



Streetscape during the pandemic: Limmerstrasse in Hannover Linden.
Source: Meike Levin-Keitel.

Sustainable (Post-)Pandemic Cities?

Contested Forms of Knowledge in Urban Transformation

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Abstract

For over a year, the COVID-19 pandemic is preoccupying scientists, politicians and each and every one of us in our professional and private lives. In this process, the spatial implications of the crisis soon became clear: named in terms like social distancing or the uneven affectedness of COVID-19 in different neighbourhoods. However, it remains complex to evaluate spatial implications in detail and derive actions for future urban design. Very quickly, voices were raised that see the crisis as an opportunity for transformation and assume that urban life after COVID-19 will be more sustainable. This article argues that a sustainable development will not occur per se, but like all transformation processes will be accompanied by conflicting goals within the sustainability discourse that can be understood as spatial conflicts. We therefore propose a systematic examination of system, target and transformation knowledge and consider this on the spatial level in order to open up analytical and designing perspectives. The paper ends with proposals for spatially informed policies, politics and politics towards more sustainable (post-)pandemic cities.

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The spatiality of the COVID-19 crisis – first insights

There is no doubt that the COVID-19 pandemic is associated with a number of spatial implications: the so-called social distancing presents itself mainly as a spatial distance in personal contact; the uneven affectedness of neighbourhoods mirror different local-specific contexts and preconditions to cope with spatial distancing. The discussion about nation-states – and in the case of Germany also intranational – borders is a discussion about the demarcation of physical spaces with considerable social and economic consequences. Thus, initial contributions to the discussion on the spatiality of the COVID-19 pandemic are, on the one hand, theoretical considerations on the conceptualisation of space, reflecting competing spatial logics in times of crisis (e.g. Knoblauch and Löw 2020). On the other hand, questions on the future planning understood as place-making policies and means in cities and regions are being asked (e.g. Libbe et al. 2020, Schneidewind et al. 2020, Adam and Klemme 2020, Bunzel and Kühl 2020). This relates directly to the interconnections of two major fields of knowledge we focus in this article: the field of social-ecological transformation studies and socio-technological understandings of transitions to sustainability and the field of integrated socio-spatial planning. Recently, a growing number of policy recommendations and research articles have been published connecting integrated planning approaches with claims for societal transformations to sustainability (e.g. SDGs, WBGU 2011 and 2016, New Leipzig Charta 2020).

However, the challenging question how to integrate different forms of knowledge in a spatial or planning perspective remains. In the following, we will outline a social-ecologically founded understanding of space as a relational category characterised by both material and socio-spatial dimensions. In doing so we draw on the three forms of knowledge established in transdisciplinary sciences – system, target and transformation knowledge (Hirsch Hadorn et al. 2008, Wuelser, Pohl and Hadorn 2012, for a critical discussion see e.g. Kueffer, Schneider and Wiesmann 2019) and ask about their spatial implications in times of or after the pandemic. First, we discuss the question “What is?” with reference to system knowledge, which is usually defined as knowledge about the current socio-ecological system or crises. Second, we discuss the question “What should be?” with reference to target knowledge, which is knowledge about the desired sustainable future and the values that indicate which direction to take for sustainability transformation. Finally, we discuss the question “How do we get there?” with reference to transformation knowledge, which is about how to move from the current crises to the desired situation. The paper concludes with an outlook that addresses the multidimensional phenomenon of policies (contents), politics (institutions) and political processes (processes) on different spatial levels to contribute to a transformation towards sustainable cities during and after COVID-19.

The spatiality of sustainability – theoretical remarks

As often argued in a social-ecological perspective on sustainability transitions (e.g. Hofmeister and Scurrall 2006, von Wirth and Levin-Keitel 2020), sustainability sciences need a conceptualisation of space that overcomes the dichotomy between space as a container and social spaces. Instead, an understanding of space is required that recognises its material becoming in the past and future as well as its historically and culturally variable descriptions of meaning. Accordingly, a relational approach makes it possible to understand both the social and ecological, and therefore inherent dimensions of space in its material and symbolical enrolments. Moreover, such a perspective makes it possible to be aware of space as a product and as a process – a distinction that is particularly important for spatial planning (Davoudi 2012: 431-432).

