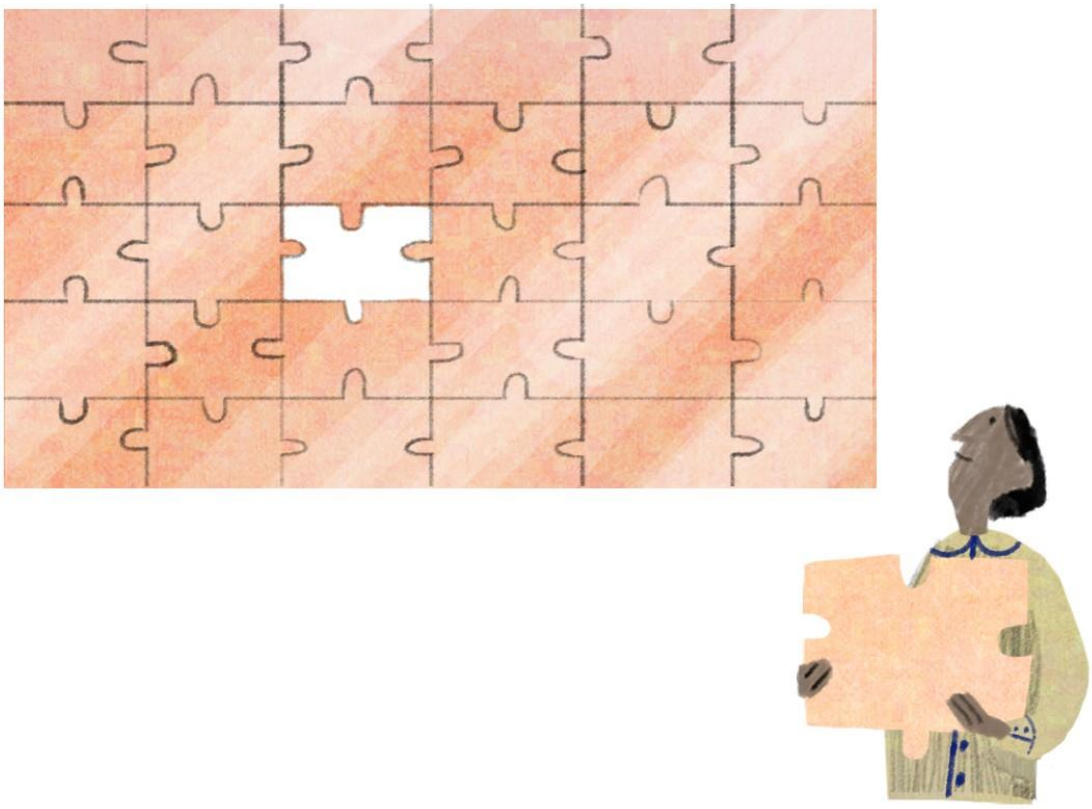
ETC-ST Report 2023/2

Understanding the role and potential of Transformative Social Innovation in sustainability transitions: six empirical cases



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Summary

Transformative social innovation can play a critical role in shaping the direction of sustainability transitions. In this report, we conceptualise social innovations as (combinations of) ideas, objects, and/or activities that alter social relations and introduce new ways of doing, thinking, and organising. We consider social innovations to be transformative to the extent that they challenge, alter, and/or replace dominant institutions (Avelino et al., 2019). This report explores six cases of transformative social innovation (TSI) to better understand its potential and role in sustainability transitions, as well as implications for governance, finance, and impact measurement. We discuss how each of these cases is related to distinct change logics, i.e. how they respond to failures in production and consumption systems, as well as their emergence and diffusion, transformative potential, and possible drawbacks. The cases relate to car sharing, repair cafes, credit unions, slow food, collaborative housing, and participatory budgeting. Taking stock of the analyses of these cases, we posit five insights on:

1) Cultivating social innovation ecosystems: Recognising how the transformative potential of TSI depends on ecosystems —meaning the degree to which roles, functions, structures, and norms are enabling or impeding.
2) Measuring impact: Acknowledging that social innovations yield outcomes that can be difficult to track, which necessitates a nuanced understanding of their impacts.
3) Developing resourcing and finance mechanisms: Emphasising the need for innovative financial structures to support and sustain social innovation.
4) Navigating mainstreaming and co-optation dynamics: Identifying the delicate balance between social innovations reproducing and disrupting production and consumption systems in order have transformative impact.
5) Understanding the limits of social innovation: Recognising that while social innovation holds great potential, it is not a panacea and can have drawbacks.

In conclusion, this report provides insights to guide the development of governance to support the emergence and diffusion of social innovation toward facilitating transformations of production-consumption systems, for achieving just and sustainable systems.

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1. Introduction

The report 'The European Environment – State and Outlook 2020' (EEA, 2019) identifies systemic sustainability challenges facing Europe: it discusses how biodiversity loss, resource use, climate change impacts, and environmental risks jeopardize the health and well-being of European citizens. The report emphasises the need for transformative change: a fundamental reshaping of societal systems such as food, energy, and mobility. This call for transformation aligns with the launch of the European Green Deal in 2019, and will remain a policy priority in the decades to come.

While the European Green Deal marks a significant step forward, how to transform systems of production and consumption remains a central question. As recently argued in several European Environmental Agency (EEA) assessments, the urgency and scale of changes needed in Europe's production-consumption systems demand that the EU goes much further in promoting sustainability transitions and rethinking economic paradigms than it currently does (e.g. see EEA, 2021). Current policies are criticized for merely supporting incremental technological innovations that reinforce existing system logics, rather than developing innovation for radically reshaping value chains and power relations.

Deeper analysis of EU policy innovation paradigms since the 1950s shows that policy has shifted from a strong emphasis on scientific and technological developments in service of national prestige and economic growth, towards steadily increasing recognition of engaging a broader range of social actors in innovation processes; the need to orient innovation towards collective social goals; and the need to promote innovation of societal structures and systems (Diercks et al., 2019; Schot and Steinmueller, 2018; Haddad et al., 2022). Nevertheless, even within this 'transformative innovation paradigm' as it is called, it has been argued that innovation is still approached as a 'toolbox' for top-down transformation, rather than a fundamental change of underlying structures such as economic growth. Besides, citizens are still often framed as passive actors, or users of innovations, instead of as innovators in their own right (Eunomia, 2023; Haddad et al., 2022).

To move beyond these perceptions of innovation, and towards addressing broader socio-environmental transformations, this report explores the concept of social innovation. Social innovation takes a social – rather than business- or technological-oriented – entry point for looking at innovation. While there is ample debate about its definition, ranging from normative to a rather more neutral description, in this report we choose to define social innovation as (combinations of) ideas, objects, and/or activities that alter social relations and introduce new ways of doing, thinking, and organising (Avelino et al., 2019; Pel et al., 2020).

Social innovations can take many forms, from crowdfunding platforms and energy communities to car-sharing schemes, community gardens and cooperatives. What unites these examples is their potential to offer new solutions to societal needs (Godin, 2019). Social innovation initiatives, while locally manifested, often seek to address larger, structural transformations of dominant socio-economic systems, by

rethinking its foundational principles and values, as well as the ways in which these are reproduced through social relations, practices, and institutions. Examples of such shifts (which we refer to as 'change logics' in this report) include moving from owning to sharing, linear to circular, and prioritising social value over private profits. We consider social innovations to be transformative to the extent that they challenge, alter, and/or replace dominant institutions (Avelino et al., 2019; Pel et al., 2020). They can have done so in the past, or they do so in the present.

In this European Topic Centre (ETC) technical report, we argue that to better support and acknowledge the role of social innovation in the transformation of production-consumption systems, a deeper understanding of its emergence and diffusion is needed. To that end, we present six in-depth empirical case studies of transformative social innovations (TSI) across various domains, and seek to answer the question, "*How can we better understand the potential and role of transformative social innovations in sustainability transitions, and what are the implications for governance, finance, and impact measurement?*"

In the following sections we introduce the key concepts used in this report, what is meant by transforming dominant production-consumption systems and related change logics, and the case studies that were selected.

1.1. Introduction of key concepts

At the outset, a social innovation is pursued in the form of a **social innovation initiative**, which can be a project, an organisation, an individual, or a network of actors. It can be initiated by different kinds of actors (state, market-based, community, citizens, third sector) and mobilise other actors along the way. These initiatives aim to **meet societal and environmental needs** in new or alternative ways, which necessitates changes in dominant institutions. To the extent they become transformative, they challenge, alter, or replace dominant institutions and existing logics of, for instance, how activities are financed, how markets function, or how power is distributed, as well as existing values and discourses around what is considered 'normal'. TSI initiatives conduct such 'institutional work' through various strategies – this can include lobbying, forming networks, shaping policy frameworks, or providing inspiration for how it can be done differently (Lawrence and Suddaby, 2006; Möllering and Müller-Seitz, 2018; Rohde and Hielscher, 2021).

In this report, we focus on initiatives that go beyond the local context in the domains of mobility, food, shelter, consumption goods, finance, and governance and address broader socio-economic system failures. While TSI initiatives have local manifestations, they are trans-locally connected in their efforts to change systems (Loorbach et al., 2020) – often organised as trans-local networks (Avelino et al., 2019) or movements (Hess, 2018). We choose to study the TSI initiatives in this report through a **field lens**, which puts the focus on common actor constellations and organisational set-ups around a certain TSI and provides a formal and/or informal connection between individual TSI initiatives (cf. Fligstein and McAdam,

2011; Wittmayer et al., 2022). A field can for instance include actors such as public authorities, a research institute or company, political advocates as well as members of the target group.

1.2. Transforming dominant production-consumption systems

As mentioned, there is a growing recognition of the need to go beyond current innovation policies and to engage with a deeper transformation of the underlying socio-economic structures and paradigms in order to achieve just and sustainable systems. In part, this reflects an understanding that potential economic challenges in the coming decades may require European countries to find new ways to meet societies' needs. For example, the process of transforming economies so that they operate within environmental limits, in combination with phenomena such as ageing populations and climate change, may have significant macroeconomic impacts, e.g. in terms of jobs, economic output and fiscal revenues. Some researchers suggest that economic development may be approaching a post-growth stage (e.g. Jackson, 2021). This possibility raises difficult questions about how to meet growing needs for spending in areas such as health, social welfare and investments in transitions – and whether there may be ways to alleviate society's dependence on growth to maintain social cohesion and prosperity (EEA, 2021).

At the same time, growing interest in socio-economic transformation also reflects an increasingly widespread recognition that the current paradigm often operates in ways that are inconsistent with sustainable development, demonstrating structural failings of Western capitalism (e.g. Jacobs and Mazzucato, 2016). In recent years, calls for a socio-economic paradigm shift have moved from the fringe of economic and policy debate into the mainstream. For example, Klaus Schwab (2020), Executive Chairman of the World Economic Forum, suggests that "*we will need to reconsider our commitment to capitalism as we know it*". The OECD (2020) likewise states: "*We do not claim that there is as yet a new fully-developed model of economic policy which can simply replace those which have been dominant over the last forty years [...] But we do believe that a new approach is needed*." (p. 5)

The alleged failings of the current socio-economic model are diverse, and include systems being:

- Destructive – by externalising costs and therefore incentivising mismanagement and degradation of essential assets, destroying rather than investing in environmental, human, and social capital. Climate change, for example, has been famously described as "the greatest market failure the world has ever seen" (Stern, 2006).
- Wasteful – both in the extractive and linear use of material resources that continues to dominate capitalist economies but also in failing to mobilise and empower society's capabilities to achieve desirable outcomes (e.g. Mulgan, 2013).
- Short-sighted – for example in centring attention on short-term profits at the expense of long-term value creation (Mazzucato, 2018) and a broader blindness to the long-term harms associated with environmental degradation.

- Anti-social – in the sense that it is grounded in a questionable framing of human nature and values, promoting materialism, greed, selfishness and individualism (e.g. Collier and Kay, 2021) and manifesting in competitive consumption, excessive working and a prioritisation of private profits over broader social interests.
- Exploitative – for example in incentivising predatory, rent seeking behaviour and capture by particular interests, while exacerbating inequality, power imbalances, tax evasion and providing for shareholders at the expense of stakeholders (e.g. Stiglitz, 2012; Schwab, 2020).
- Volatile and unstable – for example in being prone to cycles of exuberance and collapse, with huge social consequences. While the financial crisis of 2007-2008 is an obvious example, it has been noted that banking crises in fact have a long history, and have become more frequent since the financial liberalisation of the 1970s and 1980s (Reinhart and Rogoff, 2008).
- Disconnected from real value – not just in terms of externalities (positive and negative) that distort market prices and choices, but also in rewarding work in ways that bear little relation to social value – for example in terms of the growing disconnect between remuneration of CEOs compared to average earnings, corporate profits and stock market values (Bivens and Kandra, 2022).
- Disconnected from other social objectives – ranging from health and wellbeing, human development and creativity to social cohesion, trust and cooperation, in favour of prioritising economic development (Longhurst et al., 2016).

Some of these points are directly related to environmental degradation, while others affect other dimensions of sustainability (e.g. inequality, social isolation, health, and well-being) that link with environmental protection more indirectly. The case studies analysed in this report were conceived of and sampled in relation to the overall context of these failings of the dominant socio-economic paradigm. For this report, we choose to use the term ‘change logics’ to refer to those dimensions of current economic systems that are critiqued both through the ideas and actions of TSI initiatives. Important to note is that the change logics are not a binary, but rather a continuum with many shades of grey in between. Besides, individual TSI initiatives will demonstrate multiple change logics at the same time. To make the cases distinct from one another we have amplified certain change logics – while we acknowledge that social innovations will contribute to different change logics, we have focused on their contribution to one specific one and have only mentioned possible overlaps in passing. The six change logics are:

- From Owning to Accessing
- From Linear to Circular
- From Competing to Cooperating
- From Globalising to Localising
- From Maximising (Private) Profits to Maximising Common Good and Social Value
- From Marginalising to Empowering Stakeholders

Each of these change logics is connected to one of our case studies and will be elaborated on in more detail in the introduction to the case study chapters.

1.3. Case studies of Transformative Social Innovation

Following a selection procedure, six case studies were selected and researched to be presented in this report (see Annex. A for more details). Each case study chapter follows the same structure: First, the change logic is elaborated on, after which an overview of social innovation fields related to the change logic is discussed. Second, one of these fields is zoomed in on and discussed according to its social innovation characteristics, and its potential as *transformative* social innovation. Third, a particular social innovation initiative is described and commented on. The final section puts the social innovation field in question in perspective, highlighting potential tensions or questions that it gives rise to.

