the legitimization for governmental power with Hobbes – the state is taking care for the citizens within its borders. As the local government is taking care of their citizens in certain ways, it gains respect, and legitimization through these services (Forsthoff 1938).

Today, Daseinsvorsorge serves as principle for municipalities. In Munich, for example, the city is hosting a 'Day of Daseinsvor-

sorge' every year on their central square, where different actors from waste management to different departments of the administration present themselves and their services and try to get in touch with citizens. This shows the depth of its engraving into the municipalities self-understanding and identity. The term is also a political device for those demanding a strong state in the light of increasing economic divides.

There are discussions about translating Daseinsvorsorge into the realm of the digital, consisting mainly of two strands: first, whether access to digital services like the internet should be considered a part of the provided services (Meier et al. 2024;

Papenfuß et al. 2022). Second, how already provided services can be offered more efficient, leveraging the potential of digital tools.

The latter is one core idea of the funding scheme 'Modellprojekte Smart Cities'. Even though Daseinsvorsorge is not significant in the policy papers like the Smart City Charta, the publication 'Digital Daseinsvorsorge for resilient municipalities' centers it, describing how digitalization can be used to foster Daseinsvorsorge. This underscores the general prevalence of the concept in the urban context. Still, in the concrete municipalities, whose smartification endeavors I observed in empirical research, the concept did not play an important role in the actual smart city projects. It is neither mentioned prominently in the digitalization strategy documents, nor was it explicitly centered in workshops and discussions, I observed in different municipalities.

### Making Daseinsvorsorge applicable as a careful lens

Therefore, I propose to strengthen it as a concrete principle of care. The debates on the importance and nature of care in STS (Lindén and Lydahl 2021) and beyond involve various notions, including labor and emotional investment in care and the study of relations of human and non-human actors to uncover sustaining activities (Mol 2008; Puig de la Bellacasa 2017). Care activities require explicit observation and description: who cares for whom and why? Who defines care provision and why? Tronto has established connections between moral values and the political realm through her proposed ethics of care. Care is not only an important human activity but also points towards power dynamics and societal injustices if we look at the amount of care that is provided by whom (Tronto 2020).

Daseinsvorsorge or the term Sorge literally translates into care, creating a strong connection. The introduction of the concept suggests that as a legitimization for its power the municipality has a responsibility to take care of citizens through the provision of services.

In the sustainable transformation project,	For these four different questions, Daseinsvorsorge provides the following answers:
...how do we envision the relationship between the citizens and the state?	The citizens are dependent on the state to cater to their basic needs as they cannot sustain themselves, the state has a responsibility to take care of the citizens.
... what is our understanding of the role of the state?	The state engages with the citizens and has an important and strong role.
...how does the state and the administration legitimize itself and its doing?	The power of the state is legitimized through the care it provides for the citizens. The goal of municipal administration therefore needs to be to fulfil their responsibility for care to be trusted and accepted.
...how are citizens participating (taking part) in the city?	All citizens need to be able to take part in everyday life in the city. Originally, participation is foremost meant in an economic and material sense. This includes access to water, public space, electricity or other services necessary for being. Today, other spheres like political influence are discussed under this term as well.

Table 1 Dimensions of Daseinsvorsorge. Source: author's own compilation

To make Daseinsvorsorge applicable as a care-focused framework for concrete transformation projects I break it down to concrete normative and qualitative questions. Based on the introduction of the concept by Forsthoff, I initially suggest four dimensions (table 1) that focus on the relationship between citizens and the state in reflection of relationships of those who give and receive care. However, the framework could be extended or altered to reflect local contexts.

A lot of actors provide so-called solutions to support cities' sustainability endeavors. Smart irrigation as a concrete example for such offers by different startups who want to enter the cities. The project aims to increase efficiency in irrigation. Instead of fixed routes for watering plants and trees, different sensors collect humidity of soil and plants. Algorithmic procedures are performed in central data platforms to determine the plant's health and to evidently suggest when to water plants. The digital solution contributes to sustainability by saving water and improving trees health as they are vital for cool city despite rising temperatures.

Using the four dimensions defined above, we can normatively assess the proposed transformation. The following description is no empirical observation but rather speculation to exemplify the potential of the suggested approach. In practice, such an evaluation or analysis could be performed before the implementation phase together with key stakeholders in workshops and discussions not only for pro/contra decisions but also to be aware of implicit reconfigurations introduced by the project their potential remedies.

