I. Spaces of Perspective

‘Is there really a lack of conceptual ideas for alternative development models that are not based on material growth indicators? Or is it only a question of not daring to act?’

Frank Gwildis

Using socio-spatial concepts of situatedness to explain work processes in the context of post-growth economies

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1. (Post)capitalist understandings of work

1.1 Questions and objectives

Geographical discussions about the possible forms and effects of nascent post-growth economies have thus far strangely excluded the category 'work'. Economic geography in particular has paid little attention to concrete forms of work and their influence on production structures, networks and spatial constructs. This seems particularly strange given that work, as a central component of economic processes, should be an immediate focus of the discipline. It is therefore necessary to develop a perspective on post-growth that places the category 'work' and its particular socio-spatial implications at the centre of consideration.

Of especial relevance here are social innovations that penetrate economic fields in somewhat unpredictable ways. This extends considerably beyond the horizons of economic analyses. Such analyses have usually linked work directly with economic processes and structures, which in turn have been devised as subordinated to the basic logic of capitalist economic activity. This has remained accepted practice even when considering marginal areas of economics, irritating as they often are for economists. For example, although in recent years concepts of economic innovation have been discussed in terms of their receptiveness for further social impulses, the fundamental growth postulates of the current global economic system have remained unaffected by this. Viewed from this perspective, 'user innovation'

or 'open innovation', with which ingenious enterprises use external knowledge and tap into low-cost resources, serves the continued pursuit of growth and unconditional profit maximisation (see Brinks 2019).

The problem of adequately describing changed work processes is thus more complicated than it may initially appear, since it involves nothing less than breaking up the traditional concepts of 'production', 'consumption' and 'market' as fixed points of convergence for capitalist economic activities. New forms of work, which have developed outside formal economic structures, have an experimental and often emancipatory character that requires attention to be paid to flexible arrangements and links between social practice, the economy and spatial development. What is needed here is an intensive examination of the diverse meanings and social consequences of the co-evolution of technological and social innovations (Blättel-Mink 2010).

Technological innovations reach far into social activities and transform almost all social spheres but are relatively easy to investigate, as they are close to traditional disciplinary concerns and require only a slightly different focus. In comparison, the analysis of social innovations, and their relevance for economic and technological innovation, is more difficult. They are highly dependent on context, so that the focus must clearly be on analysing social forms of practice (Howaldt/Schwarz 2010a: 30 ff., 66).

This chapter aims to provide some food for thought on tackling these tasks from the perspective of spatial socio-economic research. In light of the limited role played by social innovations in the theories of economic geography to date, we make this field the starting point of our considerations. We introduce the term 'situated social innovation' to refer to the linking of innovation processes to social communities and specific social constructs of space (Section 6). At the same time, we show that in the course of the quasi-natural and uncontrolled development of an everyday culture of post-growth (Hagen/Rückert-John 2016), work processes are also being redefined, and are in turn accompanied by changed situational constructs of space.

1.2 Structure of the discussion

Due to the comprehensive embedding of social innovations in social forms of practice, we adopt a context-oriented view on work. It not only focuses on original, new kinds of work processes, but also on mixed transitional forms located between classic gainful employment and 'atypical' work not subject

to the pressure of profit. Accordingly, we pay particular attention to hybrid work practices, which can be recognised in the transitional area between hobbies, voluntary work, self-organised or freelance work and formalised gainful employment and its variants (part-time, full-time). These heterogeneous forms of work and their practices often do not follow a clear development logic. They emerge more or less contingently and unplanned in situ, i. e. in places where complex, multidimensional social practice is located. From the perspective of spatial science, the task is thus to capture their particular situatedness. We assume that work is always situated, i. e. embedded in certain spatial-social contexts that give it particular characteristics. Situatedness and concrete characteristics must therefore be established as central objects of the analysis of post-growth economies. Last but not least, this requires a change in approaches to spatial relations by the geographical sub-disciplines, especially economic geography.

2. Transformation of work: cornerstones and forms of practice

2.1 'New work'?

In current descriptions of societal futures, numerous concepts of work are being brought into position. On the one hand, there are the promises of a digitalised world of work, which should optimise existing industrial and technological structures. This primarily involves more flexibility and efficiency in the design of work processes, increased performance, the easy organisation of multilocal production and services, and technical omnipotentiality (Apt/Bovenschulte/Hartmann et al. 2016). Such notions are related to the first waves of digitalisation that swept through the core areas of industry and drove robotisation and automation within enterprises, known as 'Industry 4.0'. They also address more recent processes of digitalisation which appear as new forms of the internet-based platform and gig economy and as crowdworking, and penetrate deep into the organisation of individualised wage labour and pseudo self-employment outside of enterprises.