Below, in Table 1.1, an overview of all the cases is provided, indicating the change logic, the field that is zoomed in on, driving actors, domain, and the example of an established TSI initiative that is discuss in more detail.

Table 1.1 Overview of embedded cases of TSI

	Change logic	Fields	Driving actors	Domains	Established TSI initiative
1	From Owning to Accessing (*sharing economy)	'Car-sharing' (related: Fashion rentals; Libraries of Things; or borrowing shops; Couchsurfing)	(Platform) Companies	Mobility	MyWheels (NL) Others: CARUSO (AT); Deer Car-sharing (DE)
2	From Linear to Circular (*circular economy)	Repair Café (related: Do-it-yourself (DIY) Movement; social enterprises in repair; Reuse and the sharing economy)	NGO/community group	Social domain/ consumption goods	Unruhestand aktiv (AT) Others: Repair Café de Seyssinet (FR); Repair café Hamburg-Altona (DE)
3	From Competing to Cooperating (*cooperative economy)	Credit cooperatives (related: Energy cooperatives; agricultural cooperatives; credit cooperatives)	Financial cooperatives	Finance	Foundation for Investment and Responsible Saving (FIARE) (ES)

					Others: Crédal (BE); Merkur Cooperative Bank (DK); Banca popolare Etica (IT)
4	From Globalising to Localising (*Degrowth)	Slow Food (related: Transition towns initiatives; community-oriented agriculture; local currencies)	Community groups	Food	Slow Food Italy Others: Slow Food USA; Slow Food Araba-Vitoria
5	From Maximising (Private) Profits to Maximising Common Good and Social Value (*Social and Solidarity Economy)	Collaborative housing (related: energy communities, community gardening)	City administration; civil society groups	Shelter	Bikes & Rails (AT) Others: HafenCity (Dallmankai) Hamburg (DE); Karise Permatopia, Seeland (DK)
6	From Marginalising to Empowering Stakeholders (*opening up decision making (power))	Participatory budgeting (related: Science shops, climate assemblies, living labs)	Governments	Governance	Porto Alegre (BR) Others: Fortaleza (BR); Belo Horizonte (BR); Amsterdam (NL)

2. Case 1: Change logic: From Owning to Accessing

2.1. Introduction to 'from owning to accessing' as change logic

The existing economic growth paradigm is closely linked to mass production and consumption in a linear economic system of buying-using-discarding. This is a major driver for resource use beyond sustainable limits and for – sometimes irreversible – environmental degradation (Rockstrom et al., 2009; Steffen et al., 2015; UNEP, 2019). Against this background, the multifaceted paradigm of the sharing economy has developed and been studied in recent years (Laurenti et al., 2019). We focus in this case on the shift from individual ownership to access-based systems, and hence a facet of the sharing economy quite distinct from Case 2 (from linear to circular). This shift is claimed to contribute to improved resource efficiency by increasing the intensity of use of under-utilised goods (Laukkanen and Tura, 2020). The idea is that the needs of more users can be satisfied with one physical product when it is shared instead of individually owned and used. Consequently, consumption levels of physical goods should decline, resulting in an overall reduction of environmental burdens including greenhouse gas (GHG) emissions (Curtis and Mont, 2020; Bodenheimer et al., 2022). However, overall effects are controversial, not only with respect to the environment, but also for instance with regards to harming existing social ties (Frenken and Schor, 2019).

An overview of social innovation fields linked to the change logic

Several conventional services contribute towards a sharing economy paradigm, such as libraries or costume rentals. Others concern more innovative business models and organisational set-ups, such as fashion rental, Libraries of Things and Couchsurfing.

Fashion rentals One possible set-up for fashion rentals is based on a platform firm, which buys and owns clothing while renting it out to customers. It is often used for baby clothing but also women's fashion. Ideally, clothing is used longer and more frequently as it 'survives' several rental cycles, promoting a move away from fast fashion, and reducing the number of fashion items consumed per person (Bodenheimer et al., 2022).

Libraries of Things (or borrowing shops) These extend the conventional library concepts to items of everyday life which are used only occasionally (Baden et al., 2020). Examples include tools, sports equipment, or dinnerware. Case studies in the UK find that many such initiatives run on a volunteer basis with public support (Baden et al., 2020). Libraries of Things partly overlap with the change logic of case 2 (from linear to circular) in so far as they sometimes rely on used items that are donated.

Couchsurfing Couchsurfing allows travellers to meet and stay with locals during trips. Instead of regular tourist accommodation, travellers are hosted as guests of a private person, with apps facilitating matchmaking. Beyond cheap accommodation, the mutual interest lies in cultural and hospitality exchange (Ossewaarde and Reijers, 2017).

Car-sharing In the field of mobility, sharing approaches are widespread and include e.g. the sharing of cars, bikes, E-scooters and rides (Krauss et al., 2020). Car-sharing is part of this broader portfolio of shared mobility services, where each segment serves specific mobility needs and offers different shift potentials.

For example, shared micromobility involves bike- and E-scooter sharing. These services are geared towards short-distance trips and especially the first or final kilometre in accessing public transport. As such, they may replace car travel (private or taxi), but could also be a substitute to walking (Krauss et al., 2020).

2.2. Car sharing – an introduction to the field

In the literature, car-sharing projects are dated back to the year 1948 in Europe (Shaheen et al., 1998). As a bottom-line, car-sharing provides access to a car without having to own it. Main motives for users are the access to a car without having to buy one and a reduction in travel costs. Another benefit – though not just to the users - is the reduction of space occupied by parked cars in urban areas. A wide variety of different schemes co-exist (Butzin et al., 2017). Generally, a car is shared with other users and owned and maintained by a dedicated party, which can be a private person (peer-to-peer car-sharing) or a business firm. Purchase, maintenance, and operating costs are billed to the user and often include a fixed amount per use plus a trip-specific component based on time and distance travelled. This requires on-board technologies to record the necessary data. Further technology is necessary to arrange the (key-less) access to the car(s).

Car-sharing business models and organisations are numerous (see e.g. Harms and Truffer, 2001; Hahn et al., 2020). An important distinction lies between station-based and free-floating systems (Krauss et al., 2022). In the latter, users can do one-way trips and park the rented car anywhere (within a predefined area). Such systems may require the relocation of cars independently of any travel purposes in order to assure even accessibility in the service area. Giesel and Nobis (2016) find differences in how station-based versus free-floating systems are related to reductions of car ownership on the side of users. Price models, pickup and drop-off modes, and availability are further business model features which are found to influence usage intentions (Hahn et al., 2020).

Aspects of social innovation

A vast body of literature on shared mobility services exists outside the realm of social innovation research. Still, car-sharing can be described and has also been analysed as a social innovation. Car-sharing can be considered as social innovation to the extent that it changes the practices associated with the purchase and maintenance of a self-owned car, since these activities are delegated by the user to a car-sharing company or platform. Another set of changed practices relates to choosing one's mode of transport. Car-sharing is not just about using a car-sharing vehicle instead of a privately owned car. Rather, it changes decision parameters which are relevant for selecting one's preferred mode of transport. For example, using car-sharing causes trip-specific costs for the user and makes the costs per trip transparent. Hence, the price advantage of public transport becomes more visible and can lead to changes in thinking about public transport and in organising one's mobility. In addition, the accessibility of a shared car may involve a few minute walk just as would public transport. Again, from the user perspective, using a car and using public transport become options on a more level playing field. While these aspects may hinder citizens to become car-sharing users in the first place once they do participate in the scheme the context of their

mobility decisions changes and practices may change in favour of increased public transport use. As a social innovation, car-sharing also has a strong technological aspect (Butzin et al., 2017).

Transformative nature of car-sharing as social innovation

Today, car-sharing has spread globally and is of considerable economic significance. Although it has suffered during the COVID-19-pandemic, it is now approaching pre-crisis levels. The world-wide revenue in car sharing is forecasted to amount to 10,62 billion Euros in 2022 (Statista, 2022), and about 47,5 million users are counted (Matheisl, 2022). The EU-27 has a large share in this, counting 2,83 billion Euros in revenue and 11,1 million users in 2022 (Statista, 2022). Rabadjieva and Butzin (2020, p. 930) consider car-sharing an example of the diffusion of an innovation that did not require direct interaction between actors of individual initiatives. It has been institutionalised through uptake by firms and, and in some countries (e.g. Germany) business associations for car sharing have also been founded.

The field of car-sharing can be transformative to the extent that it challenges, alters, and/or replaces the existing dominant institutions, including practices, narratives, and regulations. It may challenge dominant institutional arrangements by reducing car ownership. For German cities, Giesel and Nobis (2016) report a reduction of car ownership by 7 % for users of free-floating car-sharing and 15 % for users of station-based systems (similar results are reported by Becker et al., (2018) for Basel). Several other publications report reduced vehicle ownership after joining a car-sharing service (Namazu and Dowlatabadi, 2018; Mishra et al., 2015. Hence, large-scale car-sharing could reduce the demand for cars and reduce impact sales opportunities and production volumes on the side of the automobile industry. However, the environmental impacts of such changes are not quantified in the literature.

Car-sharing membership is also reported to encourage a shift towards public transport and active modes such as walking and cycling. Göddeke et al. (2022) find that car-sharing members use these modes 1.4–1.5 times more often than non-members. Trip-based billing provides an incentive for this. Le Vine et al. (2014) find a reduction in vehicle-kilometres of travel for certain car-sharing schemes. Again, the environmental impacts are not quantified.

There are several studies which analyse the CO_2-reduction effects of car-sharing (for an overview see Chen and Kockelman, 2016). For Ireland, for example, CO_2-reducing effects of rolling out car-sharing services have been estimated to be approximately 229 kt CO_2 savings (Rabbitt and Ghosh, 2016). Chen and Kockelman (2016) consider the cradle-to-grave impacts of car-sharing including effects on vehicle ownership, travel distances, fleet fuel economy, parking infrastructure and alternative modes. In their analysis of a US setting, car-sharing members reduce their transport-related CO_2-emissions by 51%. At the aggregate level, this could translate into a 5% reduction in household transport related GHG emissions.

Summing up, the evidence on environmental impacts of car-sharing reported in the literature is often qualitative or indirect (e.g. effects on car ownership). The assessment of actual environmental impacts (emissions, resource consumption etc.) seems to be largely limited to CO_2 emissions. Other environmental effects such as reduced resource consumption or water management implications of reduced parking needs are currently under-researched.

2.3. MyWheels in the Netherlands[1] - an introduction to a social innovation initiative

MyWheels provides easy access to rental cars within walking distance so that people in need of a car can use one at a low cost without having to buy one. Users pay per trip by the hour and per distance. They can choose the size of the car according to their needs and pay accordingly. The fleet also includes electric vehicles. The service is offered in many locations in the Netherlands in a station-based system and includes car-sharing for businesses that can offer it as a corporate benefit to their employees. Originally, the service included a peer-to-peer component where individually owned private cars are shared with other users. The company is a not-for-profit organisation. It collaborates with volunteers ("ambassadors") who are matched with a car and keep an eye on it. The company takes care of maintenance and insurance. It is set on a growth trajectory, steadily increasing the number of users and cars in its fleet. The aim is to reduce the number of individually owned private cars on the street. MyWheels has been a front-runner in using technology by employing board computers for logging in with a card or a smartphone.

MyWheels claims that car-sharers cause 25% less CO_2 emissions than car owners, and that one MyWheels car replaces 12 regular cars. The vision is to reduce the overall number of cars operating in the Netherlands so as to reduce resource consumption and the environmental effects of car production. This reduction of the number of cars on the street is also seen to free up space in urban neighbourhoods. MyWheels 'ambassadors' are considered a means of community building among the users ('MyWheels community'), while the original peer-to-peer element in MyWheels stimulated social contact among the users. However, users found it cumbersome to have to go through the actual owner to gain access to the car. Overall, peer-to-peer construction seems to play a lesser role today, while car-sharing-firms dominate.

Similar initiatives to MyWheels exist in other countries, for instance in Germany (e.g. Stadtmobil[2]), and Austria (e.g. CARUSO). Rather than focusing on urban areas as most car-sharing services are doing, it aims at providing car-sharing services in rural areas (Butzin et al., 2017). There is also an example of a car-sharing company specialising in electric vehicles: Deer Car-sharing in Germany[3] offers car-sharing based exclusively on electric vehicles and is an example how car-sharing can contribute to sector coupling (electricity and mobility sector). The car-sharing firm behind Deer-Car-sharing is a subsidiary of the municipal energy supplier.

Many car-sharing businesses network among each other to serve larger areas, gain greater visibility and userbases, exchange knowledge, and collectively approach political actors and public administrations. Such political actors can support car-sharing initiatives e.g. by providing parking spots for shared cars or information to (especially new) citizens (Butzin et al., 2017).

[1] This section summarizes the MyWheels-Case study conducted as part of the SI-Drive project, see Butzin et al. 2017. Additional information was derived from the website (https://mywheels.nl/en, last access 09.09.2022).

[2] See www.stadtmobil.de (last access 30.09.2022)

[3] See www.deer-carsharing.de (last access 30.09.2022)

2.4. Putting Car-Sharing in perspective

While car-sharing initiatives are thriving, there are limits and barriers to their contribution to sustainability transitions.

Competition with other more sustainable forms of transport: Generally speaking, for users who do not (yet) own a car, car-sharing increases car accessibility and therefore may replace more sustainable forms of transport. Some forms of car-sharing are found to replace public transport and hence have a contrary effect on the environment, as was the case in London in a study by Le Vine et al. (2014). At a more aggregate level, Doll and Krauss (2022) analyse the role of car-sharing in different CO_2-reduction scenarios through 2030 for Germany. Findings revealed that car-sharing programs likely contribute small emission reductions, while bigger effects come from shifts towards public transport, cycling and walking. In terms of vehicle fleets, at present, the fleets of car-sharing firms are still predominantly fossil-fuel-based, even if there are exceptions (see Deer car-sharing above), and even if it is generally held that the modernisation of car-sharing fleets will be quicker than for private car fleets (Doll and Krauss, 2022). Some car-sharing businesses are run by traditional automobile producers as a marketing strategy (e.g. the joint venture Share Now by Daimler and BMW). In this case, car-sharing is motivated by a desire to stabilise the current market situation.

