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Citation for the published paper:

Parker, Peter; Schmidt, Staffan. (2017). Enabling urban commons. CoDesign: International Journal of CoCreation in Design and the Arts, vol. 13, issue 3, p. null

URL: <https://doi.org/10.1080/15710882.2017.1355000>

Publisher: Taylor & Francis

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This is a preprint version of

Parker, P., & Schmidt, S. (2017). Enabling urban commons. *CoDesign*, 13(3), 202-213.

The printed article is available via <http://dx.doi.org/10.1080/15710882.2017.1355000>

Enabling urban commons

An increasing interest in commons has generated a rich literature related to co- and participatory design (PD). Besides providing examples, cases and methods, this literature often displays interpretations that are recognisably engaged and political in which commons have acquired an additional symbolic value. In some cases this symbolic value propels more ambitious narratives in which other, post-industrial/post-collapse futures or utopian societal forms are prototyped or infrastructured. Although this literature highlights an important connection between collaborative design and collaborative governance, we hold that the conception of commons underpinning some of these efforts is not fully relevant in contemporary urban contexts. In the following article we describe the practical and normative issues raised by transferring the concept of commons to a contemporary urban setting. We critique aspects of how the concept has been invoked in co-design and participatory design but also seek to demonstrate how it may be applied constructively, paying due attention to both network and subtractive effects of shared resources and acknowledging interrelations with the public sector.

Keywords: urban commons, public sector, network effects, conflict resolution, facilitation, co- and participatory design

Participatory design in an age of public sector restructuring

An increasing interest in commons has generated a rich literature related to co- and participatory design (PD). Besides providing examples, cases and methods, this literature often displays interpretations that are recognizably engaged and political, in which commons have acquired an additional symbolic value (Bollier and Helfrich 2014; Ricoveri 2013; Martilla et al. 2014; Seravalli 2014; Teli 2015; Seravalli, Hillgren and Agger-Eriksen 2015; Hakken, Teli and Andrews 2015).

Several factors contribute to the recent interest in commons: the restructuring and withdrawal of the public sector, a focus on how civic engagement can produce safety in public space and the towering ecological crisis. Responses to this situation often link a generalized critique of neo-liberal governance with locally situated examples and hands-on involvements.

Given this understanding of the public sector and of political processes, some efforts have been made within co-design and PD to identify the use of design as an instrument to overcome governance deficits. This has, in some cases, led to more ambitious narratives, in which other, post-industrial/post-collapse futures or utopian societal forms are prototyped or infrastructured (Bason 2013). This is conceived of as a potentially indefinite designerly practice. Pelle Ehn describes this social or caring-for design as a double envelopment: co-design and PD happen before use, in attempts to meet 'the unattainable design challenge of fully anticipating, or envisioning, use before actual use' (Ehn 2008, 1). This is followed by meta-design or design-after-design, enacted in 'binding design-games of designers and future designers/users', that aspire to 'open up new ways of thinking and behaving' (Ehn 2008, 1f). A commons could then, from this perspective, be understood as a design-game with the purpose of changing daily practices and concomitant reflection. One can see, therefore, that participatory design fuses seamlessly with forms of participatory governance such as commons. However, relocating PD from work in an organizational context to design in the public realm also entails a critical shift in on-going design-games and opens a new set of designerly challenges (Staszowski, Brown and Winter 2013).

In some of the earlier examples of co- or participatory design, the designer's role is that of a facilitator supporting an already cohesive and professional group (e.g. nurses) in an institutional setting (e.g. university hospital). These professionals have received similar training, but are in need of identifying and developing best practices (Hillgren 2006; Björgvinsson 2007; Binder, Brandt and Gregory 2008). This focus on pedagogical and mutual learning is appropriate in institutionally defined settings where individual interests are fostered to cooperate within a shared domain of interest, but becomes problematic in less defined settings such as creative commons, design labs and urban labs. It seems the further away from an institutional setting co-design and PD moves, the more the focus tends to be on designers' creative practices, and the more complex and political this role becomes (Halse et al. 2010; Emilson and Hillgren 2014; Seravalli 2014; Emilson 2015). This problem becomes apparent when designers 'negotiate their inherent political position as agents of change accountable, not to a client or clients who have engaged them for a specific purpose, but to the diverse needs of the broader public(s)' (Staszowski, Brown and Winter 2013, 31).