On the other hand, in accordance with the credo of 'new work' (Bergmann 2019 [1988]), alternative concepts of work are developing that are based on changed social premises. Thus in more recent post-growth debates,

work is addressed in strikingly anti-technical and reductionist terms with an emphasis on self-sufficiency. It follows that work in the future should be freely chosen, socially embedded, community-oriented and people-centred, with independently scheduled working hours and a positive energy balance (Schmelzer/Vetter 2019; Chatterton/Pusey 2019).

Such ideas are influenced by the conviction that new arrangements of economic activities should relate to what is humanly desirable. The emancipatory project of post-growth economies not only criticises the materially and ecologically disastrous resource consumption of growth-oriented industrial production, it also calls for new, self-determined work processes. Critiques of economic growth imperatives therefore include consideration of the dominant working conditions in both the global South and the global North. Accordingly, discriminatory and exploitative work is increasingly organised digitally. It is thus the 'ground troops for globalisation' (Busche 2001, translated from German) who are primarily burdened with the social costs of technological change. Micro jobs, a lack of legal protection and the strategic exploitation of differences in prosperity weaken the position of those who in any case have little say in the purpose and organisation of work.

2.2 The emancipatory critique of dominant working conditions

As an emancipatory counterproposal, the post-growth debate bases the concept of work on the postulate of structural autonomy. The definition of work no longer focuses on profit and economic gain but rather takes heterogeneous forms and contexts of work into equal consideration. Liberation from the dictates of profit presupposes the existence of multiple counter-positions: they must be anti-consumerist, anti-neoliberal and anti-hegemonic and draw orientation from an appropriate pyramid of needs (Seidl/Zahrnt 2019, 924). At the same time, new technologies are seen as a way of achieving this liberation. Digitally organised access to resources, tools and knowledge seems to provide important bottom-up options for action. Another counter-position to the autonomy postulate propagates the transition to a societal state of post-work (Chatterton/Pusey 2019; Pitts/Dinerstein 2017). This is based on calls for the general abolition of industrial work, the safeguarding of livelihoods through a minimum income and the structural decoupling of work and the economy.

Such postulates abandon well-known social theory and risk theoretical paradoxes. Thus, on the one hand, the debate considers work as the abstract negation of a neoliberally distorted concept of work, which leads to calls to overcome capitalist principles of production. On the other hand, work – drawing on the evolutionary perspective of 'new work' – is elevated to a utopian instrument of liberation that does not necessarily have to free itself from the conventional rationality of the system. This makes the emancipation project of post-growth less and less clearly definable. Furthermore, the theoretical definition of 'work' and its functions for post-growth economies also runs the risk of getting caught in a maelstrom of speculation, eclecticism and epistemological arbitrariness. For contemporary social and spatial science, the focus is therefore primarily on understanding the way in which social practice is moving away from the affirmative and eclectic expectations of innovation and growth of the past. At the same time, the paths leading to alternative work processes must be empirically and theoretically reconstructed and their emancipatory substance analysed. It is, however, not enough to merely observe the practical consequences of political-normative demands on individuals ('Change your lifestyle!'). The onus is rather on taking the intrinsic logics and autonomy postulates of the workers themselves seriously. It is thus indispensable to obtain and develop reliable analytical approaches to the concrete starting points, characteristic features and social contexts of heterogeneous forms of work.

2.3 Work processes in post-growth spaces

In the 2010s, new phenotypes of work attracted increasing public attention. Work processes that are carried out in makerspaces, real labs, fab labs, open workshops and co-working spaces do not fit into the descriptive categories of economics and business studies. They can no longer be clearly assigned to traditional entrepreneurial or wage-dependent forms of work (in the sense of labour) (Krueger/Schulz/Gibbs 2017), nor can they be simply described by the attribute 'new' (as used in the term 'new work' in descriptions of post-industrial change undertaken by the social sciences; Bergmann 2019[1988]). It is also insufficient to view them it as an 'atypical' residual category of flexibilised industrial work (see Schiek/Apitzsch 2013), since this largely ignores their social contexts. Similarly, labelling such forms of work as unpaid, voluntary and personally motivated and classifying them under the heading

'amateur economy' misses the point, as this implies an ex-ante contrast to the category of a 'professional economy' with paid employment (see Sekulova/Kallis/Rodríguez-Labajos, 2013: 4). In fact, however, recent work processes of this kind are mostly situated in heterogeneous social practice contexts – located between hobbies, the flexible everyday appropriation of digital technologies, digitally based prototypical small-scale production, early forms of start-ups, and expanding economies of sharing and making (Carr/Gibson 2015; Chatterton/Pusey 2019).