Risk of detrimental environmental and social effects of shared mobility: Car-sharing is only one of many forms of shared mobility. Another form is shared micromobility based on bikes or E-scooters. These tend to be used for short-distance trips and may replace public transport or walking rather than car-based mobility (Krauss et al., 2020), in which case environmental effects are negative. In the case of ride pooling, firms like Uber and Lyft introduced a business model that has been criticised for circumventing social and labour standards if national institutions do not intervene (as is the case in Germany with the 'Personenbeförderungsgesetz') (Doll and Krauss, 2022). In sum, the environmental (and social) effects of shared mobility are difficult to generalise but instead need to be analysed on a case-by-case basis. They are yet to be fully explored, with the only environmental dimension investigated being CO_2. One of the core environmental impacts of sharing, i.e. the use of idle capacity which should ultimately lead to a decline of the number of new products, lacks empirical evidence in the realm of shared mobility.

In addition, to understand the accessibility and availability of car-sharing options, it would be interesting to understand for which segments of society (e.g. male vs. female, lower vs. higher income households) and to which geographies (e.g. more urban than rural) car-sharing provides an alternative to owning a car (e.g. Amirnazmiafshar and Diana, 2022 indicating that men make more use of free-floating variants, while members of round-trip car-sharing systems seem to follow a more efficient and sustainable lifestyle than members of one-way-trip systems). Lastly, the aspect of shifting power balances that occurs when people do not own things anymore but 'rent' them remains understudied (e.g. data, accessibility, etc).

3. Case 2: Change Logic: From Linear to Circular

3.1. Introduction to 'from linear to circular' as change logic

Derived from the economic growth paradigm, there is a general emphasis on the creation of new products, technologies, and material overconsumption in modern economies. The International Resource Panel (IRP) argues in several reports and think pieces that the use of resources is accelerating, thereby surpassing planetary boundaries, and causing alarming environmental effects including declining biodiversity, degradation of soil, overexploitation of aquifers, etc. While a substantial transformation of the energy system and increased productivity would certainly relieve pressures, increased resource efficiency in terms of more sustainable consumption patterns is necessary in order to meet the 1.5°C limit of global warming set by the Paris agreement (International Resource Panel (IRP), 2019; Hertwich et al., 2020).

The *take, make, use, and waste economy* thus propels climate change through short cycles of resource exploitation and overconsumption, whereas a circular economy approach of *take, make, use and reuse* enables resources to be in use for a longer period. Repair of goods is a means of accomplishing a longer use of resources by fixing a particular deficiency of that good and/or by replacing defective components, in order to not waste, but restore an item to a fully functional product (Nasr et al., 2018). Hence, new consumption patterns are needed: instead of consuming products in fast cycles and wasting resources in discarding end-of-life or end-of-use goods, societies should rather promote the repair and reuse of the (reusable parts of these) products. Promoting repair in the economy and society is assumed to render household consumption patterns more sustainable. In circular economy discourses, repair is about extending a product's life and, extending a product's use time in case it is functional but not used anymore by its original owner, and postponement of material and energy loss (van der Velden, 2021). In terms of the Avoid-Shift-Improve framework (ASI) - which originated in the 1990s in the transport and mobility sector to classify environmental measures and is now used for other segments of the economy as well (Creutzig et al., 2018) – repair corresponds mainly to the 'avoid' option where unnecessary use of resources is avoided by 1) product design which enables the repairability of goods, and 2) availability of low-threshold repair services.

An overview of social innovation fields linked to the change logic

Moving towards more circular economy often entails a move from energy- and material-intensive production of goods towards labour-intensive (and thus expensive) repair services. In this context, 'green' social innovations can substantially contribute to sustainability transitions, e.g., through introducing novel sharing, repairing and other services and schemes that maximise the value of common resources (Schartinger et al., 2020; Schot and Kanger, 2018; de Jesus et al., 2018).

Repair cafés are one of these social innovations and can be seen as part of a repair service segment, together with social enterprises, e.g., work integration social enterprises (WISEs) specialised in repair and

reuse, commercial repair service firms, online repair communities providing guidance, parts retailers etc. There are also connections to the Do-it-yourself (DIY) movement and lifestyle, and to the sharing economy.

Repair cafés Repair cafés address the issue of waste and resource exploitation by directly approaching people as consumers in their local settings. They offer low-threshold support for repair of various household goods. People bring these items to the repair café and meet expert volunteers who help them with the repair. The focus is on empowerment and awareness-raising for the wider systemic impacts of fast consumption cycles. Due to their empowering, collective, and non-profit approach, repair cafés are called community repair.

Do-it-yourself (DIY) Movement Repair cafés as community repair are part of a broader DIY movement and the movement of makers, modifiers, and fixers (Keiller and Charter, 2014; Meißner, 2021; Bradley and Persson, 2022). Rather than viewing consumers as passive buyers, consumers engage in repairing for continuing their own consumption and thus become prosumers. This leads to an increased experience of empowerment and independence on part of these consumers (Wolf and McQuitty, 2011).

Social enterprises in repair The repair sector is populated by a substantial proportion of (work integration) social enterprises (WISEs). In most countries, these were originally engendered as a labour market scheme operated by public employment agencies. WISEs manufacture products or offer services at market prices. Hence, in addition to being contracted by the public employment agencies for offering transient workplaces, part of the total revenues of the company is generated through sales of services. In repair WISEs, repair services are carried out by employees on transient workplaces to enhance the qualification and skills of this group of people (e.g. long-term unemployed), and to increase their ability to resume a regular job (offering accompanying care measures- person-specific and social care measures) to make it easier for them to succeed in the regular labour market.

Reuse and the sharing economy A related but distinct matter is when products have not come to their end-of-life, but to their end-of-use. Hence, products are not used any more by their original buyers despite being fully functional. In that case, 'Libraries of Things' or other sharing platforms invite the wider sharing not only of books, but also of other types of items (Ameli, 2017). This includes also sharing of broken items for repair or sharing of product parts that can be used for repair.

3.2. Repair Café – an introduction to the field

Zooming in on repair cafés, these are places where people can meet and jointly repair broken items without paying a price. According to the Repair Café Foundation, a non-governmental organization that helps local groups set up repair cafés in different local environments across the globe, repair cafés combine environmental and social goals: they want "*to bring back repairing into local society in a modern way; to maintain repair expertise and to spread this knowledge; to promote social cohesion in local*

communities by connecting neighbours from different backgrounds and with different motives with each other through an inspiring and low-key event" (Repair Cafe, 2022).

Broken items are brought from home; examples of frequently brought items are clothes, toasters, blenders, irons, hairdryers, coffee filter machines, lamps, and other electrical devices. Tools and materials are made available by the Repair Café, as are coffee and pastries. The Café character is held high as a means of socialising. Actors at a repair café include organisers, volunteers, and visitors. Organisers negotiate the set-up of the repair café in a locality. Expert volunteers, with repair skills in a variety of fields provide help and share know-how. Visitors at the repair café are empowered and supported to carry out repairs themselves (Keiller and Charter, 2014; Charter and Keiller, 2016). Moalem and Mosgaard (2021) argue that the motives of visitors to a repair café can be categorized in three groups: 1) being a critical consumer who wants to extend the life span of a product instead of buying a new one, 2) free repair for those with a low income, and 3) education and training in repair, e.g., bicycles.

Repair cafés have existed since 2009 when the first repair café was founded in Amsterdam (Moalem and Mosgaard, 2021; Keiller and Charter, 2014; Charter and Keiller, 2016; Repair Cafe, 2022). Repair Cafés are located in neighbourhoods where by promoting collaborative repair, empowerment, and social inclusion they support community building and connect to the policy agendas of neighbourhood regeneration (Meißner, 2021). Repair cafés come in various formats, from holding dedicated premises and regular occurrences, to pop-up locations held only a few times a year. Common locations are makerspaces, cafés, and community centres. Other locations are public libraries, shopping malls, public schools, and temporarily unoccupied buildings (Moalem and Mosgaard, 2021).

Aspects of social innovation

Repair cafés can be considered social innovations to the extent that they are reinstating repair as a social practice, and doing so in a way that builds community around issues of consumerism, sustainability, learning together, and sharing. Repair cafés promote a 'culture of repair' - a wider social practice of repair (van der Velden, 2021; Charter and Keiller, 2016; Meißner, 2021). Expert volunteers spend time for altruistic reasons and want to encourage others to live more sustainably (Keiller and Charter, 2014). They are concerned about the use of resources and intend to change towards more sustainable production and consumption patterns (van der Velden, 2021).

Thus, repair cafés are seen as community repair that contrasts with commercial repair because expert volunteers and local people meet in a local, non-profit setting. Thereby, they encourage the empowerment of consumers and collaborative learning (Bradley and Persson, 2022). Repair cafés promote relations between people, but also relations between people and things ('care'). In doing so they contribute to the local neighbourhood and community building (Meißner, 2021).

Repair cafés intend to be socially inclusive in that they aim to build community across social divides (Bradley and Persson, 2022). However, biases exist in actual use patterns: Keiller and Charter (2014) found that repair cafés attract 'time-rich' older generations that provide high repair skills, with over 50% older than 55 years old, and 21% older than 65 years old.

Transformative nature of repair cafés as social innovation

Repair cafés have increasingly become networked, from very local and grassroots undertakings to regional and national networks and global networks. Actors in repair cafés feel part of a larger (sub) culture, and at the same time share the identity with a local group (Moalem and Mosgaard, 2021). Local networks help to draw on the distributed competencies of repair service providers. They often aim at connecting WISEs, private service providers, public and private waste management facilities, and other interested enterprises and organisations on regional and national levels, to provide repair, rental, and related services. This can increase re-sale significantly. A further goal is often to encourage policymakers to alter the legal and economic conditions towards favouring longer product lives. From their origin in Amsterdam, repair cafés have diffused from the Netherlands through Belgium, France and Germany to other countries. Today it is a worldwide movement - there are also repair cafés in the United States, India and Japan, and in dozens of other countries around the world (Repair Cafe, 2022).

This field of repair cafés can be transformative to the extent that it challenges, alters, and/or replaces the existing dominant institutions, including practices, narratives, and regulations. Repair cafés address issues around sustainable consumption in a very real hands-on way (Keiller and Charter, 2014; Charter and Keiller, 2016). In their literature review, Moalem and Mosgaard (2021, p. 15) find that repair cafés are seen as change agents beyond their local significance in a number of papers "*in the sense that the concept has influenced the mindset of a broad field of practitioners" and "teaches people to see their possessions in a new light*". Repair cafés – especially expert volunteers - have influenced the debate on production and consumption patterns by highlighting that especially electrical and electronic products are designed with built-in obsolescence (Charter and Keiller, 2016). *Planned obsolescence* accelerates cycles of buying-using-discarding in the traditional linear economy because products are designed to break before the end of their expected lifetime. *Unsustainable retail practices* have been pointed out, in that the subsector of commercial repair services of electronic devices is populated by service suppliers affiliated with large producers and retailers of these electronic devices. The staff of large are equipped to either carry out the necessary repair services or sell a new device. Hence, in terms of prices, repair services do not so much compete with other repair services, but more with the purchasing price of buying a new device. Finally, some repair cafés collect and share data to spread information on *criteria for making products more easily repairable*. "*Repairers in repair cafés obtain valuable knowledge regarding weak points in product or service design, bringing community repair into discourses on the [circular economy]*" (Moalem and Mosgaard, 2021, p. 1263).

Repair café organisers and expert volunteers campaign to varying degrees and join debates to influence the current framework conditions for product durability and repairability. Together with other movements and campaigns, this has already resulted in the implementation of national standards for durable and easy-to-repair goods (e.g., Austria). On the European level, the Eco-design Directive has been implemented to promote the durability of electrical and electronic products (Polverini and Miretti, 2019). CEN-CENELEC established the Joint Technical Committee 10 which set out to develop a number of new

standards, including EN 45554:2020 "*General methods for the assessment of the ability to repair, reuse and upgrade energy-related products*" (Schlegel et al., 2019, cited in (Bracquene et al., 2021)).

Concerning the environmental and economic impacts of repair cafés, quantitative estimates of impacts are scarce and come out of the repair café network itself. Still, in their Annual Report 2019 Summary, Repair Café International estimates that "*by the end of the year exactly 2,000 Repair Cafés were active around the world - 350 more than a year earlier. All these Repair Cafés together accounted for an estimated 420,000 successful repairs. This prevented up to 10 million kilos of CO_2 emissions*." (Stichting Repair Café Amsterdam, 2020).

As of September 7th, 2022, the Repair Café Foundation estimated 2,445 repair cafés worldwide, 36,675 expert volunteers involved, and 44,010 items repaired per month (Repair Cafe, 2022).

3.3. Unruhestand aktiv– an introduction to a social innovation initiative

The registered association Unruhestand aktiv[4] works as a local network hub combining ideas of sustainability and the shared and circular economy. It aims at providing jobseekers who are over 50 years old with meaningful occupations, both from a practical and emotional perspective and to sustain both human capital and the value of unused or broken objects. To achieve this, the association organises intergenerational and integrative activities for job seekers over 50. Unruhestand aktiv focuses on fopur key activities: 1) organising the monthly Repair Café Village in a shopping mall, 2) offering the opportunity to repair devices for which professional repair services are not economical, 3) setting up the weekly 'Experten-Schaufenster' (expert display window) where experts over 50 can showcase their talents and skills for traditional firms and individuals, raising their probability of employment, and 4) facilitating the so-called 'Expert Playgrounds' that enable mutual learning among its target group, especially for social media usage (ICT literacy) and creativity.

Two characteristics set Unruhestand aktiv aside from other repair cafés. Firstly, it cooperates with a shopping centre, which provides the necessary infrastructure and security, as well as a low threshold access for visitors to repair their items. However, Unruhestand aktiv sees itself as a counterpoint to the regular focus of a shopping mall in providing upcycling services on its premises. Secondly, repair café aspects mix with WISE aspects in that Unruhestand aktiv aims to place people over 50 who have fallen out of the labour market in regular jobs again – or at least allow them to receive recognition and appreciation for putting their talents, work, and engagement at the service of nature.

In 2017, the association won the sustainability price (endowed) of the Austrian federal state Kärnten. A major success factor is the motivation of the founder, her extensive and heterogeneous network, as well as the close and sincere cooperation with the shopping mall. The association is financially self-sustained

[4] See https://www.unruhestandaktiv.at/, last accessed 07/09/2022.

through private donations, in-kind donations (the shopping mall 'ATRIO' offers premises for the repair café and prepares, pays, and distributes advertising flyers), and active fundraising by the volunteers.