Against this background, the spatiality of sustainability becomes obvious. We refer here to the complex and highly differentiated discourse on sustainability and emphasise the inherent target conflicts within this concept (overview in Clark and Harley 2020). Spatial conceptualisations can provide benefit for sustainability sciences in inter- and transdisciplinary modes: as a “bridging concept,” integrating inter- and transdisciplinary approaches; as a “normative concept,” providing guidelines and visions about how different sectoral transition perspectives have to be spatially integrated; and as an “approach to action”, enabling different actors to contribute their views and visions (Levin-Keitel et al. 2018). With regard to the spatial implication of the COVID-19 pandemic, we use these perspectives and combine them with the differentiation of system knowledge (integrative perspective), target knowledge (normative perspective) and transformation knowledge (action-oriented perspective).

What is? What should be? And how do we get there?

Already since the first COVID-19 wave in spring 2020, more and more voices assume that our society and especially our cities will be more sustainable after the pandemic (Sarkis et al. 2020, Schneidewind et al. 2020). At first sight, it seems as if there is a consensus on what a sustainable city is. However, if one looks at the arguments and discursive references presented in this debate, it quickly becomes clear that we face complex and controversial realities (Mölders and Hofmeister 2021). Accordingly, different actors refer to different knowledge (e.g. scientific and technical knowledge about material flows or sociological insights into behavioural changes). They also have different values and aims ranging from green urban growth to post-growth geographies. Finally, the ideas about how these goals can be achieved, e.g. whether they are realised top-down or bottom-up, are by no means the same. We argue that a systematisation of the debate about (post-)pandemic cities along system, target and transformation knowledge allows to make knowledge similarities and differences explicit. Thus, it identifies possible synergies as well as conflicting goals within the aim of sustainability (see Figure 1). In the following, we use

this framework firstly to structure the COVID-19 crisis debate and secondly to illustrate its spatial implications for current and future thinking and action.

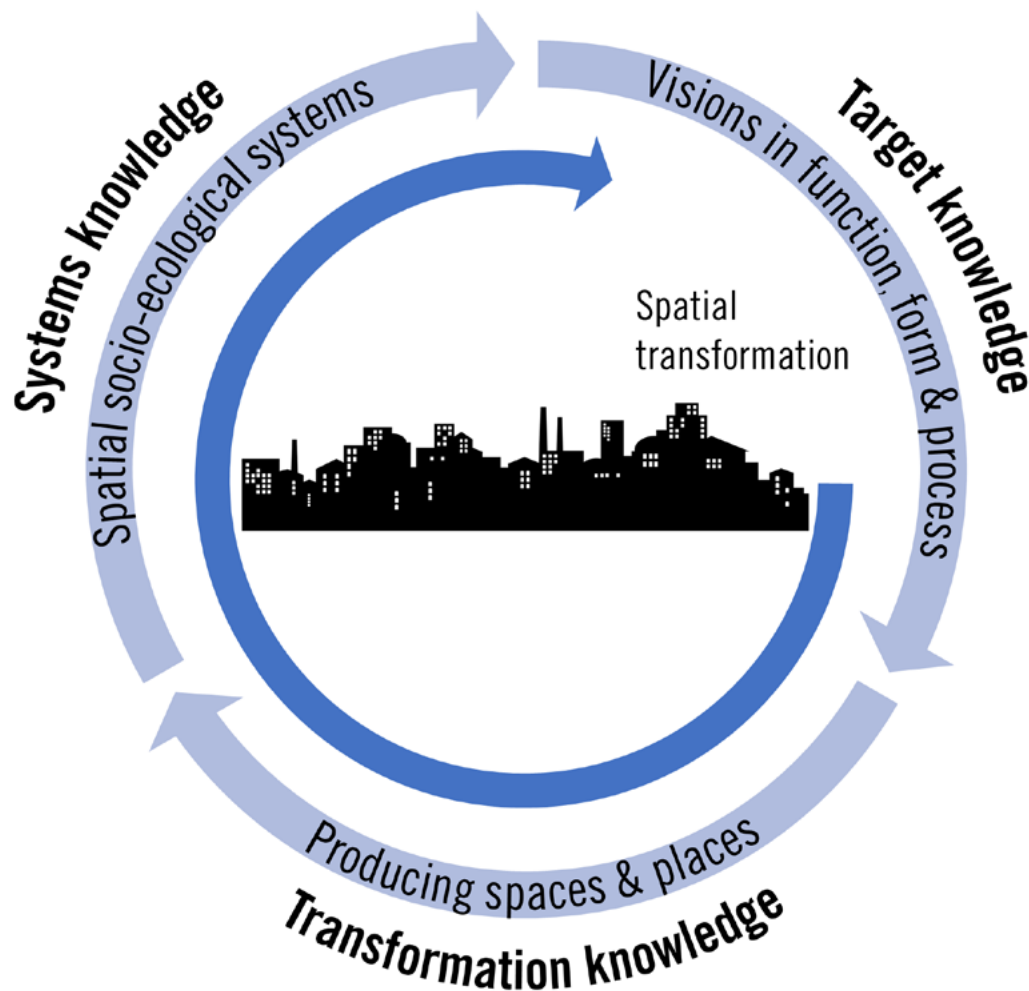


Figure 1: Sustainability transformations as spatial transformation (Own illustration).

