

Chapter 3

Types of Innovation for Sustainability: The Role of Social Innovations



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Abstract After a brief introduction of the seven types of sustainable innovations (SI) identified in the CASI project, this chapter zooms in on the role of social innovations for sustainability. Building on examples from CASI and beyond, we conclude that social innovations can be important for the transition towards sustainability from two angles. Firstly, social innovations aim at altering social practices. As such, many sustainable social innovation initiatives persuade individuals to change their (consumption) practices. Secondly, social innovation can also concern novel ways of working and collaborating. In this role, socially innovative initiatives can contribute to the transition towards sustainability by introducing new methods of co-creation and consensus-based innovation, as well as of planning and policymaking that lead to more sustainable product, practices and services.

3.1 Introduction

The transition towards sustainability represents a complex challenge. It is clear that, in order to keep global warming within the 1.5, or even 2, degrees Celsius, a myriad of production and consumption practices must change. The Headline Statement issued by the Intergovernmental Panel on Climate Change (IPCC) in their special report on ‘the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways’ summarizes the required action as ‘Limiting the risks from global warming of 1.5 °C in the context of sustainable development and poverty eradication implies system transitions that can be enabled by an increase of adaptation and mitigation investments, policy instruments, the acceleration of technological innovation and behaviour changes’ (IPCC 2018).

There are two important elements in this claim that deserve attention. The first is that the transition requires systemic change. This means, innovativeness is required

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throughout the entire system, and is therefore not restricted to technological change only. Systemic change also requires new practices of consumption and collaboration. The second important aspect touched upon relates to types of action that are identified. The IPCC stresses a need for investments in adaptation and mitigation (i.e. targeting economic decision-making), policy instruments (i.e. calling for political interventions and strong policies), the acceleration of technological innovation (i.e. product and production innovations) and behavioural change (i.e. innovations in consumption practices).

In a study of sustainability innovations, as undertaken in the EU funded CASI project,¹ it was necessary not to restrict the analysis to technological innovations alone. The CASI project identified seven different types of innovations that are all required for, and can contribute to, the transition to sustainability.

After a brief introduction of all seven types of sustainable innovation (Sect. 3.2), this chapter focuses specifically on social innovations (Sect. 3.3). Social innovations primarily target innovative social practices, i.e. novel social practices (behaviours) and their intentional change. Although the topic of social innovation is booming (both in academia and politics), when talking about sustainable innovations, one tends to primarily think of technological innovations such as the electric cars or renewable energy. However, practice change is, as we will argue more extensively below, of imminent importance as well. Willett et al. (2019), for instance, have recently argued that in order to ensure a sustainable future, people's food consumption practices have to be drastically altered. Although these authors are more concerned about the technical feasibility of feeding a growing world population with a sustainable and healthy diet, it is clear that the potential success—i.e. widespread implementation—of this diet is solely dependent on people's willingness to change their eating habits. This example illustrates the necessity of systemic change, as innovativeness is required across the entire chain from production to consumption. It also illustrates that solving the technical challenges is insufficient. People's behaviour and practices have to change as well. Social change and social innovation, therefore, play a key role in the transition to sustainability.

Building on examples of sustainable social innovations from the CASI project and beyond, in this chapter, we argue that there is a dual role of social innovations that should be considered in addressing sustainability challenges. The first, and arguably most straightforward, relates to the needs to change production and consumption patterns. The second role of social innovations in sustainability transitions relates to novel forms of collaboration, or 'multi-stakeholder governance'. As it is becoming more and more commonly accepted in governance practice and literature, sustainability and climate change adaptation/mitigation governance requires the inclusion of a broad variety of stakeholders in order to find broadly supported and accepted solutions to complex challenges. This, as such, is a novel social practice, but it also asks for novel approaches to steer these multi-stakeholder engagement processes. Both roles of social innovations for sustainability will be addressed in this chapter.

¹Grant agreement number 612113.