Other interesting repair café initiatives include the Repair Café de Seyssinet in France which was an initiative of the social center *L'Arche* and the municipality of Seyssinet in May 2014. The initially small team has grown to around 30 expert volunteers and restructured into an association in 2016 (Repair Café de Seyssinet, 2022). Repair cafés in the UK and Ireland have special offers for repairers and visitors of repair cafés in that they receive a 15% discount on all orders from a certain spare parts web shop (Repair Café, 2021). Apart from many repair cafés that seem to have a flexible pop-up character, there are also some in a rather fixed setting: The repair café Hamburg-Altona is operated by a non-profit association with a voluntary board of directors. There is also a permanent team that consists of eleven employees, apart from freelancers, interns and volunteers (HausDrei, 2022).

3.4. Putting repair cafés in perspective

Two basic barriers work against the wider diffusion of such repair services: 1) highly taxed labour increases the prices for repair services, and 2) products that are designed to have a short life and thus low possibilities for repair or refurbishment. Public policies address both issues, the former via subsidies and the latter via regulation, which today is mainly intended to empower consumers.

Subsidies Subsidies in the area try to compensate for the high taxation of labour (compared to capital). High labour costs lead to limited labour as an input factor in the production of goods and services. This systematically disadvantages labour-intensive activities like repair services and consequently has detrimental effects on waste statistics. With the limited option of repair, consumption leads to growing amounts of discarded items, with waste of electrical and electronic equipment (WEEE) growing particularly fast (RREUSE, 2022). In order to respond to this, there are dedicated subsidies as financial incentives to make repair viable: One form is subsidising the input factor itself - labour - as it is done in work integration social enterprise (WISE) in repair. In a WISE, labour is subsidised because the WISE reintegrates people with difficult employment histories into the regular job market (Cooney et al., 2016; Kročil et al., 2019). Another form is subsidising the final service - repair - with a public funding scheme (e.g. a 'Repair voucher') (Lechner et al., 2021).

Regulation On the EU level, initiatives and legislation have already addressed aspects related to repair. Two Circular Economy Action Plans (CEAPs) set the scene since 2015, *Closing the loop* (COM (2015) 614 final), and since 2020 a new circular economy action plan, *For a cleaner and more competitive Europe* (COM (2020) 98 final). Furthermore, the Eco-design Directive addresses some circularity aspects of energy-related products. At the same time, instruments such as the EU Ecolabel (European Parliament, 2009) or the EU green public procurement (GPP) criteria (European Commission, 2022) build on voluntary approaches (see European Commission, 2020). There are efforts to establish a new 'right to repair' that aims at the availability of spare parts and potentially upgrading services (European Commission, 2020, p. 5). This empowers consumers by increasing access to reliable information on the repairability and longevity of goods, but also places the bulk of the responsibility on consumers, while for manufacturers

"*there is no comprehensive set of requirements to ensure that all products placed on the EU market become increasingly sustainable and stand the test of circularity*" (European Commission, 2020, p. 3).

Limitations of repair cafés

In addition, while repair cafés are thriving, there are limits and barriers to their contribution to sustainability transitions. For example, Moalem and Mosgaard (2021, p. 18) summarise that repair cafés "*do not appeal to everyone, visitors are often perceived to lack creativity or interest in learning, repair decisions are disrupted if arranging the repair costs too many efforts*".

Repair as a substitute for shopping? Repair alone does not guarantee environmental benefits. Only if repair displaces new product sales, it will also displace its production and thus related material and energy use. Moalem and Mosgaard (2021) observe that there are visitors who bring items to repair cafés to have them fixed, although they have already bought a replacement for them. They either intend to use the repaired item complementary to the newly bought one, or they donate it in case it can be repaired. This shows that repair is not necessarily a substitute for purchasing new products.

Repair and the energy efficiency of long-lived products. In the case of longer-lived products, there is the possibility that technology progresses, and more energy-efficient versions are developed. This might make it unclear at what point it is preferable to replace the old product (Cooper and Gutowski, 2017).

Competition in rural areas. Depending on the local context the repair café operates in, it might be perceived as competitor by local retailers[5]. In that case, barriers to establishing and maintaining a repair café in a particular area can be considerable.

Consumers' rights versus responsibilities. There is a tension around 1) the "*consumers' right to repair items*" by modifying goods and making them easily repairable, as well as free availability of spare parts and manuals (Bradley and Persson, 2022) and 2) the "*shift of responsibility to the consumers*" in making them responsible for the organisation of repair of broken items, and re-acquiring both repair skills and knowledge of how products are built and function (Meißner, 2021).

[5] This is a personal account from repair café organisers and volunteers.

4. Case 3: From Competing to Cooperating

4.1. Introduction to 'from competing to cooperating' as change logic

Adam Smith has focused on two forces to explain the dynamics in market economies: self-interest and competition. Market dynamics are considered to be driven by the 'self-interest' of individuals and regulated by 'competition' among them. However, the underlying understanding of rational human beings insufficiently takes account of the multifaceted nature of human motivations. The perceived need for competition propels firms to keep financial costs as low as possible and to ignore other kinds of costs incurred in making and distributing goods, including social costs and environmental harms. It also leads to a prioritisation of economic return to shareholders over social and environmental benefits (ie. Dahlman, 1979; Moor, 2015).

Already during the Industrial Revolution, cooperation between organisations and people was considered a counterweight to these failings of the capitalist system (Shaffer, 1999). By collectively owning and managing economic activity, the cooperative model often produces environmental and social benefits (Bauwens et al., 2020). Unlike capitalist corporations, cooperatives are owned by members rather than investors, returning their profits across their members pro-rata, rather than according to their shareholding (Bauwens et al., 2016). Cooperatives have been applauded for their ability to overcome social dilemmas through collective action (Ostrom, 2000), for example by surpassing Not-In-My-Back-Yard behaviour by accompanying local electricity generation with economic profits in relation to renewable energy production infrastructure (ie. Wagemans et al., 2019). Cooperatives are thus economic enterprises but are also considered as leading to economic democracy and as a means for broader economic and social development (Shaffer, 1999).

Importantly, cooperatives do not self-evidently reflect social values or contribute to social innovation. Regulation in many countries allows cooperatives to be considered as regular businesses, and thus primarily seek financial profit. Nevertheless, moving towards more cooperative forms of organisation has the potential of contributing to sustainability transitions, e.g. through introducing novel ways of decision-making, power sharing, and internalising environmental consequences. The cooperative organisational form has been replicated across different domains and context, such as agriculture, energy, or finance sectors.

While there are some earlier records of European cooperatives, the emergence of the modern cooperative movement emerged out of the Industrial Revolution. The first cooperative model has been described to be that of the Rochdale Pioneers (Lancashire, England, 1844), who developed a cooperative model to supply a local community of workers with higher quality food and provisions, and return the economic surplus to the community itself (Shaffer, 1999). Since then, the cooperative movement has grown, counting as much as 2.6 million cooperatives with over one billion memberships worldwide

(Roelants et al., 2014). Currently, more than 770,000 employees work in the top five of the largest cooperatives in the world (Bogoviz et al., 2022).

An overview of social innovation fields linked to the change logic

Moving towards more cooperative forms of organising can substantially contribute to sustainability transitions, e.g. through introducing novel ways of decision making, power sharing, and internalising environmental consequences. It has been taken up across different domains and contexts, such as agriculture, energy, or finance sectors.

Energy cooperatives Energy cooperatives provide a decentralised organisational alternative to the current centralised energy system. In an energy cooperative, citizens collectively own electricity generation, storage, and/or exchange technology at a local level (Bauwens et al., 2016).

Agricultural cooperatives Agricultural cooperatives allow farmers to pool resources, thereby allowing farmers to withstand market power by transnational corporations (Tortia et al., 2013).

Credit cooperatives Credit cooperatives facilitate financial intermediation, allowing members to place and receive investments according to certain ethical standards (Tischer, 2013).

4.2. Credit cooperatives - an introduction to the field

Credit cooperatives are democratic financial institutions that facilitate financial intermediation, led by ethical standards placing social and environmental goals at the heart of their activities (Tischer, 2013; Dumitru et al., 2015). Co-operative banks are considered to play an important role in stabilising the financial and economic system due to their anti-cyclical behaviour (EACB, 2022).

There are many different forms of credit cooperatives across European countries – in their name (e.g. credit union, cooperative bank, ethical bank, credit cooperative), their minimum capital requirements, their maturity, and their scale (Karafolas, 2016). Historically, credit cooperatives emerged in the line of ethical banking. Ethical banking started in the 19th century, influenced by the philosophy of Rudolf Steiner and his book *Towards Social Renewal: Rethinking the basis of society*. Many Western European countries have well-established credit cooperatives with long histories (Karafolas, 2016). In the UK, for example, socially responsible investments emerged in the 1920s with the Methodist Church. The field of ethical banking became well-known throughout Europe in the 1990s, following the emergence of various financial institutions around that time (i.e. Triodos Bank founded in 1980 and ASN Bank in 1960 in the Netherlands). These credit cooperatives often emerged out of a societal awareness around financial exclusion (e.g. Banca Popolare Etica arose out of a necessity to respond to the financing needs of fair-trade organizations). For countries in Eastern Europe, the European Union assisted the development of a cooperative banking sector (Karafolas, 2016). In the 1970s and 1980s, contacts between ethical banks and credit cooperatives were informal and weak. With the founding of the European Federation of Ethical and Alternative Banks (FEBEA) in 2001, this relationship became more structural and formalized (Dumitru et al., 2015).

Aspects of social innovation

Credit cooperatives aim to meet the needs of a social group or community. They are novel or alternative to the extent that they are ruled by principles of transparency, participation, and democracy (new way of thinking), governed in a cooperative fashion (new way of organizing) and provide banking and social impact assessments to a broader range of stakeholders (new way of doing). In doing so, they envision novel social (power) relations between consumers and financial institutions, creating more financial autonomy amongst consumers. Credit cooperatives demonstrate an alternative organisational model, where members, rather than shareholders, collectively share in the profits of the organisations and offer an alternative decision-making model with equal voting rights for its members.

Transformative nature of credit cooperatives as social innovation

Credit cooperatives can connect through formalized networks, such as the European Association of Co-operative Banks (EACB) or the FEBEA. EACB was founded in 1970 and represent about 2700 locally operating banks which serve 223 million customers (EACB, 2022). The EACB considers that "*Europe's cooperative banks represent 87 million members and 705.000 employees and have an average market share in Europe of about 20%"* (EACB, 2022). FEBEA is younger and in 2021, FEBEA comprised 33 European financial institutions based across 17 European countries and connected financial institutions with different legal forms: ethical banks and credit cooperatives, foundations, and investment companies. Responding to the recent demand of boosting new alternative ethical banks in Europe, mainly, in Eastern Europe (Croatia, Greece, Slovenia), FEBEA is expanding its membership (Dumitru et al., 2015). Joining such networks and federations allows access to social learning networks and collective political lobbying. Ethical banking has continued to develop and mainstream in the 2000s, where the financial crisis of 2008 has often been noted to be an important landmark in the mainstreaming of ethical banking (Tischer, 2013).

This field of credit cooperatives can be transformative to the extent that it challenges, alters and/or replaces the existing dominant institutions, including practices, narratives, and regulations. In particular, research studying communities beyond Europe has shown that cooperatives reduce income equality (ie. in Africa, Getnet and Anullo, 2012; Sebhatu, 2012) and increase rural development (ie. in China, Nan et al., 2018). While it is difficult to speak of a causal relationship between the cooperative movement and institutional change, Dumitru (2015) correlated the rise of credit cooperatives with an increased openness of the European Commission to discuss financial regulation (Dumitru et al., 2015). Tischer (2013) notes that citizen distrust of mainstream banks has provided an opportunity for ethical banks to push their agenda on sustainable finance (Dumitru et al., 2015). However, they note that credit cooperatives have had little effect on the dominant financial system (Tischer, 2013). Literature does not offer concrete estimations of its environmental and economic impacts, and overarching research into the impact of credit cooperatives remains largely inconclusive.

4.3. FIARE – an introduction to a social innovation initiative

The Foundation for Investment and Responsible Saving (FIARE) is a non-profit private credit cooperative founded in Spain in 2003. Currently, the credit cooperative has more than 46,000 members (or co-owners), from more than 350 diverse organisations (i.e. NGOs, cooperative federations, alternative and

solidarity Economy networks, trade unions, charities, and municipalities) (Dumitru et al., 2015). In 2021 alone, their more than 100,000 customers deposited 2300 million euros worth of savings, and they granted more than 13,000 client loans for projects around environmental and social sustainability (Fiare Banca Etica, 2022).

The goal of FIARE is "*to finance economic activities targeting a positive and transformative social impact and to provide responsible instruments for saving and investment*" (Fiare Banca Etica, 2022). In doing so, they are addressing the "right to credit" for excluded and/or discriminated target groups, to overcome structural discrimination that inhibits the development capability of certain sectors of the population. FIARE values transparency of their financial activity, and therefore has made all the information on sources and destinations of their financial activities available online. The organization is governed through a 'one person one vote' scheme, as they value the active engagement of their members (Dumitru et al., 2015).

In 2005, FIARE became an associate of the FEBEA. Then, in 2013, FIARE merged with the Italian credit cooperative "Banca Popolare Etica, creating "FIARE Banca Ética", making it the first credit cooperative with branches in two European countries (Dumitru et al., 2015). In 2014, FIARE obtained formal authorisation from the Spanish regulator (Bank of Spain) to operate as a bank. Currently, FIARE is the Spanish branch of Banca Etica. Taken together, Dumitru et al. (2015) demonstrate that FIARE addresses environmental sustainability and social needs by:

- **Sustainable funding**: FIARE is a credit cooperative that funds social-oriented projects. As such, their impact originates from their (social) sustainability lending activities.
- **Strengthening social capital**: FIARE enables a strong network of personal and organizational capital. The 2014 Social Economy Conference acknowledged the trajectory of FIARE as an example of cooperation and democracy.
- **Strengthening social learning**: FIARE facilitates learning projects, trainings, platforms, joining demonstrations and public actions, courses on responsible consumption or ethical finances across multiple stakeholders.
- **Raising awareness**: FIARE increases people's awareness about their financial activities and possible alternatives.