2.4 The hybridisation of work

The 'new' open forms of work are de-standardised and autonomously organised. They are based on taking on manual tasks and handicrafts, freshly acquired digital expertise and informal elements of practice that were often previously viewed as unproductive or reproductive. As they cannot be understood as deviating from a specific standard but involve rather individual and collective explorations and experiments, they are not described here as 'atypical'.

Such 'open work' can be linked to gainful employment, but often exists independently of it. It is clearly a hybrid phenomenon with links to both the social and the economic. A key characteristic is the strong orientation of workers towards social communities and peer groups (Simons/Petschow/Peuckert 2016). They prioritise social motives and independent, non-hierarchical work contexts over organisations and their requirements. Actors largely develop their interests and abilities independently and enter into open communication with like-minded people. They negotiate the exchange of knowledge, materials and ideas. They tolerate different competences and the emergence of small organisational elites that set up and manage the various working environments. This community practice leads to the transformation of what were originally do-it-yourself attitudes into a kind of do-it-together attitude (Smith/Fressoli/Abrol et al. 2017). Collective discovery and practice create meaning and special social and symbolic rewards quite apart from the concrete results of the work.

The recent socio-economic hybridisation of work poses considerable conceptual problems for politics and spatial sciences. In areas characterised by the diffusion of forms of work that cannot be clearly located in economic terms, the social and economic fields involved are increasingly diffuse and

changeable. Thus, for example, the collective search for new mobility infrastructures has become highly ambivalent. As the case of the ridesharing provider Uber shows, social goals (i. e. sharing with no profit) are undermined by the quasi-employment of drivers, while the economic side of such work develops outside of state security systems and fails to comply with minimum social standards (Rogers 2017). It is very hard to adequately categorise such phenomena; nevertheless, they have expanded the range of 'diverse' and pluralistic understandings of work beyond an income-oriented economic understanding (Gibson-Graham 2008; North 2016; White/Williams 2016).

It is therefore unsurprising that conventional ideas about the emergence of economic spatial constructs can no longer be viewed with conviction. We need only to refer here to the stagnating political discussions concerning regional innovation clusters, which in the past always assumed an extremely specialised and highly qualified workforce would be available within dynamic enterprises. Other innovative work contexts have only recently been considered relevant for development, e. g. in connection with 'open innovation', the appropriation of external innovation potential by commercial enterprises (Beise-Zee 2014). This draws the attention of the wider professional public to temporary clusters and also to changing aggregations of business-related communication processes.

3. Formal economies and work typologies

3.1 The spatial transformation of work

A similar fixation on formal economies and work typologies has been evident in the economic and social science debate on the transformation of economic spaces. Since the 1990s, economic geography in particular has adopted a more or less linear logic of space with reference to economic activity, one in which the spatial proximity or distance of economic actors to one another functions as an important causal and interpretative variable (Coenen/Raven/Verbong 2010). Only since about 2005 has the discussion increasingly recognised that digitalisation, virtualisation, globalisation, new production technologies and 'atypical' forms of work have led to the proliferation of possible relations of proximity and distance (Reichwald/Piller 2006; Ibert 2010; Ibert/Hautala/Jauhiainen 2015; Butzin/Meyer 2020). Not only has the

new complexity of these relationships been noted, but doubts have also been expressed about whether such relations have general significance for spatial development. Proximity is now rather understood as processual, reflexive and often temporary. It is viewed as a phenomenon of practice with variable effects that is difficult to reliably address ex ante (Eckhardt 2019). Digitalisation and the emergence of online platform economies are thus creating new hybrid forms of work and an unexpected diversification of spatial relations (Autio/Nambisan/Thomas et al. 2018; Brettel/Friederichsen/Keller et al. 2014; Carr/Gibson 2015; Ravenelle 2017). This is also leading to new socio-spatial inequalities, asynchronous development and different degrees of political anticipation.