System knowledge: understanding spatial social-ecological systems

Understanding social-ecological phenomena demand a specific type of system knowledge, a knowledge that (empirically) describes both the interrelations between the social and the natural sphere, and their material and symbolical attributions including historical developments, as well as regulative modes. Thus, systems knowledge describes the social-ecological system as it is. The COVID-19 crisis must be understood as such a social-ecological phenomenon. Accordingly, the pandemic is as much a crisis of nature as it is a crisis of the social. This applies both to its alleged causes and its consequences as well as to the measures taken to deal with it.

Social-ecological systems are characterised by a high degree of complexity. To cope with this complexity, both inter- and transdisciplinary cooperation is needed (Hummel et al. 2017). In the COVID-19 pandemic, it quickly became clear that disciplinary perspectives

and particular interests are not capable to manage the situation adequately. As Tretter et al. (2020: 84) point out, it seems to be important to integrate scientific knowledge with experience of practitioners (e.g. doctors and nursing staff in hospitals), in order to upgrade qualitative empirical scientific knowledge in contrast to quantitative factual knowledge. In a world after the pandemic, it is then necessary to include ecological, social and political science perspectives more in democratic societal negotiation processes beyond medical science. A major challenge is therefore to develop integrative perspectives that, on the one hand, adequately reflect the complexity of reality and, on the other hand, offer concrete possibilities for action.

The spatiality of social-ecological systems provides such an integrative perspective. Thinking spatially is to acknowledge that all material and symbolic aspects of societal relations (to nature) meet in one place, or, as Goodchild and Janelle (2004) point out, to use space as cross-sectoral approach. This integrative function is also evident in times of COVID-19: hotspots such as countries, regions or neighbourhoods are taken as references for tracing the spread of the virus and defining crisis-management measures. It becomes clear that the territorial reference to spaces is directly linked to its social production. The COVID-19 crisis shows that our cities are still highly segregated, despite all the efforts of urban policy. One of the consequences is that there are neighbourhoods where people become increasingly infected because they have no opportunity to maintain (spatial and social) distance. Rohland (2020: 47) therefore speaks of a “geographic vulnerability” due to spatial marginalisation. Moreover, the inhabitants of such neighbourhoods have less access to green areas and playgrounds, which makes it more difficult for them to relax outdoors. This residential segregation has also an impact into the home: in poorer households, there are less technical equipment and limited opportunities to organise learning and work from home (Eckhardt 2020). The slogan #StayAtHome is therefore a spatial instruction aimed at everyone, but it does not mean the same for everyone. As a crisis, COVID-19 has already been described as a burning glass that highlights social inequalities (e.g. Rohland 2020: 46-47).

We complement this diagnosis by proposing to make space a reference point for the analyses of post-crisis development. The way we build our cities and locate different activities will influence our living conditions for the long-term. Built structures remain, even if circumstances change, societal transformations take place or pandemics occur. Consequently, built structures, open space development, and demands like mobility and housing, including historical path dependencies, need to be coordinated and integrated, a task often linked with (spatial) planning. Thus, we suggest to involve planners in the transformation process from the very beginning. Even though integrated urban planning is not per se the solution of a (post-)pandemic city, the inherent logic of spatial planning following an inter- and transdisciplinary orientation in respect to concrete places (such as a neighbourhood or a city) can deliver useful contributions to understand complexities, interdependencies and co-constructions of the status quo and possible transformations (ARL 2021, Hofmeister, Warner and Ott 2021).

Target knowledge: Developing spatial visions

Target knowledge is needed to render transparent visions for transformations on both the substantial and the procedural level. Thus, the target knowledge describes how the social-ecological system should be in the future. This means that issues such as the demand for more liveable cities or the resolution to reduce CO₂ emissions must always be combined with answers on how, when and where adequate measures are to be implemented, who will be affected by them and in what way. Concerning COVID-19, the target seems clear and undisputed: to contain the pandemic and reduce the number of seriously affected people without causing too much social – and in particular economic – damage.