When co-design and PD approaches are applied to an unspecified task in a 'strategic design' effort (Ehn 2008), the move from facilitating problem solving to structural change become critical (Hakken, Teli and Andrews 2015). As democratic authorities and institutions react to the unclear mandate of an agent of change, they may question or terminate a

design project. The public sector may then appear a distant if not cumbersome adversary to designers (The Ecologist 1992; Halse et al. 2010; Ricoveri 2013). When democratic institutional actors react adversely and opt out of PD or co-design approaches, they have been described as 'powerful strangers' (Emilson and Hillgren 2014).

Some papers in co-design and PD on commons that assume the full withdrawal of public authority seem to underestimate the importance of its regulatory function in negotiating between conflicting interests and providing 'collective action enabling' (Foster 2011, 63). There is also a tendency to underestimate the problems related to externalization, exclusion and enclosure that would be associated with an alternative societal model based on self-regulatory commons (Blomley 2004; Foster 2011). Socially oriented design's strength lies in it being a mediator between public interests and institutional decision-making over common resources (Stebbing 2015). We see, however, that co-designers and PD practitioners need to be upfront about ambitions and loyalties when expanding from a role of facilitation to one that includes decision-making requiring political responsibility. This is particularly true in a complex urban setting characterised by different uses and practices with respect to common resources. We will argue that the commons can provide guidance for this kind of approach, but, in order to do so, the concept of commons itself has to be appropriately understood with respect to its feasibility in the urban context and with respect to its exclusionary aspects.

Commons and the urban setting

In order to understand how the concept of commons may be useful in the meeting of design and governance it is necessary to review some aspects of its theoretical underpinning. In particular it is important to clarify how characteristics exhibited by shared resources shape interactions, and how this may pertain to commons in an urban setting. Based on this, we argue it is possible to identify and constructively address challenges central to collaborative design and governance.

Commons as common-pool resources

The study of commons in the tradition of Ostrom (e.g. Ostrom 2003) has been concerned primarily with the governance of common-pool resources. These kinds of resources are difficult, or undesirable, to exclude others from using and are thus difficult to 'package' in economic transactions. Common-pool resources are also characterized by subtractability, or when one person's use negatively impacts that of another. Typical examples include natural resources such as irrigation systems with fluctuating water supplies or fisheries. Sustained research on common-pool resources demonstrates that groups of users can come together and effectively regulate provision and use if certain criteria are met. It is also clear, however, that developing contextually appropriate forms of governing shared resources is not a trivial task. Nonetheless, this stream of research on commons has generated great interest since it seems to imply that there are alternatives available when government fails to regulate appropriately and when privatization is undesirable (Bollier 2006). To many, this alternative inspires hope in light of current ecological and social crises.

Interest in specifically urban commons has been stoked by the withdrawal and restructuring of the public sector and when different private and civic parties have sought new means of regulation through forms of collaborative management. Typical examples include collaborations in the development of: parks, community gardens, neighbourhood safety initiatives and business improvement districts (Foster 2011; Johansson and Parker 2011).

Critique of commons as applied in the urban setting

There are, however, several important critiques of applications of the concept of commons in urban settings. A first line of critique pertains to *feasibility* of urban commons. David Harvey (2011) argues that the sheer scale of shared urban resources makes adequate communication and mutual regulation by participants improbable. This critique does not imply that urban commons do not exist but that issues of scale may severely limit the kinds of resources that can be governed collectively.

A second line of critique concerns the *exclusionary* aspect of urban commons. A commons is a shared resource for a particular group of users that regulate it accordingly. By their very nature, then, a commons also encloses and excludes. This has been discussed, for instance, in the regulation of public space through business improvement districts. Mitchell and Staeheli (2006) describe how business-led interests in keeping urban spaces 'clean and safe' have a drastic impact on the homeless. Perhaps more surprisingly, a related point has been made about community gardens. Although community gardening may appear inherently good, Marit Rosol (2010, 2012) has argued it can be understood as part of a larger dynamic of public sector withdrawal that offloads responsibility for public space to particular groups. This entails exclusionary effects and is likely to produce an unequal distribution of quality public spaces. The implication of these two critiques is that employing the concept of commons as a common-pool resource in an urban setting is potentially naive with respect to both feasibility and its distributional effects. Commons that consist of primarily subtractable resources may be feasible in contexts of small strongly bounded groups but this hardly seems a general recipe for developing decent and inclusive urban life. As we have noted previously, this limited conception of commons has perhaps unintentionally been included in the sincere efforts of co-design and PD.