3.2 Multiplicity of spatial relations: a challenge for economic geography

Unexpectedly and often initially unnoticed, multiple relationships between actors and attributable spatialities have emerged – between the co-presence of actors at physically localised workplaces, focused communication in protected global data channels, the open interaction of heterogeneous actors in online social networks, activities on topic-related internet platforms, blogs and forums, and finally the temporary arrangement of projects and events within and outside organisations and social communities.

While inquiring into the nature of these relationships, the focus must also be on how the localisation processes of new forms of production and consumption can be conceived without – as so often in the past – immediately deriving or suggesting that physical spatiality has any kind of primacy simply because of the mere existence of a physical place of work (e. g. in a concrete urban neighbourhood). Although physical places should still be approached as a 'hard' condition of social and economic activities, they are nevertheless linked to other diverse conceptual, symbolic and material contexts (Butzin/Meier 2020). Their social and economic meanings must first be attentively ascertained before the theoretical relevance of a physical place can be asserted. All too often in the past, spatial research gave in to the temptations of appealing political catchwords: it adopted labels that were previously established by politicians and economic actors. The 'creative urban neighbourhoods' of the 2000s are only one well-known example of this uncritical adoption of crude spatial abstractions (see Merkel 2008). In

this respect, spatial physicality is always to be understood as a phenomenon integrated in multiple disciplinary discourses and the ongoing interdisciplinary negotiation of spatial imaginaries (Watkins 2015).

4. Variants of post-capitalist forms of work

Although different crafts, e. g. screen printing, woodworking, digital printing, fabric processing, metalworking and software creation, may each represent a starting point for exploration, they have one feature in common: the individual design dimensions and forms of processing only emerge in the course of a collaborative process of discovery. The focus of everyday practice is on the gradually emerging 'product' development options and their modification, and on the practice of independently developed processing routines. It is not only local working communities that define themselves in this way, but also small social movements that propagate a transition from discovery to competent work and processing. In the USA, the actors involved often refer to themselves as 'ProAms' (Professional Amateurs) or regard themselves as part of a larger craftsmanship movement that focuses on rediscovering manual skills and crafting qualities in amateur, often urban, everyday realities (Sennett 2008).

4.1 Crafters, tinkerers, makers

To take the discussion a step further, this sort of community focus, which is clearly revealed in everyday practices of self-empowerment, self-organisation and self-direction, can be related to more fundamental post-capitalist and post-growth economic values (Baier/Hansing/Müller et al. 2016). Many actors understand their work as part of a countermovement to the growth ideology of currently dominant variants of capitalism, offering a contrast with an increased focus on discovery and the processual configuration of alternative forms of production, work and life. This is not always obvious. Thus, for instance, those involved in the newly popular maker-movement seldom tend to use blatant post-growth or degrowth rhetoric.

Nevertheless, the participants have a community-based and practical self-image with an unmistakable focus on exploring alternatives to the ubiquitous routines of generating growth. Here, the everyday routines of eco-

nomic activity already involve repairing, maintaining, prolonging usage, sharing and exchanging without the use of money. These practices are directed towards social needs and the principle of sufficiency.

4.2 Universalists and prosumers

Furthermore, types of actors have emerged who see themselves as new universalists: as prosumers who take the development, production and distribution of products into their own hands or directly influence the production of goods by other actors (Hellmann 2010). These include creative freelancers engaged in translocal networking projects, spontaneous value creation and experimental discovery processes in mobile workspaces (co-working spaces, home offices, cafes etc.) (Bender 2013); niche actors engaged in DIY production and repair; and participants in a subculture of informally organised sharing – both in the local neighbourhood and across the globe as internet-based exchange systems and issue-oriented communities.

All these actors have not only tried out new things and often developed experimental forms of work, they have also formally reversed the supply-oriented logic of capitalist economies. Demand, which is largely socially defined, is the focus of the new activities and makes it possible to develop flexible starting points for new value creation processes. These processes are then no longer subordinated to universal competitive economic logic. The relevant socio-economic fields are often social communities with their particular collective values and needs rather than 'the market' with its monetary exchange mechanisms.