Target knowledge thus always pursues a normative orientation, especially in sustainable development. Sustainability is not an unchallenged aim, but rather a contested discourse, that contains contradictions and conflicting goals. This is particularly true with regard to alternative understandings of economics and work on the one hand and the adherence to economic growth on the other. This ambivalence is also reflected in the current debate on economic (re)orientation during and after the pandemic. Although even during the so-called first wave, there were political calls for economic reconstruction in line with the Paris Climate Convention, it became clear very quickly that different actors are pursuing very different approaches concerning their implementation on the ground. While some see the break with routines as an opportunity to establish concrete utopias such as de-growth, do-it-yourself communities or commons, others call for a revival of the economy according to the old familiar patterns of growth, gainful employment and increased profits (Lange et al. 2020). Conflicts of interest arise not only within the economic sphere, but also between the so-called sustainability dimensions. Thus, we are witnessing a COVID-19 debate in which ecological sustainability gains (e.g. CO₂ reduction due to reduced mobility) and social and economic losses (loneliness, family violence and recession) are recorded. Firstly, such a reading carries the danger of undermining the claim to integration of sustainable development by playing off the dimensions against each other. Secondly, as the remarks on system knowledge have shown, social-ecological systems are complex and interwoven and cannot be reduced to an indicator such as CO₂ emissions.

Thinking spatially in terms of visionary target knowledge means acknowledging that sustainability goals are contested ideas of future spatial design. The question of how we want to live in our cities is an (ant-)agonistic negotiation process between real-estate investors, future tenants of (affordable) housing, internationally acting supermarket chains and many more. Additionally, the power to bring in multiple arguments and the power of implementation are uneven distributed. If we take the question as a societal one, these kinds of questions need to be discussed as well under the umbrella of the public interest, an orientation inherent in the idea of social market systems and bringing in public administration. As stated above, the COVID-19 pandemic has made it clear that segregated cities are not sustainable. It is therefore important, not least for reasons of health care, to ensure equal living conditions for all residents of a city. This not only addresses spatial quantities (e.g. living space per person), but also and above all spatial qualities. While city administrations are usually divided into sectors, urban planning agencies are used to think in competing spatial arrangements and in doing so they have the task of creating

equivalent living conditions and of contributing to services of general interest. Against this background, existing normative objectives and formal as well as informal instruments of spatial and urban planning can be used to meet the current challenges of the COVID-19 crisis.

Transformation knowledge: Producing sustainable spaces and places

The third form of knowledge, transformation knowledge, emphasises the importance of the process of transformations, so to say, drawing the link between the status quo and the targets to achieve. Thus, transformational knowledge describes how we get to our aims. It is clear that transformations must be implemented through appropriate actions, but the question remains, how to define these actions and who should undertake them. While generating knowledge about the status quo of a social-ecological system like a city remains already a complex task and visionary knowledge is highly contested within society, the question of how to decide upon procedures build on transformative knowledge seems to be a wicked one: who should take a lead in initiating processes? Who is even capable to decide upon heavily negotiated concerns? Who is balancing the (political) arguments and standing the dissent? These kinds of question occur especially in times of high uncertainty and in the need of fast decisions, as we are currently experiencing in the COVID-19 crisis.

Based on the literature of transition studies, different procedural dimensions of sustainable transitions are under discussion. The most common one builds on a multi-level perspective (MLP, Geels 2002), where the process of innovation integration starts in a niche level and is supposed to be upscaled to the regime or landscape level. This model implicitly assumes that there are different transformative forces at work, some leading to changes on a regime level, others not. This means, the transformative knowledge is co-produced by many socio-technical innovations and their way into the regime level. The pandemic, seen as a disruption bringing hotspots of inequalities and weaknesses of the current system to the foreground, could offer windows of opportunity to change the way we live, consume and work in our cities in a more sustainable way. Such windows of opportunity, as also shown in the model directly, are able to accelerate socio-technical innovations onto the regime level (ibid). However, the question on how remains unclear. As seen in the current pandemic, the transformation knowledge seems to be hard to decide upon: the aim to decrease the number of seriously affected people seems to be agreed upon, but how to get to this point without counteracting other goals? The procedural solutions vary significantly from rigid governmental restrictions (without any parliamentary decision) like temporal lockdowns to voluntary restrictions in the private area in order to meet and infect fewer people in total. It becomes clear that, once again, there is no direct causal link from the is to the ought meaning even though the starting point is agreed upon and the objective is negotiated, the ways to get there are still under heavy discussions.