3.2 Seven Types of Innovation

For several decades, innovation has been equated with technological change and the economic benefits resulting from these technological innovations. In recent years, however, a broader appreciation of the concept of innovation has emerged. Innovation scholars such as Godin (2015) have traced back the history of the concept of innovation and show that early understandings of the concept had a social rather than a technological connotation; and that it actually had negative associations. One of the founding fathers of modern innovation research, Joseph Schumpeter, also had a broader understanding of the term, as is being pointed out regularly by modern innovation scholars (e.g. Godin 2015; Howaldt and Schwarz 2019). Even though Schumpeter's approach was almost purely economical, Howaldt and Schwarz (2019) challenged him (alongside Georg Simmel, Max Weber and Gabriel Tarde) for not working out the concept of social innovation any further.

The EU 7th Framework Programme's project—CASI—developed its own definition of sustainable innovation. It included seven types of innovations, which have been identified for the purpose of a comprehensive mapping exercise, the results of which confirmed that the transition to sustainability does not only require technological change, but also social, organizational and governance innovations. The seven types of innovations studied within the CASI project include (see also Popper et al. 2016 and Chap. 1):

- Product innovation
- Service innovation
- Organizational innovation
- Marketing innovation
- Governance innovation
- Social innovation
- System innovation

The first four were based on the OECD *Oslo Manual* (2005), with the remark that the third edition of the Oslo Manual does not explicitly lists service innovations. Instead it provides a separate category for process innovations, which, within the CASI project, have been included under either product innovations or under service innovations, depending on the focal point of the process change. The categories of social innovation and system innovation were derived from The Young Foundation (2012), whereas the category of governance innovation was added based on Hartley (2005).

With this broad understanding of types of innovations for sustainability at hand, the CASI project partners set out to map exemplary SI initiatives from EU28, and beyond.² This effort resulted in a total collection of over 500 sustainable innovation case studies. The cases were nominated by the project consortium members based on

²For a full overview of project partners see: <http://www.futuresdiamond.com/casi2020/about/team/> (last accessed 10 January 2019).

predefined assessment criteria, and mapped in the CASI bank of SI initiatives, known as CASIPEDIA (<http://www.futuresdiamond.com/casi2020/casipedia/cases/>³).

The numerical distribution of the different types of sustainable innovations that have been mapped is, as such, not completely representative. Nonetheless, it may not be surprising that product and service innovations top the board, collectively amounting to 58% of all cases mapped (Popper et al. 2016). With 75 out of a total of 549 cases mapped, social innovations were the third biggest category with almost 14% of the total.⁴

As noted by Popper et al. (2016) in their ‘State-of-the-art of Sustainable Innovation’, classifying sustainable innovations under these categories can be challenging, and sometimes rather arbitrary. Many sustainable innovations can be labelled under more than one type of innovation, which was addressed by allowing the selection of one main type, as well as additional supporting types, of SI. However, some minor classification issues were encountered. The case of Repair Café (Belgium), for instance, has been mapped in CASIPEDIA as a governance innovation (main type), while social innovation was selected as supporting type.⁵ The Austrian Reparatur-und Service-Zentrum R.U.S.Z., which also provides repair services for household appliances, was categorized primarily as service innovation, with additional supporting innovation being that of organizational innovation.⁶ This is somehow surprising since repair cafés, and the ‘maker movement’ that surrounds them, are oftentimes recognized as prime examples of social innovations. The digital mapping of social innovation initiatives as part of the Atlas of Social Innovation created in the SI-Drive project,⁷ for instance, contains over a dozen initiatives that are related to ‘repairing’ (including R.U.S.Z.).⁸

The pilot applications of the ‘Common Framework for Assessment and Management of Sustainable Innovation’, known as the CASI-F (Popper et al. 2017), made a distinction between technical and social innovations.⁹ In the analyses of these pilot applications, for which a total of 45 cases from the CASIPEDIA were selected, both the Belgian Repair Café and the Austrian R.U.S.Z. were nominated as social innovations (Schultze et al. 2016). However, even with the basic classification of

³Last accessed 10 January 2019.

⁴Numbers extracted from Popper et al. (2016). After the publication of this report it was still possible for consortium members to add additional cases; also, not all cases have been made publically available in CASIPEDIA as data may have been incomplete or sensitive.

⁵See <http://www.futuresdiamond.com/casi2020/casipedia/cases/repair-caf/> (last accessed 10 January 2019).

⁶See <http://www.futuresdiamond.com/casi2020/casipedia/cases/reparatur-und-service-zentrum-r-u-s-z/> (last accessed 10 January 2019).