At first, the relationship between citizens and the state is not affected by altered internal procedures for a specific service. We can, however, speculate about alternative relationships that could be imagined for taking care of plants and trees. Citizens could – for example – be integrated more directly as patrons for plants, leading to bigger shifts in the relationship between citizens and state. While in this concrete example, the relationship might not be of utmost importance for citizens' ability to sustain themselves. Still, the overall relation between citizens and state is composed of a huge number of small interactions that add up to each other.

However, the relationship between citizens and the state is still altered through the introduction of private actors that provide the technologies for the project. Initially, this is transparent to the

citizen, with the state delegating certain decisions to a software-platform. Looking closer, when bringing in new actors, they also bring their own interests. With more actors and interests at the table, citizens' interests become one next to others mediated by the government. While questions about privatization are not new to smartification projects, they remain important to be reflected.

Looking at the concrete project, the state redefines its role from only providing the specific service to providing the specific service efficiently. Therefore, it reacts to increased pressure on resources like water or workforce. Also, the state acknowledges deficits of the administration's operations, suggesting a knowledge-deficit in the maintenance of plants. To cope with this deficit, the municipalities bring in external actors and redraw boundaries of their responsibilities and capabilities. Doing so, they confirm and support the role of the state as the non-efficient state. Efficiency is not new to smart cities but has been discussed in municipalities before. However, this reflection illustrates that the particular smart city project is contributing discursively to narratives of efficiency, strengthening its importance.

Legitimization: Through acknowledging the information-deficit in regard to the plants' health the administration is also extending its own legitimacy. It is not sufficient to just take care of the urban space based on existing expertise and knowledge, but the care-taking also needs to happen efficiently. While the general legitimization for exerting power over space and citizens remains the same, it gets extended.

Participation: Ernst Forsthoff (1938) introduces Daseinsvorsorge as a reaction to the reduction of so-called controlled space. To sustain themselves, the citizens are dependent on the government to govern shared spaces in their interest. The tree project is making public spaces more accessible as trees are absorbing CO<sub>2</sub> and providing shade, leading to cooler temperatures. Therefore, the project fosters participation in the material sense of Daseinsvorsorge, as it increases the citizens possibilities to be a part of the city.

Overall, the discussion is not supposed to provide a yes or no decision about whether to implement the project. Rather, it surfaces potential reconfigurations in urban governance, that need explicit consideration like for example efficiency narratives or privatization. The aim is to show that by applying the different dimensions of Daseinsvorsorge, we can be sensitive about the (un)intended impact on relationships of care between citizens

and the state. How do we position ourselves towards these effects and do we want to accept, circumvent or alter them?

It is important to mention, that what I have demonstrated above is merely the application of the Daseinsvorsorge perspective on a project description or project proposal. It deals with assumptions and speculations about the project based on its description. When it comes to actual implementation, empirical evidence suggests hurdles for the projects (Hollands 2008; Cole et al. 2023). This is why the evaluation must exceed the planning phase and be an iterative process.

### Daseinsvorsorge and responsible research innovation

While the chapter above has shown how the concept of öffentliche Daseinsvorsorge can be used as a critical lens and a reflective tool, the following part will connect it to debates on responsible research and innovation and technology assessment. I propose to use it as a starting point for careful transformations in urban contexts.

and Schmidt 2010). In RRI Responsibility serves as a guiding principle. Who is responsible for what against whom and why? RRI needs to be situated in local and concrete circumstances to answer these questions. It is against this theoretical and conceptual backdrop that I present reasons why Daseinsvorsorge should be a central aspect of RRI in the context of sustainable urban transformations.

First, the values and concepts that shall be considered in RRI need to be related to the domain, the technologies are developed in. Familiarity makes it easier for the actors to use and apply the concept and its underlying normative perspectives. Within the context of municipal administrations in Germany, the term Daseinsvorsorge is widely spread and embedded and is therefore ideal for implementing a concrete understanding of responsibility.