4.3 Post-growth work

The conceptualisation of post-growth work must therefore take into account that the focus is always on hybrid forms of work. Working within such social communities means assigning a subordinate position to profit and income generation in the individual and collective hierarchy of values. The social and economic purposes and objectives of work exist side by side. There are not necessarily any links between them, nor do they always compete with one another. Work need not be separated from processes of self-discovery and the associated self-positioning of actors in a group or a community of practitioners. At the same time, practices of do-it-together bring actors

into locally interwoven but readily comprehensible contexts of communication, distribution and consumption. Compared to dependent wage labour, the new workers enjoy a high degree of autonomy and self-empowerment. This predestines them for social roles that in a capitalist economy are only granted to individual entrepreneurs, for example as agents of the 'trial and error' principle, of social innovation and of the creative invention of products and processes.

It is no coincidence that associations with Joseph Schumpeter's ideal type of creative entrepreneur spring to mind. However, this association cannot be pursued too far, because Schumpeter's entrepreneur must always avert economic ruin and, in the interest of growth, must channel creativity towards destroying the old and inventing the new, instead of using creativity for non-profit purposes like a social entrepreneur (Löffler 2013). There is of course another story here, in that even social entrepreneurs are required to submit to competitive pressures and market conditions. However, in protected realms of work, community-oriented workers can at least temporarily combine 'free and creative' making with the powerful environmental conditions of 'competition' and 'market survival'.

As promising as this perspective may be for further conceptualisation, the preconditions of actor constitutions must nevertheless be fundamentally addressed. More specifically, attention must be paid to the particular forms and logics of social innovations that enable active creators to influence the form and setting of their work. The aim is to determine more precisely the innovative content of the action focus on communities, alternative networks, social or economic niches and non-economic rationalities, and to trace its effects on forms of work and the attributable spatial constructs.

5. Social innovations as drivers of new forms of work and attributable spatial constructs

5.1 The embedding and practices of social innovations

Recent interdisciplinary approaches to the topic of social innovation question many of the sweeping assumptions about the direct sectoral effects of inventing and disseminating new goods or economic procedures. They draw attention to the fact that innovations need to be accepted by society and are

therefore always socially mediated. This mediation can occur within industries, social communities, milieus or similar sub-fields of society. Economic innovations in the narrower sense are thus always linked to social innovations that involve a change in the purposes, uses, effects and socio-spatial ranges (i. e. scales) of goods and services (Howaldt/Schwarz 2010b).

Moreover, the fixed temporal sequencing of technical innovations (first the invention, then the actual innovation in the form of dissemination, acceptance and the discursive labelling of new or changed goods and technologies) is replaced by variable temporal relations. Socially initiated or mediated 'inventions' can occur at the same time as their implementation – i. e. in the actual execution of social practices. Thanks to their anchoring in practice, they do not necessarily need to be labelled as innovations before they are disseminated. In this respect, it seems that a variable co-evolution of technical and social innovations can be assumed, which leaves great scope for both the success and the failure of experiments.

The shift from a technicistic worldview focusing on the mastery of nature by technology to a mindset focusing on resource conservation and sustainability can be viewed as a macro-social innovation that affects the 'subordinate' spheres of society as well as the individual subjects. Exogenous, universal innovations of this kind require individuals and small collectives to creatively adapt to set development models, while endogenous innovations follow their own intrinsic logic to a greater extent. They invite further experimentation – in the sense of open-ended trial and error – and are less predictable (Brandsen/Evers/Cattacin et al. 2016: 310).

5.2 Post-growth economies as social innovations?

New ways of thinking, norms and moral standards have so far tended to be regarded as exogenous innovations. Such classifications have quickly become established in the rather fundamental debates held on post-growth and post-capitalism. However, at the grassroots level the concerns of the philosophical-ideological protagonists of the post-growth transformation (e. g. Paech 2012; Mason/Gebauer 2016) are often perceived as strange and somewhat detached from reality. The norms and values they formulate are received by the practitioners but must always be compared with their own factual everyday experience. Such exogenous innovations easily reach their limitations.

Degrowth and post-growth are then often no longer the main things but are rather almost side-effects of collective success in an open workshop or a 3-D printing lab. Problematic endogenous-exogenous couplings can thus be identified for every sub-area of society (e. g. a socio-economic field). It becomes difficult to bring together the local dynamics of change in forms of work, modes of production and consumption habits on the one hand and overarching ideological, economic and cultural changes on the other hand. As a result, the co-evolution and co-existence of different reference systems (grassroots practice as opposed to ideological superstructure) are more likely than convincing mediation and integration.