⁷See <https://www.si-drive.eu/> (last accessed 21 December 2018); SI-Drive, Social Innovation—Driving Force of Social Change was funded under the EU seventh Framework Programme; and mapped over 1000 cases of social innovations (see Howaldt et al. 2016).

⁸See <https://www.socialinnovationatlas.net/map/> (last accessed 19 December 2018).

⁹For a more elaborated description of the CASI-F, see Chap. 1.

social versus technical innovations, 10 out of 45 cases nominated for the pilot study were labelled as both, technological and social. Ten innovations were exclusively technological and 25 were social. Including the ten SI cases classified as social and technological, 78% of the studied cases were thus social innovations in one way or another. The cases were selected from the CASIPEDIA database with the aim of representing a large spread of cases covering ‘success factors’ (technological, economic, environmental, political, social, ethical and spatial/urban) and ‘scale of innovation (ranging from slight improvement to existing product, service, etc. to new product, service, etc. that creates dramatic change and transforms markets or industries) (Schultze et al. 2016). Regardless of the size of the selection, it is sufficient to underline the importance of social innovations for sustainability and to demonstrate that social innovations (i.e. changes in social practices) play a key role in sustainable innovations that may be predominantly service, organizational, or any other type of sustainable innovation.

3.3 Social Innovation

Although all seven types of sustainable innovations have their relevance for the transition towards sustainability, which requires systemic change and therefore innovativeness in multiple areas, this chapter will focus, in particular, on the role of social innovation for sustainability. Schot and Steinmueller (2018) sketch a history of innovation policy since the Second World War and identify three ‘frames’ of innovation policy. The first framing is characterized as ‘innovation for growth’ and emerged after WWII. The second framing emerged in the 1980s and centred on the concept of ‘national systems of innovation’. It drew the idea of innovation policy away from innovation for the global good to national systems including national networks and knowledge structure. Although the focus of innovation *policy* (Schot and Steinmueller’s main concern in their paper) shifted, the main purpose of *innovation* remained more or less the same: economic growth through scientific and technological progress. The resulting economic developments (at least in the western world and, more recently, Asia) have been impressive; GDP per capita increased more than threefold between 1950 and 2000 in the United Kingdom and the United States, while the German GDP per capita increased sixfold in this period and the Japanese GDP per capita in 2000 was over 12.5 times as large as it was in 1950 (Bolt et al. 2018). However, as it is well-recognized nowadays, these developments came at considerable environmental costs.

To cope with modern day challenges related to sustainability, Schot and Steinmueller (2018) claim that these ‘old’ framings are not sufficient. Schot and Steinmueller, therefore, call for a new framing that addresses ‘transformative change’. Transformative change requires (socio-technological) system changes that go beyond technological innovations. Although the authors mention the concept of social innovation only once in their paper, their analysis of the types of changes that are required, highlights the necessity of changing social practices. Alongside the

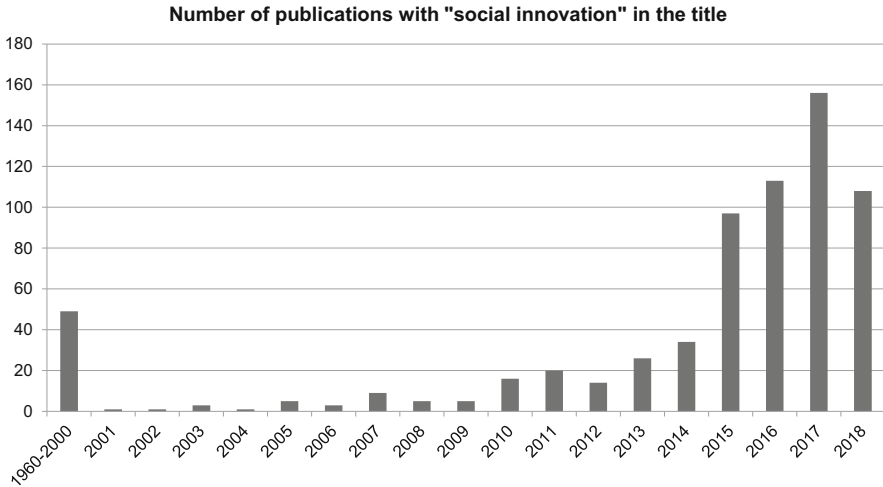


Fig. 3.1 Number of publications with ‘social innovation’ in the title. Source: Web of Science (10 September May 2019, note that the number of publications for the most recent years may not be complete yet due to publication delays)

other types of innovation, social innovation appears to be of imminent importance for sustainability and sustainable development (Millard 2018; Schultze et al. 2015); not least because, as we elaborate below, social innovation has a dual role in sustainability transitions.