Approaching this challenge of transformative knowledge from a spatial perspective, the question of how to create and constitute space and especially place-based solutions in (post-)pandemic cities lead to approaches often discussed in planning theory literature (overview planning theories in Allmendinger 2009 or Rydin 2021). In short, rational or synoptic approaches stand for linear decision-making collecting all relevant information

to set objective goals to achieve them step by step. Although the complexity of systems is well-known, in times of crisis where fast decisions are needed, decision-makers often follow this approach, due to the simple fact that this refers best to human thinking (linear dependencies, balancing arguments on available facts, avoiding uncertainties). On the other side, especially in the beginning of the pandemic, more incremental approaches were used to come to a better understanding and more information about the way the virus is spreading and who is affected in which way. We know these approaches in sustainability sciences as real-world laboratories, sustainability experiments or under other wording (von Wirth and Levin-Keitel 2020). A major problem is hereby the missing democratic justification, as these experiments are realised in parallel to democratic decision-making. To build (post-)pandemic cities, these approaches are helpful to change some kind of behaviour in a given built environment, but experimental settings are not useful to change built artefacts like houses or missing parks. During the last months, further voices on how to take decisions or on the acknowledgement of decisions taken raised the following question: should not all people decide about the measures to be taken and the conclusions to be drawn to make cities more liveable after the pandemic. Often medical expertise is taken into account, but should decisions not be made and discussed in public or at least pass democratic parliaments? The demand for a more collaborative approach to create more liveable cities is, at least in Germany, rising. These different approaches give insights about weaknesses and threats as well as strengths and opportunities of different ways of taking decisions that lead to more and better transformative knowledge.

Towards more sustainable (post-)pandemic cities? Policies, polities and politics

Will (post-)pandemic cities be closer, more public and more agile, as Schneidewind et al. (2020) postulate? By using the framework of system, target and transformation knowledge, we clarified from a spatial perspective the complexity of social-ecological systems, the contested goals of their future developments as well as the possibilities for action from different actor perspectives. It became clear that cities after the pandemic would not necessarily be more sustainable. Instead, the pandemic sheds light on issues that have already been in a mismatch before and are currently even worsening. But how to translate these issues into relevant guides to action?

Policies – the content level

The policy level addresses the content dimension of planning and asks for problems, tasks, goals, values and issues (Wiechmann 2018). The main concern is to address social-ecological problems explicitly as spatial problems. It seems important to think on a small spatial scale with a view to generating innovative solutions adapted to specific (spatial) problems and to giving visions a chance to be tested. Therefore, guiding frameworks and enabling pre-conditions need to be formulated on a larger scale as well, but without the demand of delivering a blueprint of general solutions. Local negotiation processes and decision-making need to build on analytical knowledge as well as personal experience

and visions about a productive co-creational process, led by decision-makers of a city. With regard to (post-)pandemic cities, this means supporting the many creative and experimental approaches with which individuals and entrepreneurs are currently trying to save their existence and thus in many cases also the shape of the city centres through appropriate measures of municipal economic development (Schneidewind et al. 2020: 135-136). In terms of policies many instruments and approaches already exist in collaborative urban planning. It is mostly about the creative and strongly normative orientation towards an ecological sustainability shared by all actor groups, which needs to further developed.

Polities – the institutional level

The polity level addresses the institutional dimension of planning and asks for structures, organisations and standards (Wiechmann 2018). Thus, the focus lies on administrative structures and legal regulations. At this institutional level, spatial development in Germany per se pursues the goal of sustainable development (German Building Code §1(5)) in connection with equivalent living conditions – this is laid down in the Spatial Planning Act. Furthermore, the principle of subsidiarity guarantees that (state) tasks are carried out by smaller units as far as possible. In sum and with regard to (post-)pandemic cities, this means strengthening the neighbourhoods and to use the possibilities of informal planning instruments such as planning cells, round tables etc. This strengthening can be designed very differently depending on the initial social-ecological situation.

Politics – the procedural level

The politic level addresses the procedural dimension of planning and asks conflict, consensus, power, instruments and actors (Wiechmann 2018). Formal and informal procedures must be considered for their spatial effectiveness. Relevant actors are not only expert administrators, but also, and above all, the very people who create new spaces every day through their thinking and acting. Again, spatial planning has a coordinating function, is cross-sectoral and integrative, so why not using this potential to bring sustainability transformations to the ground.

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