Network effects of shared resources

The feasibility and exclusionary critiques of urban commons are important but they are both founded on a particular conception of shared resources as primarily subtractable. But, it is not always the case that one person's use has a negative impact on the use of another user. It is also possible that commons generate positive effects with other users through the co-production of values. When positive or *network effects* are significant, then the dynamics of scale are shifted or even reversed. In this situation it becomes not only feasible but beneficial to include a larger number of users. Boundaries between participants and non-participants may also become less important and permeable which mitigates the exclusionary critique. However, as the term *network effect* implies, positive effects may only accrue within a certain network and not to others so the issues of exclusion remain but are more subtle in character.

Commons displaying network effects are perhaps most familiar in the digital realm of user-produced content. Here, the cost associated with producing content is low and benefits that might accrue to the user-producer will depend on the number of other users that may appreciate that content. The development of open-source software has been argued to hinge on network effects and the very low cost of disclosing code (Hippel and Krogh 2003). The key point is that other users in the network are likely to be people who will appreciate the particular code as well as the skills of the programmer. Some are likely to be in position to reciprocate through further improvement or adaptation of the code or by recognizing the programmer in other contexts. This generates the network effects (Hippel and Krogh 2003). So, although the vast majority of people using open-source code do not contribute, it is still feasible for community boundaries to be open or at least permeable. And yet, there is still an inherent regulation in that the software development is subtly tailored to the interests of a specific group of programmers.

In urban settings network effects are also familiar although the term is seldom used. Jane Jacobs famously argued that the value of a park depends on the people already using it (Jacobs 1961). Approaches to enabling vibrant public spaces based on multifunctional use are founded on this idea of the positive effects of use on other users. Network effects may also be understood to underpin the agglomeration effects driving co-location of related businesses. In most urban commons however shared resources will also be associated with spatial practices that also have subtractive aspects. It is therefore fruitful to consider mixed effects. Thus, for instance, use of a park will also bring maintenance costs and prohibit other uses. Understanding the particular mix of network and subtractive effects of shared urban resources is key to understanding their feasibility, or, how well the commons might scale. The particular mix of network and subtractive effects is also pivotal in understanding the user-generated boundaries of collective regulation of resources (Parker and Schmidt 2016).

Until now we have employed a language whereby shared resources 'exhibit effects', as if these effects were objectively given. This is, of course, not strictly accurate but serves as shorthand for understanding the ways in which different participants interact with shared resources and with each other. Clearly, there is an important role for co-design and PD in exploring and shaping both material and communicative aspects of interaction with shared resources. Conversely, we argue, there is need for co-design and PD in the public realm to take dynamics engendered by network and subtractive effects adequately into account.

The public sector and urban commons

In the previous section we foregrounded how urban commons may exhibit a mix of subtractive and network effects and that the characteristics of shared resources will have implications for governance. In this section we draw attention to the pivotal role of the public sector in facilitating network effects and thus in making the commons viable. We also highlight the public sector's role as arbiter of competing interests in public space. We develop these points in relation to specific examples of urban commons and draw out implications for socially oriented design.

Stapelbäddsparken

Our first example is Stapelbädden Skate Park, a public outdoor park designed, built and

managed in collaboration between the municipality and an organized group of skateboarders. The park comprises roughly 3000 m². It contains some features that are demanding and highly visible, some areas that are less demanding and open to different kinds of use, and adjacent indeterminate areas. The design signals that this is centrally a place for skateboarding but, beyond this, it has relatively low physical barriers to entry. It is an actively used park not far from the city centre and a venue for local and international skateboarding events. The park has had a significant role in neighbourhood and city branding (Book 2008; Göransson, Lieberg and Lieberg 2006). The urban, youthful and seemingly independent skateboarding scene provides an attractive image in relation to the affluent waterfront housing development in which it is located. The design and construction process took several years with considerable input from a small group of organized skateboarders, municipal actors, construction companies and an internationally known skate park designer.