Other interesting credit cooperative initiatives include Crédal, a Belgian alternative financing cooperative founded in 1984, which similarly aims to promote a fairer society and to reinforce social cohesion. To achieve this, it offers savings products for social purposes and supports social projects through credit and counselling. In December 2015, Crédal had 2,673 partners (73% individuals). Crédal is one of the founder members of FEBEA (TRANSIT, 2022b). Another example of a credit cooperative similar to FIARE is Merkur Cooperative Bank. Merkur is a Danish values-based bank, created in 1982 in Hjørring. The bank is owned by over 5,500 cooperative shareholders and counts 26,000 clients. Its vision is to steer the transition towards a sustainable society. To facilitate this, Merkur has lending criteria that include environmental, social and ethical aspects in addition to financial considerations (TRANSIT, 2022c). Lastly, Banca popolare Etica is an Italian value-based credit cooperative, founded in 1999 by a large coalition of the major Italian social organisations. In 2014, Banca Etica merged with FIARE and began operation in Spain. Banca Etica has 38,000 members worth 46 million share capital (TRANSIT, 2022a).

4.4. Putting Credit Cooperatives in perspective

While credit cooperatives and the cooperative model have grown substantially over the past decades, there are limits and barriers to their contribution to sustainability transitions. This section places the cooperative movement into perspective by describing its most important limits, barriers, and unintended consequences.

Lack of expertise and time within cooperative members and management Cooperatives in general are often limited by a lack of knowledge and expertise of cooperative management, especially when they are managed on a voluntary basis (Herbes et al., 2017). The lack of knowledge within the management results in difficulty in financing the cooperative on the long term (Tarhan, 2015). Moreover, the lack of time and the volunteer basis of cooperative management can create difficulties in mobilizing its member base for decision-making. "*Many people are interested, but cannot find the time to actively participate*" (Wagemans et al., 2019, p. 6).

Risks of excluding marginalised members of the community Cooperatives are generally presented as a more fair or just alternative to centralised, corporate decision-making structures, e.g. they are often ruled by the 'one-person-one-vote' principle, where all members have equal say in the decision-making. However, such participation in decision-making requires a time investment that is not always available to the general population. In fact, regarding energy cooperatives, studies have shown that these are generally run by male retirees, who have the time and energy to run the organisation and do not need to provide an income (Wagemans et al., 2019). In the same context, Tarhan (2015) described that cooperatives risk widening social gaps within existing communities if they focus merely on the project outcomes, rather than taking its local social embeddedness into account by involving a pluralistic group of individuals to ensure participatory decision-making. Thus, a risk is that they prioritise the interest of their members over other stakeholders.

Research into the different national contexts has also shown, that laws and regulations limit the further expansion of cooperative banks, for example in Greece (Karafolas, 2005), but also norms and values related to cooperation, for example in Romania (Dumitru et al., 2015).

5. Case 4: From Globalising to Localising

5.1. Introduction to 'from globalising to localising' as change logic

The existing economic paradigm is closely linked to an ever-increasing connection between people, organisations, ideas, and things worldwide. This is evident in in global value chains – where a product is assembled in one location, its raw materials come from different sources, and it is shipped to markets worldwide. These global markets provide advantages, such as cheap labour, low prices, or a multiplication of sales markets. However, globalisation is also criticised for what economists term 'externalities': effects on those indirectly involved in economic transactions. Globalisation is criticised for its effects on the cost and value of labour, workers' rights, inequality, poverty, identity and sense of belonging among citizens. Notably, it is generally agreed that is has a negative impact on the environment, from greenhouse gas emissions to environmental damage of producing and trading goods, or the introduction of exotic species. For instance, global market producers tend to evade counter where stricter environmental regulations are installed. This results in a range of governance questions, including the extreme difficulty in monitoring and managing the social and environmental impacts of global value chains, which, by definition, span numerous jurisdictional boundaries. In an effort to keep jobs, countries can feel incentivized to take part in a race to the bottom in terms of environmental standards. In addition, increasing interdependence creates substantial vulnerabilities in terms of resource security.

Localisation seems to offer a direct response to these problems – focusing on the local, cutting out the middlemen so producers profit directly, and cutting short transport routes to reduce emissions. In relation to resilience, Longhurst et al. (2016) argue that *localisation,* the process of "*making something local in character or restricting it to a particular place*" (Oxford English Dictionary, 2022) might rebuild local resilience to meet future environmental and economic shocks (Longhurst et al., 2016). Facing a world where initiatives, places, and people are inherently interconnected across the globe, scholars prefer to use the term *translocalisation*, where processes of localisation are placed within globally interconnected formal and informal networks. Moving towards more local ways of organizing entails a move away from global and long value chains, towards interconnectedness across localities (Avelino et al., 2020; Balest et al., 2019) and being place-focused but globally connected (Loorbach et al., 2020, p. 252).

An overview of social innovation fields linked to the change logic

Such translocality as a possible future direction is present in various empirical phenomena, such as community-oriented agriculture, transition towns initiatives, urban agriculture, local currencies, and time banks. Such social innovations can contribute to sustainability transitions, e.g. through novel governance arrangements or organisational forms or discourses that foster local production and consumption patterns, whilst sharing discourses and practices with like-minded initiatives in other localities through formal and informal networks. These so-called *translocal networks* operate on shared discourses and practices, and act to "*exchange, translate and diffuse ideas, objects and activities*" (Loorbach et al., 2020).

Transition Towns movement The transition towns movement describes itself as "*A movement of communities coming together to reimagine and rebuild our world*" (Transition Network, 2022). It forms

one of the most influential localisation movements. It emerged in 2006 in the UK and spread quickly around the world. Currently, it is present in over 50 countries and involves thousands of towns, villages, cities, universities, and schools. Transition towns strive to build resilient communities, as a strategy to avert the paired problems of climate change and peak oil (Hopkins, 2008).

Community-supported agriculture Community-supported agriculture has been defined by Cone & Myhre (2000, p. 1) as "*Community-supported agriculture (CSA) seeks to create a direct relationship between farmers and those who eat their food—farm members or shareholders*." It emerged in the United States in the 1980s, inspired by the European concepts of biodynamic farming. Currently, there are multiple networks connecting community-supported agriculture initiatives across the world. This includes URGENCI, a European CSA network active in 32 countries, CSA Global which operates in over 130 countries, and the CSA innovation network, which is active across various states in the United States.

Local currencies Local currencies are currencies that can be exchanged within a specific geographical area to complement existing currencies. Local currencies emerged in the 1980s, and vary from Local Exchange Trading Schemes (UK), Time Dollars (US), Green Dollars (New Zealand, Australia and Canada), Trading Circles (Hungary), Barter Networks (Argentina), to Talents (Germany). They have been celebrated for their ability to decarbonise local economies (Seyfang and Longhurst, 2016).

5.2. Slow Food – an introduction to the field

Zooming in on Slow Food, the movement was started in Italy in the 1980s by a group of chefs protesting the opening of the first McDonald's in Rome in the Piazza di Spagna. These chefs started promoting traditional Italian restaurants, as an act of rebellion against the diffusion of standardised, low-cost food distributed by a centrally controlled corporation (Leitch, 2003). As such, Slow Food has been described as "*an act of rebellion against a civilisation based on the sterile concepts of productivity, quantity and mass consumption, destroying habits, traditions and ways of life, and ultimately the environment*" (Petrini in Hodgson and Toyka, 2007, p. 138) Since its inception in Rome, Slow Food has grown from a group of chefs celebrating traditional Italian food culture to a global grassroots organisation of 1,500 local manifestations across 160 countries, no longer solely focusing on their self-described "*right to pleasure*", but also topics such as biodiversity and sustainable and ethical food practices (Leitch, 2003).

Aspects of social innovation

Slow Food has been described as a "*culture movement*" (Dumitru et al., 2016). It is socially innovative to the extent that it presents a new way of thinking about food systems: rather than internationally sourced food systems where low-cost and accessibility are most important, it promotes local value chains and traditional knowledge. As such, it can be considered as social innovation to the extent that it presents a new way of thinking about food systems. However, while its early years mainly celebrated a new way of thinking, the movement gradually started to celebrate new ways of organising. The movement proposes

"*a consumption model where people are no longer consumers, but co-producers in a democratic society (in a similar meaning that political consumption approaches propose the term 'prosumer')*" (Dumitru et al., 2016, p. 8). Moreover, rather than following the norms of market competition, Slow Food celebrates sharing knowledge with its so-called competitors: "*I was delighted to explain everybody who asked for help*" (quote: Slow Food activist)" (Dumitru et al., 2016, p. 8).

Transformative nature of slow food as social innovation

The movement is spearheaded by the Slow Food International Association, a global, grassroots organization, based in Bra (Italy). The Slow Food International Association helps local initiatives to achieve cultural, environmental, and social goals built around the right to food, food sovereignty and biodiversity protection (Dumitru et al., 2016). Whereas at its inception it was created as a gastronomic counter movement against fast food, it gradually widened its aims to "*embrace quality of life, local and global sustainable development and biodiversity conversation*" (Irving and Ceriani, 2013). This shift in focus was met with the creation of the Slow Food Foundation for Biodiversity in 2003, and the creation of the Terra Madre network of food communities in 2004. This network has connected 5,000 small-scale producers from 130 countries in sharing ideas about the future of the food system (TRANSIT, 2022g).

Slow Food is transformative to the extent that it challenges, alters, and replaces existing societal discourses and ways of organising the food system. However, it is often difficult to distinguish between causation and correlation, and sources of its transformative impact are biased. For example, Slow Food activists consider their own transformative capacity as having "*the ability to influence, to change things gradually, through food education activities that change individual consumption decisions*" (Dumitru et al., 2016, p. 9). Similarly, the leaders of the Slow Food movement considered a positive change in societal discourses towards awareness of equality and biodiversity issues. More tangibly, they have been able to have international influence, by signing and influencing numerous agreements with governments across the world (i.e. Brazil, Colombia, Mexico, Chile, China, South Korea, etc), and offering counsel to the EU or the FAO (Dumitru et al., 2016). Indeed, Slow Food association has grown to be a relevant political player in international conversations about the future of the food system. They join international panels and debates such as the UN Permanent Forum on Indigenous Issues, the UN Conference on Sustainable Development Rio+20, and have received multiple prizes and acknowledgements in international media. Tangible environmental contributions of the Slow Food Movement are more difficult to find. One study showed that the movement had a positive environmental effect on sustainable tourism in Wales (Jung et al., 2014). Furthermore, a life cycle assessment commissioned by a company producing Slow Food animal products found slow food products to have a significantly lower carbon footprint than industrial farming products (Neri and Pulselli, 2018).

5.3. Slow Food Italy - an introduction to a social innovation initiative

Focusing on one specific initiative, Slow Food Italy was started in 1986 in the city of Bra and consists of a network of 617 local Slow Food chapters. The development of Slow Food Italy traces a similar path to the general Slow Food movement, having gradually grown from a single organisation focusing on gastronomy and traditional food to 617 local manifestations in 2022 focusing on sustainable development. It actively works on the nexus of nutrition, environmental protection, and food equality. For example, the convivia Alberobello, Italy, helped local Slow Food taverns to create a sustainable dish that represented the gastronomic traditions of the territory (Slow Food Alberobello, 2022). The tangible impact of the Slow Food Italy movement is difficult to trace, however, due to many convivia not being formalised and/or lacking documentation.

As outlined, Slow Food Italy is part of a larger network of Slow Food initiatives. For example, Slow Food USA, initiated in 2000, similarly aims to "*link the pleasures of the table with a commitment to protect the community, culture, knowledge and environment that make this pleasure possible*" (TRANSIT, 2022h). This initiative alone connects another 127 local groups and around 6,000 members. Another example of a national Slow Food initiative is Slow Food Araba-Vitoria, which was initiated in Spain in 2005. It has 300 members and organizes more than 70 events per year in collaboration with the province of Vitoria, Spain (TRANSIT, 2022f).

5.4. Putting 'Slow Food' in perspective

While slow food initiatives are thriving, there are limits and barriers to their contribution to sustainability transitions. This section places the Slow Food movement into perspective, by describing its most important limits, barriers, and unintended consequences.

Risks of the 'local trap' The Slow Food movement champions local and traditional food, and opposes low-cost, mass-produced food. In doing so, it is part of a wider discourse in which alternative food networks are championed for its capacity to 're-socialise' food (Sonnino, 2010), or stay within the planetary boundaries by linking with local farming practices, rural landscapes and resources (Renting et al., 2003). This line of research advocates the concept of 'community food security', which focuses on the importance of strengthening social cohesion by creating geographically closer links between part of the food chain (Feagan, 2007; Pothukuchi, 2004). However, an excessive celebration of locality has been contested by researchers who critique the assumption that local food systems unequivocally contribute to sustainable development (Born and Purcell, 2006). These authors argue that such a focus on the local environment creates the risk of falling into a 'local trap' by celebrating locality without evaluating the impact on social justice and environmental sustainability. Since there is no clear definition of what 'local food systems' entails, it also is not entirely clear whether the focus is on the where (i.e. locality) or the how (e.g. organic, conventional) (Milestad et al., 2020). Here it is important to note that most environmental effects occur on farm (Angervall et al., 2008 in Milestad et al., 2020).

Lack of addressing social justice It has been argued that local food systems are characterised by a lack of social justice and democratic values (Allen, 2008; Allen and Guthman, 2006; Guthman, 2008a, 2008b). They would be at risk of reproducing norms on low labour costs, reductions of public expenditures, and displacing governance responsibilities away from the nation-state towards private initiatives (e.g. Guthman, 2008a). An often-referenced example within this critique is farm-to-school initiatives, which have been designed to re-localize the school food chain in the US. They are described as a "*failure of localisation to deliver social justice and, more generally, provide a real alternative to neo-liberalism*" (Sonnino, 2010, p. 4) (see also Allen, 2008; Allen and Guthman, 2006). Similarly, Slow Food has been critiqued for its elitism, as described by Mintz (2006, p. 10): "*Slow Food is still reaching a limited number of people, most of them in the West, most of them educated people of some means".*

Negative impact on food security The Slow Food movement has been described as part of the 'land sharing' discourse, which asserts that food production and biodiversity conservation should take place on the same soil (i.e. Green et al., 2005). However, researchers have critiqued the potentially negative impact of the 'land sharing' strategy on food security. Food security refers to the stable supply of accessible, nutritional and culturally acceptable food (FAO, 2014). These authors argue that 'land sharing' is too locally organised and thereby fragmented to offer solutions for global food insecurity (but also climate change) problems.