3.3.1 *Defining Social Innovation*

Before we inquire deeper into the importance of social innovation for sustainability, we shall define the concept first. Despite early references to social innovation and social change as central part of innovation (see Godin 2015; Howaldt and Schwarz 2019; Mumford 2002), the concept of social innovation in its modern day understanding is relatively recent; as apparent from basic quantitative assessment of the presence of social innovation in scientific publications (see Fig. 3.1). In a social constructivist view, one might say that there still is a lot of interpretative flexibility surrounding the concept. This flexibility helps to move the (academic) field forward, but it can also give rise to confusion. At the same time, though, Ayob et al. (2016) observe first signs of closure. Various understandings of social innovation nonetheless still exist alongside each other and across different disciplines (see Rüede and Lurtz 2012; Van der Have and Rubalcaba 2016).

Without further investigation into the different views, it is fair to say that a minimal distinction should be made between normative and non-normative approaches to social innovation. The normative approach to social innovation includes expectations of social innovation as solving modern-day societal

challenges. These normative expectations can be seen, for instance, in the approaches of the Bureau of European Policy Advisors (BEPA 2011) or The Young Foundation (2012), and are brought to the point in a popular quote, by then EU President, Barroso in 2012: ‘Social innovation is not a panacea but if encouraged and valued, it can bring immediate solutions to the pressing social issues citizens are confronted with’ (quoted in Hubert 2012). The closure observed by Ayob et al. (2016) also leans towards this normative interpretation.

The (academic) question of the *how*, i.e. how these social innovations function, grow, diffuse, lead to durable change, etc., tends to be reduced in these normative approaches, to what skills and resources the innovators need in order to successfully diffuse their novel ideas and practices. To get a deeper understanding of the dynamics of social innovation, it is necessary to let go of the normative interpretations though. Social innovation is then understood rather as an analytical concept (e.g. Howaldt and Schwarz 2019).

Approached as an analytical concept for sociological studies, social innovation refers to innovations in which the locus of the innovation can, above anything, be found in the social realm and in social practices and behaviour. Social innovation is then about changing social practices. We, therefore, are inclined to follow the definition by Howaldt and Schwarz (2010), which demarcates social innovation as an intentional new combination or configuration of social practices in certain areas of social action, prompted by certain actors or constellations of actors with the ultimate goal of coping better with needs and problems than is possible by using existing practices (Howaldt and Schwarz 2010).

Following this definition, social practices may change for better or for worse, and what is desired by one actor group may be discarded by another. The social innovation may therefore also have detrimental effects on the environment or other social groups; see, for example, the analysis of the Canadian Indian Residential Schools by McGowan (2017). As long as a deliberate change in social practice can be observed, one can speak of a social innovation in a sociological analytical sense. This objective and rational approach is vital to the study of dynamics of social change and social innovation.

Also in connection with the highly normative goals of sustainability, such an objective approach to social innovation is paramount, for at least two reasons. Firstly, because it is first and foremost necessary to understand the complete dynamics of social innovation diffusion before it is possible to apply these insights to the normative goals of sustainability. That is, before one can speak about the sustainability potential of a social innovation, one first needs to understand the dynamics and potentials of changing social practices (towards sustainability) (see also Chap. 8 by Hölsgens). Secondly, innovations may always have negative side effects or lead to unexpected and unwanted rebound effects and too high normative expectations of social innovations may lead to a myopic view.

Having said so, it is obvious that the socially innovative initiatives mapped within the CASI project aim to be sustainable and thus have normative objectives. This does not interfere with the study of these sustainable social innovations, as innovations in

which the locus of change is primarily a change of practice, the fact that the envisioned change of practice aims at sustainability is of secondary importance.