Social innovations and their couplings thus require the opening of conceptual approaches beyond the demand for new and better social theory (for instance in the sense of Howaldt/Schwarz 2010a). As Jaeger-Erben, John and Rückert-John (2017) have pointed out, a social theory approaches its subject matter with a logic of subsumption that inevitably leads to the misinterpretation of experiments, demands for freedom in the use of products and activities, seemingly independent testing and other social practices. It attributes actors with an intentionality that they perhaps do not possess, or not in the way assumed. The promise of a better future generally associated with the term 'social innovation' (Jaeger-Erben/John/Rückert-John 2017: 246) immediately leads to demands for this future to be politically controlled. However, this ignores the experimental character of innovations and the right of experimenters to freedom of scope and freedom from the external exploitation of what they have just discovered or found – not to mention their right to fail.

5.3 From the social niche to the entrepreneurial world?

Applied to the phenomenon of new forms of work, this means that not everything that society as a whole regards as a social innovation has to be one. It may rather be a case of attempting to tame norm-defying actors within a given set of power relations. To return to our current case: when makers and users of open workshops use their tinkering and experimentation to develop potential (or actual) business ideas with a public-good focus and to become (socially) entrepreneurial, this is often seen as a successful social innovation, since it represents economic upscaling out of a niche, which is in turn associated with economic innovations (Schmid 2019; Lange/Domann/Häfele

2016). However, what is seldom taken into account is that this can lead to the annexing of the lifeworld 'below' by outsiders, covertly denying that the social innovation is justified and advocating instead for 'correct' (i. e. institutionalised) paths of innovation.

Conceptual, symbolic and material expropriations of innovators may be undertaken by political institutions (economic development policy), scientific institutions (including economic geographers who claim that this upscaling is unexpectedly useful for urban and regional development) and economic actors (e. g. niche competitors who cannot draw on a specific innovation in a current debate). Others who may be involved in expropriation emerge in situ (in cities mostly in the form of city marketing with a focus on urban creativity) and under the influence of prominent elites (e. g. media leaders).

Social innovators are thus confronted with the necessity of defending from takeover the painstakingly defined socio-technical domains (e. g. digital competence), corresponding social spaces and especially the curating communities. This can be temporarily achieved by retreating into less accessible subcultures and exclusive practices. However, such a retreat is increasingly at odds with the post-capitalist demand for publicly accessible knowledge bases, procedures and blueprints (see the papers in Baier/Hansing/Müller et al. 2016). DIY (do it yourself) and DIT (do it together) technologies, the insistence on free access to public domains and the re(establishment) of technically advanced products fit for everyday use are all only possible in the public sphere. However, this public accessibility renders innovators vulnerable and easy to marginalise by institutionally established actors.

6. Cornerstones of the 'situated social innovations' perspective

In practice, makerspaces, open workshops and co-working spaces are open spaces. They encourage the actors involved to experiment within the community, to embark on self-discovery, to communicate openly with peers and to further develop a supportive community. Looking over each other's shoulders when exploring new things, sharing knowledge and also tolerating the temporary knowledge advantages of others may seem risky to many people

who have been socialised in a neoliberal, competitive society, but it is also very enticing (Simons/Petschow/Peuckert 2016: 20 ff.).

Social spaces that emerge in the form of local communities at a specific location (e. g. meeting place, workshop) result from attempts to make targeted use of the work-specific materiality of crafts, tools, working spaces and visible labelling, as in the example of the 'Makerspace Rhein-Neckar'[1]. At the same time, they symbolically and materially safeguard what has been achieved, enable the dissemination of new working practices and bring together interested parties in a visible place. The socio-material elements of these places emerge in part through the working techniques and practices, but they also result from erratic searching and chance encounters. As open-source spaces, it remains possible to change them collectively and to simultaneously shape them individually.

This variability and the open-endedness of design is an expression of a process that we call 'situated social innovation'. New forms of work are situated when they relate to a social community that encourages individuals in their experimentation (cf. Rogowska-Stangret 2018) and protects them against appropriation from outside (for use in an established model or a political role, for example to showcase seemingly vibrant or diverse urban development). The collective adoption of attitudes and practices of experimentation is the real social innovation. It is always temporary and can be superseded or its importance relativised by the next community initiative. The approach focuses on social forms of practice in the context of work, especially those that draw on diverse, internet-based communication and everyday technological adaptation processes.

Due to the processuality and open-ended variability of social practices, the actors involved each develop temporary and context-related spatial constructs. These constructs are also fundamentally situated because in practice the actors each work in a concrete but changeable place, be this a social place (community, organisation, meeting place), a physical workplace (office, workshop, desktop) or an identifiable virtual communication node (virtual network, IP address).