6. Case 5: From maximising (private) profits to maximising common good and social value

6.1. Introduction to 'From maximising (private) profits to maximising common good and social value' as a change logic

The dominant socio-economic paradigm assumes that maximising private profits leads to a macro-economic optimum of value creation and wealth. The idea of trickle-down economics states that wealth gained thereof can then be distributed to support societal groups that are less wealthy (e.g. by taxation). This argument has been used for massive privatisation, particularly of the housing sector, and to restrict publicly financed housing, in particular social housing for deprived societal groups. Meanwhile, as a norm, most people tend to 'dream' and work towards individual housing, situated in 'green'. This leads to massive land use that is not available for ecosystem services. Urban sprawl and increased traffic are consequences of related attitudes and behaviour. Demand for individual housing inflates the real estate market by increasing prices of land, increasing private debts, and having detrimental impacts on the climate and environment. Adequate housing was recognized as a human right, as part of the right to an adequate standard of living (article 25 of the 1948 Universal Declaration of Human Rights and in Article 11.1 of the 1966 International Covenant on Economic, Social and Cultural Rights).

Market failure is considered a legitimate argument for intervention by the state. Among the possibilities to overcome the negative consequences of privatisation in sectors like housing and energy provision is supporting common goods to increase social value. This can be done by supporting cooperative models of planning, organising, building, financing, owning, cost sharing, shared use etc. Indeed, services like energy-supply, mobility, education, and health services are also considered services of public interest.

An overview of social innovation fields linked to the change logic

Energy communities, as described under case 4, provide an alternative to centralised and liberalised energy markets, by providing democratised structures for organising energy provision (Bauwens et al., 2016).

Community gardening as social innovations aim to foster community coherence and short value chains by producing crops and creating gardens on local land. Specifically, they are known to be spaces that exert ideas about a non-privatized 'right to the city' and common spaces for city residents (Mert-Cakal, 2017).

Collaborative housing poses a suitable alternative because it promotes multi-family housing and denser neighbourhoods. Collaborative housing is often considered more environmentally friendly as it occupies less land and exposes less facade to heat or cold. Concurrently, collaborative models have the distinctive goal of serving a particular community and impose sociocratic models for self-organisation and self-

determination. This leaves room for an increased focus on the environment and counteracts arguments that this is only possible with individual housing.

6.2. Collaborative housing – an introduction to the field

In the following section, the focus is on collaborative housing with the intent to shift from maximizing private profits to maximising the common good and social value through co-housing and subsequently collaborative housing projects. Especially in the Viennese examples, the historical context of how housing as a human right is provided and analysed.

In the post-WW2 period, the first co-housing projects date back to initiatives in Denmark and Sweden in the 1960s, which resulted from a critical awareness of cultural, social and political circumstances (Larsen, 2019). Germany, Denmark, and Sweden have a long tradition of co-housing in comparison to other European countries such as France and Belgium. In many European countries, more top-down approaches prevail in promoting inclusive societies and active citizens in housing. More recently, this has started to change, for instance with the Netherlands allowing participation and new forms of housing in a new 2015 housing law. France has also seen an increasing number of innovative housing projects in recent years involving residents in the design of their homes under high environmental standards. Belgium has also seen an increasing number of community housing projects (e.g. Habitat groupe) (Czischke, 2018).

The strong regulation of the European market with the focus on profit-oriented projects also led to alternative housing projects in other European countries such as Germany, England, or Austria with the desire to enable self-determined, non-profit, affordable, and social housing. Austria, and Vienna in particular, drew heavily on the experiences and practices of the 1920 settler movement (Eigner et al., 1999). Towards the end of the 20th century, more and more so-called collaborative housing projects were formed in the above-mentioned countries but also in other European cities as a counter flow to the prevailing profit-maximizing paradigm in the housing sector. The results were more citizen- and community-oriented housing projects that led to new governance relations, actors and social practices in the housing and construction sector.

According to Gruber et al. (2018), collaborative housing projects can be seen as "*housing projects that are (co-)initiated, (co-)planned and (co-)constructed by future residents*". They "*suggest alternative and radical approaches to financing affordable housing in the city and increasing the diversity in urban life*" (Gruber and Lang, 2018). Collaborative housing projects usually form initially without a formal basis and can therefore be developed and organized in different ways. Some are more bottom-up and organised sociocratically with a high degree of self-determination, while others can follow a more top-down approach with less self-determination due to an institutional framework pushed by property developers, architects or through city regulations (Gruber, 2021). Recently, and as a result of government and private interventions, collaborative housing projects can be both, for-profit or non-profit projects. These are formalised variably as associations, cooperatives (see case 3), rental projects with a developer, non-

profits, condominium ownership, and limited liability company (Temel et al., 2009). This choice influences the financing, funding, rental, and ownership of the building.

Collaborative housing projects offer an alternative to conventional housing (control, organisation, process) and new practices in the field of construction methods, resource use, mobility concepts, and foundational economics. Many people who form a collaborative housing project not only have the desire to build together as a community but also to live sustainably and innovatively. The focus is thus on the principle of the circular and shared economy, moving away from a short-lived life cycle (Gruber, 2021) – see case 2. From previously implemented and currently planned assembly projects, the following environmental aspects and effects can be observed as examples: energy-efficient construction technologies, the use of renewable energy sources, and emission-free mobility.

Through self-organized building and living in a community, new, integrative, and intergenerational forms of housing arise which can lead to new ways of living (e.g. elderly-care-service). The field of collaborative housing is new with a variety of actors who are increasingly open to innovation and experimentation. In Austria, collaborative housing projects arise from the desire and urge to actively change something in one's environment. New organizational and legal forms, alternative models of financing, an exploratory approach to new forms of construction and community, new cooperatives (WoGen), and syndicate models (habiTAT) have emerged (Ringswirth, 2018)[6].

Aspects of social innovation

Collaborative housing can be considered a social innovation to the extent that it addresses social inclusion, sustainable resource use, and participatory democracy:

- **Social inclusion**: In most collaborative housing projects social inclusion plays a decisive role: projects are often realised across generations or with the involvement of people with disabilities. The focus is on communal building and living with the involvement of all participants (intergenerational living) (Gruber, 2021).
- **Sustainable resource use**: Collaborative housing projects are often based on a sustainable building concept that aims at a resource-efficient construction. Through multi-story residential buildings and dense area construction with sustainable materials (e.g. wood), unnecessary consumption of resources is prevented. After the completion of construction, collaborative housing projects continue to distinguish themselves primarily through their shared use of

[6] Baugruppen, as conceptualised in Vienna, are based on the thoughts and principles of the settlers' movement from 1920. The pioneer bottom-up initiatives, Sargfabrik and B.R.O.T were carried out in the 1990s before their upswing came to a halt again (Haas, 2018). It is only since 2009/10 that collaborative housing projects have increasingly come back into the public eye and the interest of the City of Vienna and the federal government. By allocating plots of land via Wohnfonds_Wien to collaborative housing projects, the City of Vienna is able to allocate one third of the apartments built in such projects to its citizens (wohnfonds_wien - home, n.d.).

resources (e.g. communal kitchens, mobility concepts, water and energy consumption). (Hendrich, 2010). Following the ecological footprint innovative construction methods with new practices play a decisive role in collaborative housing projects (Ringswirth, 2018).

- **Promotion of participatory democracy:** Collaborative housing projects promote citizen-oriented and participatory construction and play an innovative role in urban development by implementing new housing concepts (Ringswirth, 2018) – see also case 6).

Transformative nature of collaborative housing as social innovation

This field of collaborative housing can be transformative to the extent that it challenges, alters, and/or complements the existing dominant institutions, practices, narratives, and regulations. Czischke (2018) concludes that the transformation of the housing sector through collaborative housing results from the following circumstances:

- through a paradigm shift in public participation in housing,
- concepts such as social innovation,
- community-led development and co-production are coming back to the forefront.

Collaborative housing projects which have often been labelled as niche phenomena do not presently replace existing structures in the building and living sector in Austria. The focus is usually on the pursuit of self-determination and community, and dissatisfaction with the current housing supply and sustainable lifestyles. They offer an alternative to the conventional housing supply and thus expand the availability of housing (Kläser, 2006). At the same time, maximising profits of individual members in collaborative housing at real estate markets can be avoided through contractual restraint on alienation.

Transformative social innovation results from the historical experiences, a policy mix adapted to the present day context, new organizational structures (e.g. sociocratically organised collective possession), new business models, social practices of living and building together, and new technologies (construction materials, renewable energy-based heating systems, planning tools etc.) (Giesecke et al., 2016).

From top-down planning to co-production: Collaborative housing projects leave room for different actors' initiatives and thus the opportunity to act as co-producers of the city (= bottom-up urban development)." (Stadtentwicklung Wien Magistratsabteilung 18, 2014)

Complementary instrument to actively pursue social housing policy: With the emergence of collaborative housing 'Baugruppen' in the last 25 years, which is characterised by self-organised living and building, the City of Vienna has adapted to become a complementary instrument to actively pursuing social housing policy.

Collaborative housing projects are still a marginal phenomenon: Despite a growing number of projects, collaborative housing projects remain a marginal phenomenon compared to the overall housing stock in the respective countries. Quantitatively, community and self-organized building and housing still play a minor role, but recent developments show an increasing interest among urban policy makers and the

population. Collaborative housing projects offer "i*nnovative solutions for the provision of new affordable housing*" and can thus be beneficial for both the individual and the respective neighbourhood. (Ringswirth, 2018)

6.3. Bike & Rails – an introduction to a social innovation initiative

Zooming in on Austria, in recent years, umbrella organizations that support communal and self-organised housing projects have become established. In 2014, the German Mietshäuser Syndikat, habiTAT[7] was founded, and in 2015 Wohnprojekte Genossenschaft (WoGen) was founded (Initiative GEMEINSAM Bauen & Wohnen, 2022a). In a period from 1995-2015, around 60 *collaborative housing projects* were implemented across Austria (Initiative GEMEINSAM Bauen & Wohnen, 2022b). Habitat is an association of house project initiatives in Austria and takes as a limited liability company a guardian organization, in which common property is permanently secured with a blocking minority and thus withdrawn from sale and speculation on the real estate market (Initiative GEMEINSAM Bauen & Wohnen, 2022b). Collaborative housing projects are consistent with the Smart City framework strategy of Vienna and can contribute to the achievement of the respective objectives. In fact, it is policy to enable citizen participation in building housing (Stadtentwicklung Wien Magistratsabteilung 18, 2014).

Bikes & Rails is a concrete case of a successfully implemented collaborative housing project in Vienna**.** Completed in 2020, the Bikes & Rails residential project is part of the *habiTAT* apartment buildings syndicated and organised as an association. The focus is on an ecological, social, economic, and sustainable living and working. The building was constructed of wood in a timber frame construction with photovoltaics on the roof, a concrete ceiling with a winter garden serves as storage, and two ventilation systems with heat recovery are used for ventilation. The building thus contributes to a reduction in the consumption of materials, energy, and heat. The shared roof terrace contributes to cooling the building through intensive greening. The dwellers agreed on climate-friendly mobility using bikes for daily trips and a car-free lifestyle. The focus is on bicycles as a socially just and climate-friendly urban form of mobility. The principle of sharing is in the foreground: common means of transportation, space, common laundry room, common food storage. On the first floor there is a bicycle self-help workshop which is intended to make bicycles accessible to the inhabitants. This is intended not only to reduce CO_2 emissions, but also to use resources sparingly and to maximise the common good (Bikes and Rails, 2022; Initiative GEMEINSAM Bauen & Wohnen, 2022b).

The mentioned collaborative housing project in Vienna is typical for projects in Austria. The expected environmental impacts mainly focus on sustainable construction methods (use of wood, photovoltaics, building greening), sustainable use of resources (biomass-heating networks, base renovation), mobility concepts (car-sharing, abandonment of cars using bicycles and home offices), and mixed-uses (as much

[7] See http://habitat.servus.at, last accessed 12/10/23.

as possible on site to reduce travel distances). Other core elements are the life cycle of products (building materials) and community services (common space, shared use of bicycles). Examples of similar collaborative housing initiatives include HafenCity (Dallmankai), Hamburg (DE) and Karise Permatopia, Seeland (DK).

6.4. Putting 'Collaborative Housing' into perspective

While collaborative housing initiatives are thriving, there are limits and barriers to their contribution to sustainability transitions:

Embodied and operational GHG emissions from new buildings Although multi-family buildings tend to be considered more environmentally friendly, critical factors are embodied and operational GHG emissions from new buildings which constitute up to 45% of GHG emissions over the lifetime of the building (Röck et al., 2020). That is, even in the case of less urban sprawl and denser infrastructure, new buildings, in general, will spend a large portion of the available carbon budget in order to keep global warming within Paris Agreement targets .

Members have a certain level of education and income In Austria, certain environmental requirements must be met in order for collaborative housing projects to obtain a plot of land for their project. It has become apparent that affordable housing and inclusion are not always given. Most members of a collaborative housing project have a certain level of education and income and form homogeneous rather than heterogeneous groups. In most cases, a project is ultimately calculated with higher costs that exclude the integration of some groups of people and thus is often reserved for the more wealthy, higher-income middle-class (Ringswirth, 2018).

Taking into account substantial transaction costs Social groups willing to invest time in sociocratic processes are taking into account substantial transaction costs. Even the risk of sunken transaction cost is real, when the people in such projects cannot overcome their differences in worldview, economic power, etc.

Class differences prevail Collaborative housing projects are accessible primarily to educated groups, and young families with financial means at hand. Although social housing can be integrated, class differences prevail.

Still not integrated into existing legal structures Although collaborative housing projects are gaining attention in Austria and particularly Vienna, there is not yet a separate housing subsidy for collaborative housing projects. They still have to integrate into existing legal structures (Ringswirth, 2018).

Regulatory differences hinder upscaling of solutions The regulatory context for collaborative housing (e.g. building laws and building codes) can be different in each city, region, country, so that upscaling of solutions can be hindered. E.g., in Germany, unlike in Austria, collaborative housing is already implemented in building law and is specifically promoted.