Having defined social innovation as changes in social practices, the ‘social’ part of the concept has been explained. This leaves us with the challenge of defining ‘innovation’. Also here we do not wish to open up a debate that exceeds the scope of this chapter, but two issues shall be addressed. The first is the relative novelty of the innovation. How radically new does the change of practice, put forward by a social innovation, need to be in order to earn the status of innovation? With regards to technological or product innovation one may maintain that something that is patentable can be classified as an invention, that can (potentially) become an innovation. However, for social innovations there are no patenting offices assessing the novelty of an initiative. Although we do believe the term social innovation can be overused at times, leading to inflation and a devaluation of the concept, social practice changes in our understanding do not have to be radically new to constitute a social innovation. The practice has to be different and set itself apart from the mainstream practice that has been in place at the time of the occurrence of the social innovation. This means, for instance, that a practice that was common in the past, but has come out of fashion since, can now again constitute a social innovation. Likewise, a practice that is well-established in one location can be a social innovation elsewhere. Thirdly, also a practice that has long been present within a small niche, and that ‘suddenly’ spreads over wider groups of society can be considered a social innovation.

The second question we have to address is the ‘size’ of the innovation. When is something merely a local initiative (analogue, perhaps, to a technological invention before diffusion) and when can a change of practice indeed be called a social innovation? This question is even more complex than the previous. Does a certain minimum share of the population have to adopt the novel practice before we can call it a social innovation? Or can a social innovation also be called an innovation when it only survives in a small niche of society? And should a local initiative that barely got started be called a social innovation, simply because it targets a change of practice? Or should it have ‘proven’ itself for a certain period first? And if a small-scale local initiative classifies as a social innovation, are larger scale societal trends such as vegetarianism, flexitarianism and veganism also social innovations? And how about societal revolutions?

Although we believe the term social innovation is sometimes applied too quickly to, what could be more accurately called socially innovative initiatives, we consider a wide range of ‘scales’ of social innovation, as was also commonly done in CASIPEDIA on which we rely here. As the CASI project focused on collecting identifiable initiatives, meaning there is some kind of organization behind the sustainable innovation, larger scale societal trends such as the zero-waste movement are excluded. At the same time, though, a concrete project aiming at reducing waste,

such as the ‘Content’ store by ‘Leuven pakt uit’ (‘Leuven unpacks’) is included as sustainable social innovation in CASI and in our analysis.¹⁰

3.4 Social Innovations and Sustainability: A Dual Role

Having defined social innovations as deliberate changes in social practices, we observe a dual role for social innovation in sustainability transitions. On the one hand, and this is most prominent in the cases collected within CASI (but also in other European projects on social innovation such as SI-Drive or TRANSIT¹¹) various sustainable social innovation initiatives aim directly at changing people’s practices towards sustainability. Examples include the aforementioned repair cafés, but also more abstract notions such as vegetarianism or veganism. However, on the other hand, social innovations can also play a role as novel social practices to develop sustainable innovations in ‘multi-stakeholder governance’ processes. The resulting innovations can be more technical in nature, but the process of development of these sustainable innovations rests on socially innovative methods in novel collaborative settings. Examples of this kind of social innovation for sustainability include innovative stakeholder participation methods, social simulations or participative roadmapping to collaboratively agree on a path towards sustainability. To make the transition to a more sustainable future, both roles play a decisive role; both will be discussed in detail below.

3.4.1 Social Innovation as Sustainable Practice Change

The transition to a more sustainable future requires changes of social practice. These changing social practices may go hand in hand with technological progress, but technological change alone will not be sufficient. Regardless of the question whether technological improvements in all relevant (i.e. polluting and resource intensive) industries will be fast enough to make the transition to sustainability, one issue, in particular, will limit its effectiveness: the so-called *rebound effect*. It is well documented that a reduction of costs for the individual product or service usually does not lead to overall reduction because the savings are used to purchase more (see for instance Fouquet and Pearson 2006). Social practices of energy use, mobility and food consumption will have to change in order to become sustainable.

¹⁰See: <http://www.futuresdiamond.com/casi2020/casipedia/cases/content/> (last accessed 30 January 2019).

