



# EU INNOVATE

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*Consolidated report on implications of user integration for sustainable lifestyles and green economy, with dedicated sections for corporate, user entrepreneurs and policy audiences*

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Name of authors: Julia K. Binder, Anna-Lena Siegert, Frank-Martin Belz

Name of peer-review: Reinhard von Wittken



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## The Power of People

### Introduction

Before the industrial revolution, the concepts of production and consumption were considered as inseparable as production almost solely geared towards satisfying consumers' daily personal needs. People grew vegetables and fruits in their gardens, kept animals and processed raw materials for their own use. Often they were producers and consumers at the same time. With the industrial revolution and the expansion of markets in the nineteenth century and the transition towards mass production in the twentieth century, producers and consumers became increasingly separated. The most renowned example for large-scale mass production is the Model T from Ford in the automotive industry, which served as an important role model for other industries. Producers like Henry Ford were portrayed as the masterminds, initiators, designers, and makers of modern industrial society, whereas consumers were considered as passive adopters of products, developed by companies (Schot & de la Bruhèze 2003; de la Bruhèze & Oldenziel 2009). The overall result of these developments was that producers and consumers became distinct groups in many industrial and developed countries around the globe.

However, at the beginning of the 21<sup>st</sup> century there is yet another trend emerging. We can observe that the borders between consumers and producers again become increasingly blurred. Innovations are no longer only about faster or sleeker production processes, efficient use of material, better quality of products, or designs that are more attractive. Consumers act as creators, innovators and entrepreneurs (e.g. Lindsay 2003; Schot & de la Bruhèze 2003) and as such become “prosumers”, i.e. simultaneously producer and consumer. This holds true in general, and particularly in the context of sustainable products and sustainable consumption. The observation of this twist was the starting point for the EU-InnovatE project.

The aim of our research was to investigate the active roles of end users in developing novel sustainable products, services and systems and their significance in the transition to a sustainable economy in Europe. Special emphasis was put on the four domains of food, living, mobility, and energy. According to studies by Tukker and colleagues (Tukker

et al 2006; Tukker & Jansen 2006), cars, food, heating, and house building are consistently responsible for the highest life cycle environmental impacts related to the final consumption of the EU-25. This implies that changes towards sustainable lifestyles in these areas are likely to create triple bottom line value, i.e. ecological, social, and economic value. More pointedly, the reduction of the ecological footprint per capita leads to a decrease of the impact on the natural environment and ecosystems, also triggering societal benefits such as improved living and health conditions. In addition, the ecological and social benefits are paired with an increase in economic output.

More pointedly, the aim was to investigate the **creative, innovative and entrepreneurial roles of users** in developing novel sustainable products, services and systems (“**Sustainable Lifestyles 2.0**”). While acknowledging the value of companies, we wanted to investigate paths towards a **sustainable society**, which is (more) **user-centred** and **user-driven**. The results of EU-Innovate provide compelling evidence for the increasingly active roles of users, either by taking part in sustainable innovation processes of companies (user-integrated innovation) or by starting their own ventures (sustainable entrepreneurship).

The following report synthesizes the key findings made by the six scientific work packages of the EU-InnovatE project. It highlights the increasingly important role of active users for the bottom-up transition towards sustainability and provides implications for business leaders and policy makers how to foster these processes from the top down.

## Emerging paradigm of active users

The main insight from the EU-InnovatE project is that people have the power to change predominant systems. Key to the explanation of change is the interaction between three nested levels that constitute socio-technical systems over time: niches at the micro level, socio-technical regimes at the meso level, and socio-technical landscape at the macro level (Geels, 2002; Schot & Geels, 2007). The transition towards sustainability can only be achieved when combining bottom up and top down approaches. While the former is needed to create radical innovations on a niche level, the latter is required to promote,

distribute, and establish such innovations on a regime level. This compounded impact of small sustainable enterprises and incumbents that engage in corporate sustainable activities has the potential to promote the transition towards a sustainable system (Hockerts & Wüstenhagen 2010). We identified five different ways in which users can play an active role in facilitating transitions towards sustainability, including user producers, user legitimators, user-intermediaries, user-citizens, and user consumers. All of these roles are present throughout the entire transition process, including start-up, acceleration and stabilization phase, but some roles will become more salient in specific transition phases (see Figure 1) (Schot, Kanger & Verbong 2016).