7. Case 6: From Marginalising to Empowering Stakeholders

7.1. Introduction to 'from marginalising to empowering stakeholders' as a change logic

Mainstream economic thought translates into prioritising shareholders – leading to a maximum surplus, which is then available to the shareholders, leaving redistribution as an ex-post activity and ignoring market deficiencies such external effects. It thus leaves out other stakeholders – be that the communities that companies are located within, trade unions, or city governments. Based on such critiques, the concepts of stakeholder capitalism has been developed, embedding the act of value creation in a broader web of actors (Institute for Innovation and Public Purpose, 2020). Following such paradigms, private organisations and public institutions engage more and in different ways with a variety of their stakeholders – e.g. involving users in innovation processes, or citizens in public decision-making.

In this regard, the principle of participatory decision-making, where decision-making power is decentralised, has recently been gaining more attention (Pateman, 2012). The principle of participatory decision-making is a basic element of participatory democracy, with origins in ancient Greece, and found today in a variety of approaches and forms, such as citizen conventions and assemblies (i.e. The Citizens Convention for Climate in France (2019) and the UK Climate assembly (2020)) (Curato, 2019; Grönlund et al., 2014; Smith and Setälä, 2018). Participatory democracy has been defined as "*grounded in an ideal in which people come together, based on the equal status and mutual respect, to discuss the political issues they face, and based on those discussions, decide on policies that will affect their lives*" (Bächtiger et al., 2018, p. 2). Participatory decision-making entails a shift of power from shareholders (as investors) to stakeholders (as citizens and affected parties). It has been put forward to counteract short-term perspectives in decision-making as well as rent-seeking by a limited number of individuals with far-reaching consequences for the wider public and the planet (Willis et al., 2022).

An overview of social innovation fields linked to the change logic

Participatory decision-making and citizen and user empowerment are evident in various empirical phenomena, such as science shops, learning networks, living labs, participatory budgeting, energy cooperatives, and others. What these have in common is that they harness the decentralised decision-making of its members (i.e. in an energy cooperative) or citizens (i.e. Climate Assembly France of 2019).

Science shops Science shops are organisations facilitating the cooperation between universities and civil society in terms of aligning research questions, topics, and agendas. Oftentimes, higher education students are working on this interface and with the questions of civil society organisations. This way, science shops are empowering civil society to shape research agendas and to gain access to the knowledge and networks of universities.

Climate Assemblies A citizen assembly is a group of citizens who have been randomly selected from the population to propose solutions to political problems, such as e.g. climate policy. The outputs are

recommendations which are put forth to the governance body that has put the assembly in place, e.g. a parliament or municipal council.

Living Lab Similar to Science Shops, Living Labs often involve universities or research institutes as well as societal stakeholders (such as users, local governments, citizens, businesses) into the process of addressing certain societal challenges by engaging in a process of open innovation.

7.2. Participatory budgeting – an introduction to the field

Participatory budgeting has been recognized as one of the most significant applications of participatory democracy (Cabannes, 2004). Participatory budgeting "*offers citizens at large an opportunity to learn about government operations and to deliberate, debate and influence the allocation of public resources*" (Shah, 2007, p. 1). Through participatory budgeting, citizens are empowered to allocate (parts of) a municipal budget through processes of democratic deliberation (Sintomer et al., 2008). In doing so, participatory budgeting aims to offer a more socially just alternative to budgeting schemes in which (marginalised) communities do not have a say. Its earliest manifestation emerged in the city of Porto Alegre, Brazil, in the 1980s. It has been described as a reaction to its previous twenty years of military dictatorship. Since its inception, participatory budgeting has spread across to globe and has become implemented in various ways in nearly 1500 municipalities and institutions worldwide (Röcke, 2014). More information on participatory budgeting in Porto Alegre specifically can be found in section 7.3.

Aspects of social innovation

Participatory budgeting can be considered social innovation to the extent that it challenges existing dominant ways of doing, thinking, and organising public budgeting. Firstly, participatory budgeting offers a new way of organising decision-making on public budgets: e.g. involving citizens to vote on budgets for various municipal (policy) domains (i.e. health, culture, education). Through the one-(wo)man-one-vote principle, every citizen has equal influence. Secondly, participatory budgeting offers a more radical perspective on social justice. For example, in the case of Porto Alegre, Brazil, funds are allocated throughout the city through a degreed-upon allocation formula, that make sure that districts with deficient infrastructure receive more funds than areas with a higher quality of life (Cipolla et al., 2015).

Transformative nature of participatory budgeting as social innovation

One of the networks active in bringing together initiatives in this field is the International Observatory of Participatory Democracy (IOPD) Network. The IOPD Network describes itself as a *"space open to all cities in the world and all associations, organizations and research centres interested in learning about, exchanging impressions and applying experiences of participatory democracy on a local scale with the aim of deepening the roots of democracy in municipal governments"* (OIDP, 2022). The IODP Network was created in 2001 with the aim of contributing to social cohesion by strengthening the participatory practices of local governments. In 2015, it was run cooperatively by 341 governments and 274 universities

and associations across 71 countries. The IODP Network aids municipalities in building knowledge around participatory democracy practices. The members of the community gather in annual conferences and award a Distinction of Best Practice for the best practices on participatory democracy (Wittmayer and Rach, 2016).

Participatory budgeting can be transformative to the extent that it challenges, alters, and/or replaces the existing dominant institutions, including practices, narratives, and regulations. Firstly, participatory budgeting is transformative in that it challenges and alters the role of citizens by empowering them to take on the role of budgeting and financial decision-making. This shift in roles and responsibilities enables citizens' consciousness of their democratic rights and consider themselves equals to civil servants and policy makers (Hofman, 2011). Moreover, it allows a space for debate and deliberation, in that citizens can meet and exchange ideas that might potentially clash (cf. Engbersen et al., 2010). Logically, by empowering citizens, participatory budgeting also alters the role of the government. Participatory budgeting has been described to add transparency in government finances and decrease corruption, as well as improving the quality of infrastructure and services (Hofman, 2011).

Participatory budgeting processes have had social, economic, and environmental effects. For example, participatory budgeting in Brazil led to an increase in investments in sanitation and health services, decreasing child mortality (Gonçalves, 2014). In Porto Alegre, participatory budgeting has led to an increase in public spending in the poorest areas of the city, reducing administrative costs, and improving citizen participation (World Bank, 2008). Investments in a water, paving and sewage-system has led to healthier environments for poorer neighbourhoods of the city (i.e. Marquetti et al., 2012). For example, in Porto Alegre, more than one million trees from more than 160 species were planted, 630 green parks and plazas and 1.3 million m^2 of public spaces were arborised through participatory budgeting (Calisto Friant, 2019). Moreover, participatory budgeting has been found to have a significant effect on reducing child mortality and on increasing life expectancy. As such, the human development index of Porto Alegre rose from 0.660 pre-participatory budgeting, to 0.744 post-participatory budgeting (Calisto Friant, 2019).

7.3. Participatory budgeting in Porto Alegre - introducing a social innovation initiative

The city of Porto Alegre (Brazil) offers one of the most notable examples of participatory budgeting. Participatory budgeting emerged in Porto Alegre in the 1980s in a post-dictatorial period. The mayor at the time-integrated participatory budgeting into its left-wing policy plans because "*there was an expectation for social and political changes*" (TRANSIT, 2022e). Remarkably, the city of 1.5 million inhabitants is still run on a participatory budget. In practice, this means citizens get together to discuss budgets and future plans. Anyone can speak at the neighbourhood gatherings, which then elect city representatives who make a final decision on the next year's budget. This has led to an overall increase in the welfare of inhabitants: the percentage of people with access to sewers has risen from 46 to 95, five times as many roads were built in favelas and tax evasion dropped (Kingsley, 2012).

The participatory budgeting in Porto Alegro soon gained international attention, leading to the spread of this new way of budgeting across the globe (Su, 2017). As such, the cities of Fortaleza (Brazil), Belo

Horizonte (Brazil) and the Indische Buurt, a neighbourhood in Amsterdam (the Netherlands) have all been operating different schemes of participatory budgets. In Amsterdam, participatory budgeting emerged in 2011, after a reversed development exchange program with an NGO in Brazil. This exchange led active citizens and social workers to start the Centre for Budget Monitoring and Citizen Participation (CBB) in the Indische Buurt, a neighbourhood in Amsterdam. The CBB has been operating since 2012, yearly monitoring the budget of the neighbourhood through citizen co-production sessions. In 2013, the neighbourhood budget web application was launched, allowing citizens to track the spending of public money. In 2015, a resolution was accepted by the city of Amsterdam, stating that part of the 2017 budget was to be managed by citizens (TRANSIT, 2022d).

7.4. Putting 'Participatory Budgeting' in perspective

While participatory budgeting initiatives are thriving, there are limits and barriers to their contribution to sustainability transitions.

Inclusivity Participatory budgeting would be a more inclusive way of decision-making, as it allows citizens, who would otherwise be excluded from direct decision-making on public budgets. However, such inclusivity is not guaranteed. In Peru, for example, women were significantly less involved in participatory budget than men. This was attributed to economic barriers and cultural expectations of gender roles (McNulty, 2015). Several researchers therefore suggest a participatory plan that fits in the local context, and invites inclusive decision-making (i.e. Rossmann and Shanahan, 2012).

Low participation The success of participatory budgeting depends on the participation of citizens, who must take the time and effort to partake in democratic decision-making. This is not a given. In some instances, citizens are not motivated to join decision-making processes. For example, German participatory budgeting schemes have struggled to involve citizens to invest time in the initiative: one local participatory budgeting initiative only found 21 participants out of a municipality of 70,000 people, because participants were not interested in the topics on the budgeting agenda (Gerlit et al., 2017).

Actual available budget There is a wide variety in terms of budget available for publics to control – from the complete city household to a yearly 'token' sum for specific neighbourhood activities. Finally, with a focus on empowering citizens, the effect on and relation with environmental sustainability is not always clear cut.

8. Discussion and conclusion

In this report we addressed the question "*How can we better understand the potential and role of transformative social innovations in sustainability transitions, and what are the implications for governance, finance, and impact measurement?*" by exploring six cases of transformative social innovation. Grounded in six overlapping change logics, each case study provided insights into the landscape of social innovations, shedding light on both its potential and inherent challenges in the fields of car sharing, repair cafes, slow food, collective housing, credit cooperatives, and participatory budgeting.

Across our case analyses we highlight five key insights regarding 1) cultivating social innovation ecosystems; 2) measuring impacts; 3) developing resourcing and finance mechanisms; 4) navigating mainstreaming and co-optation dynamics; and 5) understanding that social innovation has potential, but is not a panacea.

8.1 Cultivating social innovation ecosystems

The importance of social innovation ecosystems emerges as a key insight, which can be seen across all cases. The metaphor of an ecosystem can help to demonstrate how social innovations are co-shaped by societal actors in government, business, civil society and academia, as opposed to merely focussing on 'innovation heroes' (Howaldt et al., 2017; Kaletka and Schröder, 2017, p. 201; Kaletka et al., 2016; Vernay and Sebi, 2020). Kaletka et al. (2016) propose to understand social innovation ecosystems in four dependent and overlapping layers. The first layer is roles, which includes capacities, attitudes, motivations and skills of stakeholders and target groups (e.g. technical know-how on energy systems, the value chain of food, etc). The second layer is functions, which relates to existing business models, governance models and management procedures (e.g. whether social innovation is run by volunteers, franchised, etc.). The third layer concerns structures, meaning the existing design and reality of institutions, technology, the economy, and politics (e.g. institutions providing a platform for social innovation, subsidies, etc.). The fourth and final layer concerns norms, or formal and informal societal standards (e.g. ideas about gender, class, or how services or products 'ought' to be delivered or made). Using this ecosystem view to understand driving or impeding factors for social innovation can provide insight in how different layers might be influenced through governance.

As a case in point, the emergence of Baugruppen collaborative housing projects in Vienna (case 5) was due to a confluence of ideas and skills (roles), space (functions), funding and policy (institutions) and changing standards regarding preferred ways of living (norms). These layers enabled bottom-up initiatives such as Bike & Rails to grow and raise interest in collaborative housing projects from the City of Vienna, the federal government and the Wohnfonds Wien, which eventually allocated land for collective housing. Similarly, the emergence and diffusion of the Slow Food movement (case 4) did not occur in a vacuum, and has been heavily reliant on an enabling ecosystem, including knowledge on food and value chains

(roles), a translocally networked organising model (functions), a platform provided by governments including Brazil, Colombia, China, as well as the European Union (structures), and coincided with changing views on the desirability of fast food value chains (norms). After acknowledging that the success of social innovation is dependent on many factors beyond merely the initiators (such as the founders of Bikes & Rails or those who protested McDonald's in Rome), it becomes clear that social innovation can only become transformative to the extent that it is enabled by a wider ecosystem. This embedded nature carries implications for how governance can support social innovation, namely by creating an enabling environment through leveraging roles, functions, institutions and norms.

8.2 Measuring impact

While this report demonstrates the potential of social innovation to be transformative, empirical evidence on actual social or environmental impacts is fragmented. Often, impact pathways are examined conceptually or statistically, as illustrated in this report by the effect of car sharing on reduced car ownership (case 1). However, the holistic environmental impacts of reduced car ownership are not quantified in the literature. Instead, the focus is mostly limited to CO_2 emissions, while other environmental and economic effects such as reduced resource consumption and reduced demand or production are under-researched. The same lack of evidence holds true for repair cafés (case 2) and credit cooperatives (case 3). This lack of impact assessments or the limitation to CO_2 emissions is problematic: possible impact pathways discussed in the literature show that impacts may cut both ways. For example, shared micromobility might reduce walking, and hence – at least partially – causes negative environmental impact. This example show that it is important to recognise the need for a clear and holistic picture of the impacts of social innovations, which shows the limits and trade-offs in their contribution to sustainability transitions.

TSI impact assessment faces many challenges similar to impact assessments of R&I programs, policy instruments, and technological innovations. Therefore, there are many impact assessment approaches to build upon, such as the Input-Output-Outcome-Impact model from evaluation research or previous work on societal or social impacts of innovations or innovation policies (Bührer et al., 2022). Also, Böschen et al. (2022) point to the transferability of certain aspects of technology assessment. Some of these approaches have already been advocated and in the context of (T)SI – if only sporadically so – for example in the 'Social impact navigator' by PHINEO. In addition, knowledge on impacts of SI can draw on different strands of SI indicators research (Terstriep et al., 2022). Finding appropriate measures for impacts is a tricky task. For example, there is a need to reinterpret established performance indicators such as economic growth: some TSI may challenge mainstream indicators of wellbeing, notably economic growth, and instead promote degrowth or alternative indicators of wellbeing.