¹¹<http://www.transitsocialinnovation.eu/> (last accessed 10 January 2019). TRANSIT, Transformative Social Innovation Theory was funded under the EU seventh Framework Programme; TRANSIT focused on social innovation networks and studied 20 international social innovation networks.

As mentioned before, within the CASI project, many examples of sustainable social innovations were mapped, including innovations for which ‘social innovation’ was selected as ‘additional supporting innovation’ and those selected as social rather than (or as well as) technological in the piloting of the CASI-F Framework (see Martin and Avarello 2016; Schultze et al. 2016; Popper et al. 2016, 2017). Because of the nature of the case selection, virtually all of the sustainable social innovations mapped in CASIPEDIA correspond with the first role of social innovation: for all initiatives, the primary target is a novel practice and/or persuasion of others to change their practice in accordance with the goals of the SI. As a result, within the role of ‘social innovation as sustainable practice change’ two approaches should be separated. The first concerns direct novel social practices of those involved (for instance in repair cafés); the second concerns persuasion (often through education) of others to change their practices in a sustainable manner. In the latter category, the first category may also be featured, when novel methods/practices are explored in an attempt to leave a longer lasting impact on the target group. Both approaches will be shortly addressed by means of two examples from the CASIPEDIA database.

The first example of a sustainable social innovation that involves a novel social practice can be found in the Finnish case of ‘Cleaning Day—Siivouspäivä’. As presented in CASIPEDIA, ‘Cleaning Day is a day of celebration for friends of flea markets and recycling, which changes Finnish cities and neighbourhoods into huge flea markets and marketplaces. The idea of Cleaning Day is to make recycling easy and create vivid and responsible urban culture. Anyone can offer their second-hand items up for sale on the streets, yards and at home, as well as make the best finds of the day. Cleaning Day does not have an official organizer; all participants are organizers of their own events. Everyone is responsible for cleaning up after themselves.’¹² Although there is no formal organizer of the Cleaning Day, it is supported by the non-profit organization Yhteismaa. In this example, those participating in the initiative, instead of throwing away old items and buying new, buy and sell second-hand products, thus avoiding waste. The initiative also aims to change the ‘urban culture’ by bringing people together, and creating a new culture (i.e. new practices) of recycling.

A second example of a sustainable social innovation that involves a novel social practice is the German initiative ‘Stromsparcheck’.¹³ Stromsparcheck aims to contribute to two prominent challenges at the same time: that of long-term unemployment and that of carbon dioxide emissions. Stromsparcheck has become a nation-wide project, carried locally by organizations such as Caritas. The aim of the project is to help poorer households to save electricity and therewith—from the perspective of the household—money and—from the perspective of the wider society—CO₂ emissions. In order to achieve this objective, these households receive

¹²<http://www.futuresdiamond.com/casi2020/casipedia/cases/cleaning-day-siivouspiv/> (last accessed 1 February 2019).

¹³<http://www.futuresdiamond.com/casi2020/casipedia/cases/stromsparcheck/> (last accessed 1 February 2019).

free information and advice by a specially trained advisor. This advisor is usually a person that has been unemployed for a long time and therefore has limited opportunities in the labour market. By providing these long-term unemployed people with specific training, they are provided a chance to work and to, potentially, enter the labour market. This social innovation, therefore, changes social practices from two sides. The first is bringing long-term unemployed back in the labour market, and the second is the change in energy consumption patterns, as being taught to the households.

A central element of Stromsparcheck is thus the information provided to the households, as such, it could be argued that, at least part of its target is to persuade people to change their behaviour. However, by going into the households, providing them with more sustainable technologies (worth up to 70 euros per household), and directly informing the inhabitants about what they can do to live a more sustainable lifestyle, Stromsparcheck sets itself apart from initiatives that try to persuade people to change their practices from a more abstract and distanced position. Examples of social innovations that take this more distanced, indirect, approach based on awareness raising, education and information, are the Lithuanian awareness-raising blog ‘Ekorekomendacijos.lt’ and the Bulgarian ‘3D Ecobus—Mobile Education Center’.