It is useful to understand the continuing development of the park as an urban commons. However, it is not the space per se but the network effects associated with use that create a substantial value for other users and for the municipality. One important form of these network effects arises from mutual learning within a particular domain of interest. This is nicely encapsulated in a description of the indoor skate park Bryggeriet, a forerunner to Stapelbäddsparken:

Malmö's skaters have been provided with opportunities to: skate in all kinds of weather on well-made ramps and obstacles; see some of the world's best skateboarders when they visit Bryggeriet; compete with the European and Swedish elite; skate on unique ramps not available anywhere else in the world; meet like-minded people who care about the same things; take part in building ramps and learning all about skateboarding; have a cup of coffee; and watch the latest skate movie. Yes, Bryggeriet is a place of opportunities—at least if you are a skateboarder. (Svensson 2005; translation by the authors)

The establishment of the park thus enables certain kinds of practices where those interested can learn from each other and leading personalities in the field, but also further develops the necessary infrastructure. In fact, the development of Bryggeriet was pivotal in establishing the skating scene in Malmö that is comprised of several satellite parks, both official and unofficial, with Stapelbäddsparken being the largest. The latter's development has been was, and continues to be, facilitated by the municipality. During the initial development of Bryggeriet there was municipal support in organising, and subsequently there have been agreements on the maintenance of skate parks and support for major events. Design and management of the parks has been conducted collaboratively with very significant input from the skateboarders.

On the whole, network effects seem to outweigh subtractable aspects of use in Stapelbäddsparken, such as congestion or deterioration of the shared infrastructure due to overuse. Boundaries therefore remain permeable but tailored to a particular domain of interest.

The most obvious aspects of subtractability of Stapelbäddsparken concern relations with other possible uses and users. The material design of the park enables certain practices in public space and excludes others. Creating a skate park in public space therefore requires the kind of external conflict resolution with respect to other interests that is typical of urban commons. . External conflict resolution is however quite challenging for collectively managed systems (Provan and Kenis 2007). It is much easier with a centralized administration that can represent the voice of the group. Furthermore, because this kind of arbitration is an inherently political process it is difficult to see how it could be legitimatised without an explicit formal role for public administration.

A small conflict concerning the use of the park may serve to illustrate the conjunction of network effects, subtractability and public sector arbitration. The conflict arose because kickbike riders, who are predominately younger, also enjoy use of the facility. The kickbikers are not excluded by design but their use of the park has subtractive effects in competing for space. Importantly, the kickbikers do not contribute to creating network effects specific to skateboarding. The conflict that arose between skateboarders and kickbikers was significant enough to threaten the whole collaboration between the municipality and the organization of skateboarders. It was resolved by a municipal regulation that specified certain overlapping areas for different uses. Thus, different practices did not merge in cohesive use. However, nor did the municipality regulate in favour of such a development but rather stated that the skate park was still to be understood as public space with different but overlapping spatial practices

The case of Stapelbäddsparken, understood as an urban commons, illustrates a number challenges and potentials for design. First, we see the role of network effects in making the commons feasible. This enables permeable boundaries and yet is evidently regulated in relation to a particular domain of interest. Second, there is significant and long-term public sector facilitation enabling these network effects to become salient. Third, we see a significant aspect of subtractability in relation to other (external) interests in the establishment of the park expressed in its physical design. Despite this, on-going arbitration is necessary in relation to alternate uses of the spaces (such as for kickbikes). In summary, the example illustrates how enabling urban commons is deeply entangled with different group interests and that design takes place at the intersections of these interests, not bounded by a particular design public.

Plantparken

Our second example is a park with a different mix of network and subtractive effects and with different relations to the public sector. Plantparken is an urban farm conceived as a four-year design experiment and artistic intervention. The purpose of the experiment was to question and enable dialogue on issues of sustainability through engaging people's relation to food. The 700 m² of arable soil that comprise the park is set apart, yet, without any perimeter fence, it is easily accessible. The park was initiated by placing a simple signpost on the grounds, containing a short explanation and contact information:

Plantparken is not an allotment area; it is a common for residents, students, schools and kindergartens. It is a space for growth, ecology, encounters, projects and studies. Those

who plant seeds and attend to its growing in Plantparken are also participating in a search for knowledge. (Signpost 2012)

Plantparken was, by necessity and by intent, underdesigned. There was no pre-set organization of the space or even provision of basic needs like water and gardening equipment. However, there were means of activating the space through student use. Urban farming activists were also invited during the first season to work with students, bringing significant experience to the project. The activities gradually created an interest in the area. Teachers and students provided information to anyone that expressed an interest. As more people learned of Plantparken and began inquiring about plots, the focus gradually shifted from students to residents. In April 2015 more than 70 people were working on 25 plots.