Second, it is necessary to build on values or concepts that take a clear normative stand. Debates in TA and STS have contested the notion of neutral technologies where only the application decides about its impact. Also, technology is not inherently good or bad but it rather depends on its implementation and integration into its context. Instead of alleged neutrality, reflexivity

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how they want to enact it locally.*

Based on the definition of the European Commission “Responsible Research and Innovation (RRI) implies that societal actors [...] work together during the whole research and innovation process to better align the process as well as its outcomes with the values, needs and expectations of society.” (European Commission 2014). While this definition is broadly acknowledged, “it is at least curious that there is hardly any reflection in the RRI literature on what values actually are” (Boenink and Kudina 2020, p. 451). I am accepting that conceptual vagueness and use values in the sense of abstract principles or ideas that exist and are contested within (local) communities that guide valuing-processes regarding (un)desired impact of technologies.

Explicit links between RRI and care can be found for example with Stilgoe et al. who claim that “responsible innovation means taking care of the future through collective stewardship of science and innovation in the present” (2013, p. 1570); or with Owen et al. who define care as one of two dimensions of RRI in the sense of explicitly making decisions about what (not) to do in science and innovation (2013, p. 36).

In 2014, a conference was held to explore the connections between these RRI and technology assessment (TA) (Gudowsky et al. 2014) which can be seen as neighboring fields (Scherz et al. 2020). TA has been developed from a mere assessment and technology development, for example in prospective TA (Liebert

and transparency shall address that there will always be some normative standpoint in TA (Torgersen 2018) and RRI. Terms like responsibility (Gudowsky et al. 2014) and fairness often remain vague. As concrete norms are necessary for application, Daseinsvorsorge carries normative positions regarding the four dimensions described above.

Third, while there is a shared understanding of Daseinsvorsorge across cities, each city can still have their own focus and interpretation how they want to enact it locally. Translating the norms to the local context is important for the acceptance in the respective city. Daseinsvorsorge allows for this translation, providing outlines that can be filled with local specifics.

Fourth, the sustainable transformations are at first run by the state. Municipalities are facing different expectations how they are supposed to innovate in comparison to for example startups. Being a governmental body raises the standards in relation to security, stability and inclusivity. As municipality, you can not only focus on one specific client or target group but rather have to provide services for all citizens which requires to reflect barriers and accessibility. Also, the data that is handled, is often sensitive and requires additional measures of protection. Therefore, it is necessary to build on concepts explicitly addressing the state as an agent. Daseinsvorsorge fulfils that by arguing that the state needs to care for its citizens.

Finally, *Daseinsvorsorge* shares a literal connection with responsibility: Forsthoff not only introduces the concept of *Daseinsvorsorge* but also introduces the idea of so-called *Daseinsverantwortung* – the responsibility for the being that allocates the obligation to make sure that the citizens are able to be with the state. While the state cannot take care of every citizen individually, the responsibility is to be fulfilled by providing services that the citizens themselves can rely on.

Picking up the definition of RRI again, this article argues for a specific responsibility of the municipal administration to reflect questions of öffentliche *Daseinsvorsorge* “during the whole [. . .] innovation process” (European Commission 2014). When transforming urban spaces, citizens’ needs and perspectives about what constitutes their being should be the top priorities.

To be more specific, this could be implemented for example through a clear examination of projects before they are implemented. Like in the evaluation of smart irrigation, provided before, projects could be evaluated using a *Daseinsvorsorge* canvas. Not to make yes or no decisions but rather to see how specific decisions about the project’s implementation affect the citizens in relation to *Daseinsvorsorge*.

Implementing such strategies needs to reflect different perspectives and legal boundaries of the city administration, the state, and national governments. These processes need to be iterative, reflexive and inclusive, acknowledging that there will be no off-the-shelf method that can be reused everywhere and for any sustainability transformation.

## Conclusion

This article illustrates how *Daseinsvorsorge* integrates care into urban transformation, providing a reflective framework for RRI. I have depicted how four dimensions make the concept applicable as critical lens to evaluate concrete projects. I have exemplified this evaluation, illustrating the potential of the approach.

Connecting *Daseinsvorsorge* as a principle of care to debates on RRI and TA contextualizes this approach. Taking the proposed approach further, the integration of *Daseinsvorsorge* in specific projects of sustainable transformation needs to be made more concrete in terms of existing experiences with RRI. To do so, I suggest conducting research projects in which actors from municipalities and social sciences or STS collaborate on projects with the aim of ensuring that the municipalities keep *taking care* of their citizens in transformation projects.

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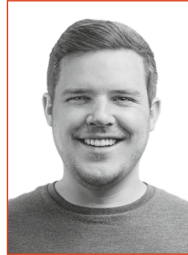
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