Ekorekomendacijos.lt¹⁴ (Eco-recommendations) is the first example of a social innovation aimed at persuading people to change their social practices. Eco-recommendations started in 2009 with a goal to increase the number of consumers with responsible behaviour. Following its slogan: ‘Prove that you have the strength to not only change, but also contribute to significant changes. Small things create great ones. Everyone has power of significant changes’¹⁵ Ekorekomendacijos. It aims to persuade the general public of the need to change practices to reduce the environmental impacts of consumption. The website provides information about environmental issues to increase knowledge and awareness, and it aims to develop willingness of consumers to contribute to combatting environmental problems through, and in, everyday behaviour. By providing weekly advices on issues related to home, work, food, or driving, a broad set of themes are addressed under the assertion that everyone’s behaviour may contribute (also in small steps) to substantial positive changes in an environmentally friendly way. In contrast to the SI initiative of the abovementioned Finnish ‘Cleaning Day—Siivouspäivä’ and German ‘Stromsparcheck’, Ekorekomendacijos.lt does not directly involve a change of social practice, but aims to contribute to changing social practices in an indirect way through awareness raising and education.

¹⁴<http://www.futuresdiamond.com/casi2020/casipedia/cases/awarenes-blog-ekorekomendacijos-lt-eco-recomendations/>, <http://www.ekorekomendacijos.lt/blogas/>, regrettfully, the blog does not list any entrances past November 2017, the Facebook page related to the initiative (<https://www.facebook.com/ekorekomendacijos/>) has been active at least until September 2018 (all websites last accessed 7 February 2019).

¹⁵<http://www.futuresdiamond.com/casi2020/casipedia/cases/awarenes-blog-ekorekomendacijos-lt-eco-recomendations/> (last accessed 7 February 2019).

The Bulgarian ‘3D Ecobus—Mobile Education Center’¹⁶ provides us with another example of a socially innovative initiative for sustainability which aims to achieve practice change through education. The 3D Ecobus is a mobile information-education center that makes use of state-of-the-art (3D) technology to inform about the importance of sustainable behaviour. Interestingly, the project addresses a wide range of target groups, ranging from primary school pupils to company employees and government institutions. 3D Ecobus’ purpose, as described in CASIPEDIA, is ‘to enrich the knowledge [of the children and grownups] about the separate collection of waste and the benefits for the environment and society, to build sustainable positive attitude towards the process of selective collection and to encourage the creation of sustainable habits for participation in it.’¹⁷

As demonstrated in these four initiatives, sustainable social innovations that aim to change practice towards more sustainable behaviour can be very diverse. An important distinction made in this section is concerned with whether the social innovation directly involves a change of practice, or whether it merely aims to persuade people to change their behaviour through awareness raising, education and information. They can also vary in size, target group, approach and ambitions. At the same time, the cases collected within the CASI project show that such diverse socially innovative initiatives can be found all across Europe.¹⁸

Despite this diversity though, it is necessary to separate another distinct role for social innovations. Beyond directly or indirectly aiming to change social practices, social innovations can also play a role for sustainability transitions by establishing new practices to collaboratively develop sustainable solutions. The next section deals with this second ‘role’ of social innovation for sustainability.

3.4.2 Social Innovation as Innovative Method to Find Sustainable Solutions

Social Innovation, in its second role, characterizes a new path of ‘producing’ innovation. The innovation process is becoming more and more of a crossover cooperation between different stakeholders representing different stakeholder groups. The in-depth analysis of 43 pilot cases mapped in the CASI project resulted in a fundus of actions, which are seen as success elements from the perspective of the innovators. One of the most common action areas covered ‘collaboration,

¹⁶<http://www.futuresdiamond.com/casi2020/casipedia/cases/3d-ecobus-mobile-education-center/> (last accessed 7 February 2019).

¹⁷<http://www.futuresdiamond.com/casi2020/casipedia/cases/3d-ecobus-mobile-education-center/> (last accessed 7 February 2019).

¹⁸Compare also with SI-Drive, which mapped over 1000 cases of innovative initiatives (not necessarily sustainable) world-wide (see <https://www.si-drive.eu/>, last accessed 21 December 2018).

cooperation, engagement in multi-stakeholder dialogues and networking'. This conclusion was addressed as the basis for an effective and efficient social innovation process (Schultze et al. 2016).