A key to understanding the development of Plantparken lies in the facilitation provided by the university. This facilitation took several forms. First, the university acted as an institutional counterpart with whom the municipality could sign a contract which provided the park with a certain legitimacy by association. This somewhat shielded the nascent group of growers from critique. Second, the university faculty and students also provided important means of lowering barriers to entry for interested users by providing relatively rapid and simple responses to questions about participation. Facilitation also included connecting users with each other and with people at the municipality.

As interest in Plantparken grew, informal means of settling issues of boundaries between users became strained. Although there was an expressed interest in sharing, growers were also afraid of being overwhelmed if Plantparken became too well-known.

The development of Plantparken demonstrated a mix of different types of shared resources. Subtractable aspects were especially evident in relation to managing the increasing number of potential users, particularly in terms of the space users seasonally demanded in order to grow food.

However, network effects were also evident in the use of shared resources in Plantparken. The upside to the increased number of users can be seen in the continued efforts to keep barriers to entry low and in the facilitation of learning among the growers. This seems to be related to a shared general interest of the growers beyond access to individual plots and related to issues of lifestyle and sustainability. This also explains the sustained interest in what, after all, is a small space for growing. The space's dynamism derives, in large part, from that the practice of growing elucidated issues that people found pertinent as well as from the network effects enabled by facilitation.

Public sector arbitration has had a much less obvious role in the development of Plantparken. While the land on which the park is situated is now slated for construction, there was tacit support for the farm's efforts by public officials. In seeming recognition of park, running water for irrigation was supplied by the municipality late in its development. However, approaching construction surrounds the park, which is now difficult to see and access. Nonetheless, efforts to develop the park persist.

Understanding a community garden as an urban commons aligns with previous research (Foster 2011). However, unpacking its network and subtractive effects has important implications for understanding its development. These include the subtractive effects of growing on a rather limited and uncertain plot and the network effects associated with desires for broader social change. The example illustrates how design decisions shaped understandings of the farm and how long-term facilitation protected the nascent group from

critique, lessened barriers to entry and built participation. Most significantly, the example serves to illustrate the necessity of finding constructive relations with the public sector as arbiter of the space's use. The example therefore highlights specific kinds of design issues and choices that critically affect the collaboration itself and relations with external parties.

Urban computing

The last example comes not from our own work but from that of Teli et al. (2015) and concerns the development of an urban mobility application. We include this example here in order to demonstrate how the framework developed in this paper is applicable in different kinds of urban commons. We also seek to highlight how this framework might open up new questions.

Teli et al. (2015) describe and compare two different efforts to develop informational tools related to public transportation. One, the *Viaggia Trento*, was developed with significant participation of primarily science students and the other, *Viaggia Rovereto*, was developed in a top-down fashion. The authors contrast these two development approaches as *urban computing* and a *Smart Cities* approach, respectively. Teli et al. (2015) then seek to demonstrate how participation in the early phases of development helps identify matters of concern and creates value for the users by generating an on-going engagement and interaction via the application. For instance, users may inform each other of delays or overcrowding or share their concerns about public transportation. This is argued to underpin the continued popularity of the *Viaggia Trento* application despite it having much less marketing support than *Viaggio Rovereto*. This dynamism is understood through the concept of a recursive public or 'a public that is constituted by a shared concern for maintaining the means of association through which they come together as public' (Kelty 2008, 28, as quoted in Teli et al. 2015, 20). One implication that the authors draw from their analysis is the necessity of the deep commitment of designers during the initial project phase, until collaborative practices can sustain themselves (Teli et al. 2015).

Although this short description does not do justice to the scope of their work, we hope it illustrates the following aspects of the framework we have presented. First, the examples described by the authors (Teli et al. 2015) clearly show that participatory design needs to also engage with participatory governance, and, that it is fruitful to do so using the concept of urban commons. On this we completely concur. Second, the authors (Teli et al. 2015) point out how initial design engagement and facilitation is critical in establishing recurring mutually beneficial use.