While it can be useful to build on this existing body of impact assessment knowledge, there are also challenges specific to the impact assessment of SI, especially TSI, which raise methodological issues of impact assessment on their own. This is because some impact dimensions that are constitutive for TSI (as

opposed to social innovations in general and as opposed to technical innovations) have not been sufficiently studied and understood in regular impact assessments. These include for example:

- changes in discourses, cultures and values;
- changes in power relations and structures;
- the role of social movements;
- the role of discursive resonance in the social innovation ecosystem.

On a qualitative level, changes in power structures and framework conditions are already reported. For example, the cases on car-sharing (case 1) and collaborative housing (case 5) both discuss (the lack of) changes in regulatory environment, that may accommodate or limit TSI. However, so far this remains rather anecdotal evidence, which is not systematically researched. New approaches – intervention logics, suitable indicators, and monitoring concepts – must be developed to better cover these impact dimensions.

8.3 Developing resourcing and finance mechanisms

Social innovations build on a host of innovative sources of financing. Overall, resourcing strategies are a major challenge for social innovations, both in the phase of emergence and diffusion. Empirical studies stress that social innovation initiatives overall need different *kinds* of resources. Below, and based on the case studies in this report, we highlight three.

The first resource concerns individual resources and capabilities like knowledge, engagement, creativity, and commitment. These are crucial resources, particularly on the level of social innovation initiatives. At the outset these are often local initiatives at a grassroot level that heavily rely on individuals and local networks. They are often driven by these individuals' knowledge of a particular (g/local) need, their in-kind contributions in the form of (spare) time, physical goods, enthusiasm and dedication, and the institutional work in their surroundings. This is demonstrated by repair cafés, (case 2) which, although part of a global network, still rely on individual resources in their local set-up. The same is true for local sharing initiatives: not only car and ride sharing, but also Libraries of Things or DIY initiatives (case 1).

The second resource concerns organisational resources, such as governance models. Social innovation initiatives question dominant economic rationales and what is considered a 'business model': instead, they try to mobilise society's capabilities while providing alternatives for environmentally harmful production and consumption patterns. For instance, social innovations in the sharing economy grant access to physical goods[8] that are otherwise under-utilised ('idle capacity') (Belk, 2014; Henry et al., 2021). Access-based models comprise product-service systems that see demand often better satisfied through

[8] Sharing of other assets such as skills and time are seen as part of the 'gig' economy (Henry et al., 2021).

the consumption of *services* instead of *goods* ('rent, not own') like cars, skis, machines, books, etc. In relation, the cooperative model can be a way forward and allow for changing patterns of production and consumption, as cooperatives have the potential to collectively own and manage economic activity (Bauwens et al., 2020). In the cooperative model, actors are that are otherwise separated in the supply chain, such as buyers and producers, effectively merge into one organisation, which often (but not necessarily) follows democratic principles, as seen in case 5. Another example of shifting organisational boundaries between production and consumption relates to the prosumption model, where consumers are at the same time producers, as is the case in the area of repair cafes (Dusi, 2017; Toffler, 1980). This results, on the one hand, in an amalgamation of otherwise separate market actors, and on the other hand in the empowerment of consumers. As such, prosumption entails a more local way of organizing, and shift away from global and long value chains.

A third resource concerns finance, where financial mechanisms can be social innovations themselves (e.g. crowdfunding, microcredits, WISE schemes), or long-established instruments used to enable social innovation (e.g. donations, memberships, philanthropy). Credit cooperatives (case 4) demonstrate an alternative organisational model, where members, rather than shareholders, collectively share an organisation's profits, and they offer an alternative decision-making model with equal voting rights for members. Public financing schemes may not necessarily use the term 'social innovation' but do seem prone to promoting these initiatives. An example of this is the labour market support scheme of work integration social companies (WISEs). Many WISEs operate in areas of the circular economy, e.g. repair firms which may or may not have repair cafes related to them (see case 2). Other public financing schemes are similar to public support of start-up or financing business innovation and support certain types of social innovation in particular life cycle phases. In contrast, in private financing, the source of finance includes private disposable income (=out of pocket money) used for (venture) philanthropy, or bank loans, and an initiatives' own resources.

Various authors stress that financing resources becomes more important over the lifetime and diffusion processes of a social innovation (Weaver and Marks, 2017; Deiglmeier and Greco, 2018). This implicitly means that in the emergence phase, as an aggregate pattern, social innovations may unfold based on non-financial or in-kind resources. Especially in the phase of emergence, individual engagement by local actors can be paramount. In later phases, the aim of being financially sustainable and hence having a financial strategy to cover costs incurred by the initiative appears to become more important. Weaver and Marks (2017) and Deiglmeier and Greco (2018) identify inadequate funding as a major barrier for social innovations moving from the pilot and prototype phase to diffusion and scaling. While growing social innovations must cover increasing organisational costs, infrastructure requirements, professional personnel, and more, these crucial activities often do not produce immediate results. Hence, Deiglmeier and Greco (idem) speak of the 'valley of death', which is even more pronounced for social innovations than for startups and innovation projects in general (from where the term originates).

8.4 Navigating mainstreaming and co-optation dynamics

Whether a social innovation can be transformative is dependent on how it interacts with dominant institutions and structures. On the one hand, a social innovation needs to reproduce these in order to build its ecosystem, while on the other hand, it needs to sufficiently challenge, alter, or replace them in order to have a transformative impact. For instance, for an energy cooperative to become acknowledged, it must interact with existing centralised decision-making structures to become legally recognized through EU Energy directives, whereas based on its founding principles (e.g. sociocracy) it might fundamentally challenge that way of decision-making. Similarly, credit cooperatives (case 3), must comply with conventional banking regulations in order to enter the market, while trying to develop financial instruments that have social and/or environmental impact. This tension indicates that processes of institutionalisation, or, mainstreaming are crucial. Mainstreaming can be understood as the process through which social innovations develop from a niche towards becoming part of new or existing institutions in order to influence culture, structure, and practices.

Mainstreaming can be clearly seen in the case of collaborative housing in Vienna (case 5). While initial experiments took place in the 1990s, this form of planning started gaining the interest of the City of Vienna and the federal government in the 2010s. While not replacing dominant institutions, its transformative impact can be observed in how it challenged and altered institutions in two ways. First, it induced a shift from top-down planning to co-production: collaborative housing projects allow room for different actors' initiatives and thus the opportunity to act as co-producers of the city (i.e. bottom-up urban development). Second, the City of Vienna has included collaborative housing as a complementary instrument to pursue social housing policy.

A well-known phenomenon in the processes of mainstreaming constitutes ‘capture’ or ‘co-optation’ (Pel, 2016). Co-optation refers to the transformative potential of social innovations being neutralised. As part of these co-optation dynamics, social innovation may be at risk of instrumentalisation, projectification, or commercialisation. Instrumentalisation implies that the adaptation of social innovation merely serves a set of narrowly defined policy objectives, through which it loses its broader transformative potential. For instance, institutionalised collaborative housing (case 5) may inadvertently sideline certain crucial aspects, such as community cohesion or sharing facilities. Meanwhile, collaborating with government and policy makers can also have its advantages, as it can increase the reach and scale of an initiative, as demonstrated by the many government collaborations of the Slow food movement (case 4). Projectification refers to how social innovation may be reduced to mere (policy) projects or experiments, potentially compromising their broader transformative goals (Torrens and von Wirth, 2021). In the case of participatory budgeting (case 6), this may mean that only small-scale, contained participatory budget experiments are set up, rather than participatory budgeting actually challenging, altering or replacing the way how budgets are decided on democratically. Finally, transformative ambitions may further be compromised by 'mission drift' or commercialisation, where social enterprises, initially driven by a social mission, shift towards market logic, prioritising profit and economic transactions over social impact.

Arguably, a poignant example of this may be MyWheels, which has been critiqued for nowadays functioning as a regular car rental company, indeed raising concerns of commercialisation, or, 'mission drift'. Another example of this concerns the Couchsurfing concept (case 1). This online platform where people can offer 'a couch' as accommodation for travelers for free, was modified and 'captured' into a business model by Airbnb, which in essence today makes Airbnb the biggest centralised global hotelkeeper. Overall, co-optation dynamics such as instrumentalization, projectification or commercialisation indicate that while a transformative ambition might be present, not all social innovations will be able to realise them.

8.5 Understanding the limits of social innovation

Finally, in the complex landscape of socio-economic challenges, it is important to recognize that, similar to business innovation, social innovation does not offer a one-size-fits-all remedy to sustainability and justice issues, and comes with its own pitfalls: it is by no means a panacea. It is increasingly acknowledged that social innovation practice is connected to uncertainties, trade-offs and unintended consequences (Westley and McGowan, 2017; Wittmayer et al., 2020). Social innovations yield outcomes that are not unequivocally positive (i.e. while it may have an intended positive outcome, it may also have one or more unintended negative outcomes) (Cajaiba-Santana, 2014).

The cooperative model and community-based initiatives, which are explained in case 4 of this report, demonstrate the potentially dual nature of social innovations. While facilitating the inclusion of new actor groups in producing and consuming energy, energy cooperatives for instance can concurrently perpetuate exclusion through their membership based on factors such as status, wealth, network, gender, age, or 'energy literacy' (Fraune, 2015; Łapniewska, 2019; Wierling et al., 2020; Lindberg et al., 2015). Credit unions aiming to empower citizens through self-organisation may similarly reflect disparities in access to resources, such as expertise and time, which may lead to unequal access to this service. Another drawback of social innovation may concern the rebound effect – in the case of repair cafés (case 2), the money saved on new appliances might enable consumers to resort to buying *more* energy-consuming products. The issue of responsibilisation and overburdening may also be an unintended negative outcome, where social innovations aimed at empowering citizens through self-organization may actually lead to overburdening of citizens due to a discrepancy in access to resources (e.g. home ownership, time, capacities etc) (Lennon et al., 2020). Finally, hidden systemic repercussions may apply, such as the conditions under which raw materials used for certain products are mined (e.g. the cars that are shared in case 1). Another example could be how car sharing services reproduce individual transport modalities, which may undermine efforts to scale up public transport infrastructures.

These considerations underscore the need for a balanced and constructive approach to social innovation—a middle ground that steers clear of both naive optimism and paralyzing critique. As emphasized by Pel et al. (2023), cultivating such a perspective is essential for navigating the intricate

terrain of social innovation, acknowledging its potential while remaining attuned to its limitations and potential unintended consequences.

8.6 Concluding thoughts

This report started from the assertion that there are fundamental failings in current production-consumption systems, related to destructiveness, wastefulness, short-sightedness and exploitation amongst others, which require a deep reshaping of the underlying socio-economic paradigm towards just and sustainable systems. Framing social innovations as supporting changes in these logics, we highlighted case studies related to 1) From Owning to Accessing; 2) From Linear to Circular; 3) From Competing to Cooperating; 4) From Globalising to Localising' 5) From Maximising (Private) Profits to Maximising Common Good and Social Value; and 6) From Marginalising to Empowering Stakeholders.

The case studies demonstrated the diversity of social innovations in terms of geography, actors involved and topics that are addressed. While dominant institutions and logics can indeed be seen to be challenged by these social innovations, examples of fundamentally altered or replaced institutions are still few and far in between. Importantly, it should be noted that processes of mainstreaming are a matter of decades rather than years, reminding us that the time horizon for institutional transformation goes beyond the cases studied in this report (Miörner et al., 2021). Moreover, rather than scaling up in an idealized or perfection guise, transformative social innovation inserts itself onto an existing reality of historically formed structures and norms that together shape our systems. As such, the 'old' and the 'new' together form a new normal, which can be difficult to discern in real-time.

Overall, this report shows that policy makers, practitioners, researchers and citizens, ought to use an ecosystem perspective to understand how to enable and foster the emergence and diffusion of social innovations. Innovative financing instruments as well as new ways to study the (unintended) impact of social innovations are imperative in this regard. For social innovations to become transformative, and contribute toward just and sustainable systems, all actors involved in its governance will need to create the capacities to critically, yet constructively, discuss the value, impact, conditions and larger, systemic implications of social innovation.

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Annex 1: Methodology

During a workshop in June 2022, the EEA-ETC-team met to discuss a long list of TSI initiatives developed by the ETC-team. A selection of initiatives that were considered especially relevant for this piece of EEA work were discussed – focusing on the reasoning for their relevance, as to arrive at criteria that would allow a selection of a short list of examples.

During the meeting, it was agreed to focus on the changes in logics of the broader economic paradigm that TSIs contribute to. Based on these meeting discussions, a screening of a long list of examples, and review comments, the following change logics were consolidated: 1) From Owning to Accessing; 2) From Linear to Circular; 3) From Competing to Cooperating; 4) From Globalising to Localising; 5) From Maximising (Private) Profits to Maximising Common Good and Social Value; and 6) From marginalising to empowering stakeholders. For each of these change logics, specific social innovations could be identified. Since there was an interested in those social innovations that already gained some traction (i.e. being more widespread than only occurring in limited localities), an 'embedded case studies' approach was taken. That is focussing on fields ('bundles') of social innovations (e.g. Slow Food Movement), and in second instance specific empirical instances thereof, referred to in this report as TSI initiatives (e.g. Slow Food UK). The chosen cases are promising cases of TSI, which serve to illustrate and provide evidence, and clarify what TSI is and why it matters.

The fields were selected based on a list of inclusion criteria:

- It is about social innovation (i.e. new practices/social relations).
- It contributes to environmental sustainability next to addressing a social need.
- The field connects different specific instances of social innovation (i.e. specific initiatives); this connection can be explicit or implicit (i.e. initiatives can be connected via a formal network; or by implementing the same idea; by forming part of a broader movement/discourse).

In selecting the fields, the aim was to warrant a diverse overall sample, covering different domains (e.g. mobility, food, shelter, energy, etc.) and different actors driving the social innovation.

The sample of specific initiatives within each field aimed to cover:

- Different geographical contexts;
- Different time horizons;
- Well-established cases (to demonstrate replication, impact, effectiveness);
- Well researched cases (to conduct a literature review).

Using this selection process and approach, the team settled on six cases of TSI (see Table 1.1).

Research methods and case study template

The research was conducted through a literature review of existing case study reports, database entries, grey and academic literature. This data was used to outline the cases following a collectively agreed upon template, which had been created in a co-creative, iterative manner. A first version of the template was created and tested through the creation of a single case study. Afterward, the team provided feedback on the template, after modifications were made accordingly.