Situatedness is made up not only of communalisation processes and their material safeguards in the form of physical spatial components; it also takes place through openings into virtual spaces, as exemplified by the

1 See https://www.makerspace-rheinneckar.de/ (21.02.2020)

maker movement. Makers, tinkerers and sharers have long since integrated the world of the internet, social networks and blog-based interaction with important makers into their own communication practice. The impulses for new fields of experimentation, community action and fairs (e. g. the emblematic Maker Fairs) originate largely from the USA and the first communities that popularised the maker idea (see the description by the US makerspace-guru Dale Dougherty[2]).

Here, individual users worldwide can still receive concrete support and advice. The situating is realised by selectively using virtual means to bring the relevant global communities and their members to a specific local point. Seen from the perspective of the local actors, the emerging spatial construct also extends variably into virtual spaces, driven by interest or curiosity. The continuous changing of this oscillating spatial construct, its expansion and contraction in line with the collective nurturing (curation) of the experimental (as a modus operandi), represents an important peculiarity and at the same time a central condition for the further development of the respective communities and their forms of practice.

In this sense, the task here is not to carefully observe the Marxian 'state of the productive forces', but rather the state and the continuous change of the 'experimental forces'. Important drivers, the directions of movement and the effects of experimental activities must be reconstructed empirically and theoretically. Jaeger-Erben/John/Rückert-John (2017) have already advocated the utilisation of a theory of social change rather than more static social theory. The extent to which such a theory already includes entrenched assumptions about social structures, relations and processes that stand in the way of the unconditional reconstruction of open experimentation has yet to be demonstrated in the concrete reconstruction of a specific case.

A spatial science that is primarily interested in Euclidean distances or even in the observation of structurally determined social distances will find few opportunities for engagement here. Only if structure-fixated thinking is abandoned in favour of variable, multidimensional and reflexive processes of spatial construction (beyond the geographical fix) will more satisfactory explanations emerge in the foreseeable future.

Even where it has already been recognised that social proximity does not necessarily correlate with physical proximity (e. g. in research on co-pres-

2 https://makezine.com/author/dalepd/ (21.02.2020)

ence and co-location, see Grabher/Melchior/Schiemer et al. 2018), it could be deceptive to hope that minimal course correction will suffice. The case of a makerspace will remain obscure if it is approached with harboured hopes of discovering physical correlates of the social or economic. The actors are then viewed as demonstrating apparently familiar patterns of 'innovation through physical proximity', although in reality the virtual spaces of reference to similar communities of enthusiasts are much more relevant for shaping their everyday work. Hence it is necessary to make a conscious decision to embark on a reconstruction of multidimensional spatial oscillations to get closer to the phenomenon.

7. The 'spaces of work' perspective and post-growth questions: an initial résumé

A decisive move towards work-related forms of practice allows economic determinisms in the descriptions and explanations of more or less fixed 'spaces of economic activity' to recede from the centre of attention. The focus then shifts to the social penetration of economic processes and activities. The diversity of forms of work is associated with the multiple ways in which actors deal with their social and material environment – including the apparent rejection of commercial exploitation when testing new technologies, the profit-free provision of products and services for a community, and even the transition of small-scale work and production concepts into entrepreneurial livelihoods and formalised employment relationships. This diversity and polymorphism of forms of work is linked to a fundamentally open socio-materiality of the constructs of place and space. New spaces stretch across temporary virtual places and spheres of communication on the one hand and physical places of co-present work on the other. This openness means that the constructs of space are fluid and cannot be conceived as static spatial structures or as a systematically generated spatial fix – in the sense of a spatial manifestation of social or economic processes.

In particular, ideas for products, services and work processes emerge from everyday post-growth practices and are communicated to actors through virtual, multilateral channels, but it is seldom that these ideas are clearly traceable to their places of origin. They are thus rarely localisable. Under these conditions, it is fairly clear that there is no such thing as 'the'

location of 'the' post-growth innovation. Analogously, it must be assumed that we are dealing with spaces that are multi-dimensionally constituted, i. e. simultaneously virtualised, globalised and localised. They arise from situated innovation processes that also initiate translocal forms of post-growth. This must be addressed in detail by a modified analytical reconstruction of the diverse, processual constructions of space in the context of new post-growth forms of work.

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