In our view it would be helpful to understand the emergence of recursive publics in light of the positive balance of network and subtractive effects exhibited in a shared resource. This way of conceptualising recurring and mutually strengthening interaction may be advantageous for several reasons. First, it makes it possible to unpick different kinds of positive returns (network effects) related to others' use and thus helps to reveal the self-strengthening dynamic that underpins the recursive nature of interaction.

Second, in the *Viaggia Trento* example it is possible to distinguish at least two different kinds of network effects. One concerns access to real time information about bus services that can be provided by other users. Another concerns putting pressure on the public sector to improve public transport by requiring the release of traffic related information and concerted efforts to convey problems of overcrowding (Teli et al. 2015).

Interest in these issues, and thus benefits for a particular user, may or may not overlap. Users of the *Viaggia Trento* will therefore not necessarily constitute one public. By starting from a perspective of network and subtractive effects, one may avoid the pitfall of assuming a singular public.

Interestingly, the development of *Viaggia Trento* does not seem to imply significant subtractive effects either internally or in relation to external interests. As such, it might at first seem that considering aspects of public sector arbitration is not relevant. There is a sense however in which, design initiatives must still engage with public authorities and institutions throughout the development of a viable urban commons. The *Viaggia Trento* application is developed by and for a particular community of science students. As such it is prone to the risk of remaining subtly exclusive to this particular community. Since there are limited negative impacts on others there seems to be little reason for the public sector to work against *Viaggia Trento* but, on the other hand, also little reason for direct public sector support of it. It is an interesting question if there is a design process in which the public sector would take an active stance *in support* of urban computing approaches rather than on further Smart Cities initiatives such a process will likely require involvement of different groups and arbitration between interests..

The example is useful in illustrating how concepts of subtractive and network effects are applicable in an important area of urban computing and how these concepts might contribute to pinpointing significant design issues. In particular, we argued that this approach creates awareness of subtle issues of exclusion that arise from co-development of a platform by a particular group of users and use by potentially multiple publics. The analysis also reveals how some form of external arbitration may be beneficial to make urban computing relevant to a broader set groups.

Discussion and conclusion

In this paper we argued for the intimate connection of co-design and PD with participatory governance. This draws on an understanding of design-games as an on-going process of collaborative interaction (Ehn 2008) but also relates to the concept of 'recursive publics' (Kelty 2008, 28, cited in Teli et al. 2015, 20). We argued that theory on commons is fruitful in understanding this connection between design and governance and particularly for unpicking what drives the iterative aspect in both of these concepts, that is, what makes it interesting and feasible for the collaborators to continue interacting.

We have reviewed critiques of traditional concepts of commons (as a common-pool resource) in the urban setting. Issues of scale and exclusionary aspects limit the usefulness of this mode of collaboration except in relation to small and strongly bounded resources. When shared resources also exhibit network effects however, the challenges of feasibility and exclusion are alleviated and shifted. Significant network effects in an urban setting allow at least a potential for permeable spatial boundaries and an inclusive relation to other users. Awareness of the particular mix of network and subtractive effects is therefore crucial in critical analysis of [scalar] feasibility and exclusionary aspects of shared urban resources.

As our examples illustrate, there are significant design choices and strategies that can be deployed in constructively shaping the development of different kinds of shared resources.

The designer may elicit, explore and shape interactive practices in an on-going collaborative meta-design. In all of the examples the importance of long-term facilitation is apparent. This allows for lower barriers to entry, lessens costs of collaboration and allows sufficient time for practices to develop and for network effects to become salient. However the mix of network and subtractive effects varies across cases. Plantparken is inherently more subtractive in its use than the skate park that in turn has stronger elements of subtractability than the urban computing example of *Viaggia Trento*. The specificity of the mix has important design and governance implications, particularly with respect to user-generated boundaries. Our discussion also highlighted the public sector's role in external arbitration and in developing shared urban resources. In our view, socially focused design processes, engaged in exploring openings for different publics in urban settings, have much to gain from an active and aware relation with public sector actors. Attention to the arbitration of public sector actors should be seen as part of the design process. With this perspective, the commons is seen not as an alternative beyond state and market or a utopian vision but as a theoretical framework supporting critical and constructive ways of approaching collaborative development and governance over time.

Acknowledgements

The authors wish to acknowledge the support from the School of Arts and Communication, K3, at Malmö University throughout the initial years of Plantparken, and the support that enabled the co-writing of this article.

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