These empirical findings correspond with the above-described complexity of sustainability challenges. The interdependencies touch a plurality of affected stakeholders. Furthermore, sustainable innovations are more likely to be effective and broadly accepted when developed by more than one institution or stakeholder group. The success of sustainable innovations requires the ideas, competence and support of diverse actors from all stakeholder groups of the quadruple helix.

This new way of producing innovation is underlined by the empirical research on social innovation from the recent years. The conclusions of the large mapping exercise of SI-Drive and the CASI project highlight the importance of multi-stakeholder constellations in the broad range of social innovation. Especially with an eye on the complex systemic changes required for the transition to a sustainable economy, the integration of different stakeholder in the innovation process is paramount. One selected case from CASIPEDIA, supplemented with another examples, illustrates this second role of social innovation.

The Italian Open Innovation Hub on Peri-Urban Agriculture aims to create a 'strategy and operating as a living lab to foster innovation in the entrepreneurial, social, sustainable and technological dimensions of the agri-food sector'.¹⁹ The self-conception as 'The Urban Lab Europe' opens up new ways of innovation generation. The municipality of Milan gives the input of its own food policy, targeting a sustainable food system to deliver healthy food to all, traditional entrepreneurs and start-up could meet to create new solutions and citizens are inspired to participate in the innovation process. These lab activities are framed by basic trainings, identification of innovation streams, using ICT platform for exchange of information/ideas in order to develop a peri-urban agrifood sector, create attractiveness of investments, and to follow innovations in the area. The hub aspired to become an exemplary model of peri-urban integration for other cities, as a new way of producing innovation.

Another example of the second role of social innovations is the roadmapping approach used to develop and implement climate change adaptation measures. By bringing together a wide-range of relevant stakeholders, and engaging them in a discussion on visions for the future of their region, the roadmapping approach has enabled local and regional discussions that exceeded debates on competing interests in the here and now. Instead, by collaboratively developing a vision for the future, it has proven possible to bring together stakeholders with competing interests. After agreeing on a vision for the future, concrete measures, linked to a concrete timeline, can be more easily agreed upon. Even though the developed measures may be rather technological in nature, the process can be described as socially innovative since it builds on alternative practices of stakeholder consultation and collaboration. This

¹⁹<http://www.futuresdiamond.com/casi2020/casipedia/cases/11752>
9 September 2019).

(last accessed

socially innovative method was mapped in the SI-Drive project, and it was nominated as an exemplary social innovation (see Schartinger et al. 2017).

3.5 Conclusions

Following an introduction of different types of innovations this chapter highlighted the role and importance of social innovation for addressing sustainability challenges. To make the transition to sustainability, a change of production and consumption patterns is needed. This includes the intentional change of social practices, or, in other words social innovation. The transition towards sustainability represents a complex challenge that demands system shifts, which cannot be achieved by technological innovations alone, but that needs the change of social practices.

As presented in the chapter, the CASI project mapped a plethora of different socially innovative initiatives from across Europe, which underlines the relevance of social innovation in the practical implementation of transition elements. Classifying innovations as social can be challenging, as even sustainable innovations that have clear elements of service or organization innovations, can oftentimes also be considered social innovation because they involve a deliberative change of social practices.

We juxtaposed two distinct roles for sustainable social innovations. The first role concerns the introduction of new sustainable social practices. The majority of the social innovations mapped in CASIPEDIA play this role. These initiatives aim to change social practices; either directly by introducing more sustainable practices to their target groups, or indirectly, through awareness raising, education and information. These initiatives do not directly introduce new practices for their target groups, but aim to persuade people to change practices in their daily lives.

The second role of social innovation concerns the introduction of novel social (usually collaborative) practices to develop sustainable innovations. In this role, the socially innovative initiatives do not primarily aim at introducing sustainable practices, but at more effective processes for the development of sustainable innovations. These processes involve novel ways of collaborating and integrating stakeholders. With these novel practices, sustainable innovations can be developed and implemented with a broader support. These innovations can, but do not necessarily have to be, social innovations.

In both roles, social innovations can contribute towards the transition to sustainability. On the one hand by directly transforming unsustainable social practices into sustainable social practices, and on the other hand by changing the practice of ‘producing’ sustainable innovations. Through collaborative and socially innovative processes, potential conflicts among stakeholders can be overcome, resulting in more effective sustainable innovations.

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