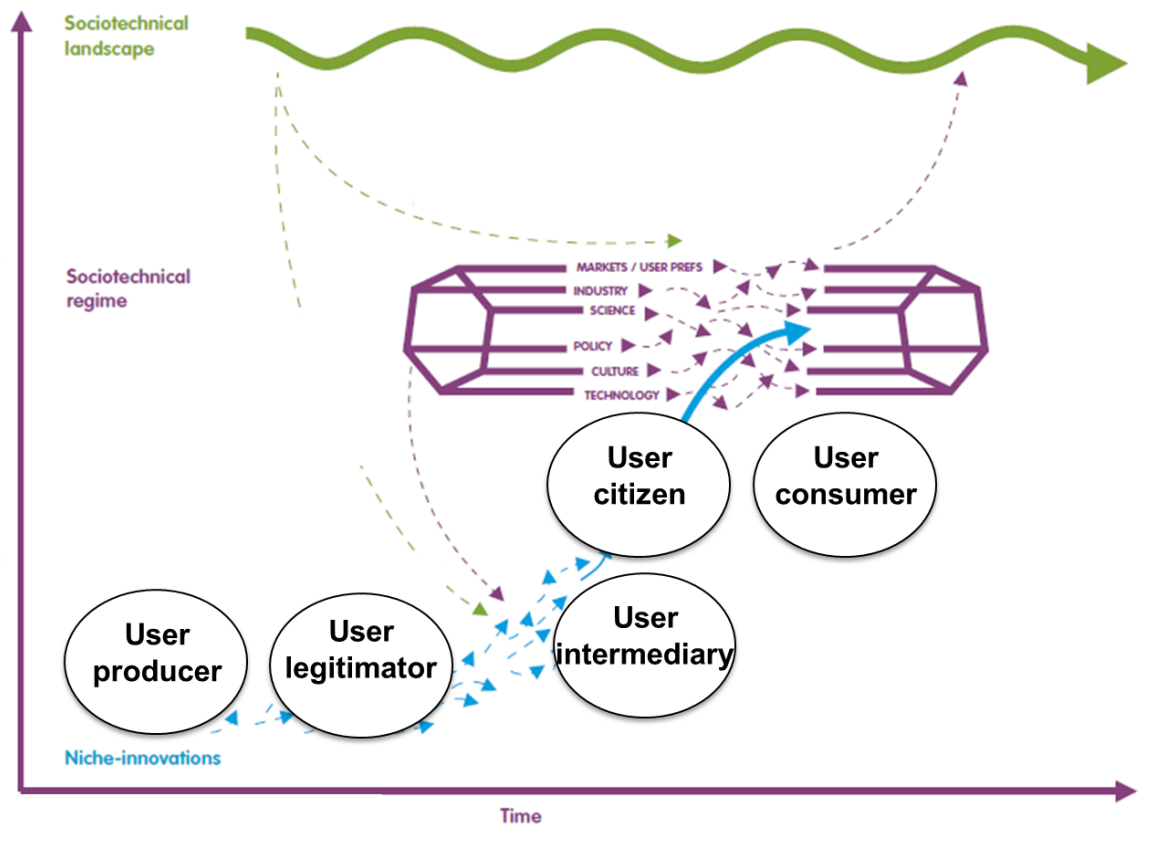


Figure 1 User roles (Based on Schot et al. 2016; Schot & Kanger 2016)

### User Producer

The group of user producers are users who innovate for themselves and eventually turn into entrepreneurs. With their products and services, user producers articulate new user preferences and enable new sustainable routines to emerge. This group plays an important role in the emergence of niches (Schot et al. 2016). In our project, we identified

hundreds of examples of user producers all over Europe in the four different domains of food, energy, living, and mobility. From the long list of sustainable user producers we analysed 20 case studies in depth (see D 4.2). For illustrative purposes we will present case examples of how user producers can trigger a transition in each of the four domains and from different European regions.

**Food.** Food Assembly is an online platform that connects farmers and consumers to encourage local food distribution and consumption. The platform allows consumers to buy directly from producers. Producers sell directly to consumers with no middlemen. At regular pop-up markets, consumers and farmers come together so that consumers can pick up the food they ordered online. The venture was created by two founders: one, who worked as an industrial designer in the food industry and who was motivated by the desire to change the agricultural and agrifood sector; and the other, who had a background in web project management and who was motivated to use platforms and digital solutions for social and meaningful goals. The venture was founded in France in 2011, and has since expanded its business activities to eight other European countries, offering access to over 900 food assemblies (status as of February 2017).

**Energy.** An example for a sustainable venture founded by a user producer in the lifestyle domain of energy, is Polarstern. The founder's motivation of "starting something that matters" turned into the concrete idea of Polarstern when he was hiking in the Austrian mountains and experienced the glaciers retreating and thus climate change first hand. The German company offers two products for two sectors in the German energy market: firstly, Polarstern offers 100% green electricity from hydropower plants for the electricity market and secondly, the company is active on the gas market by offering 100% green gas produced from residual materials. For every new customer they acquire in Germany, Polarstern donates money to a family in Cambodia to be invested in their own micro bio gas plant (over 5000 families as of 2016). From a systems perspective, the business model of Polarstern has received increasing attention of incumbent energy providers, aiming to implement similar standards in their product offering.

**Living.** When the founders of the Spanish enterprise Noem wanted to build their own homes according to ecological standards, they could not find suppliers of sustainable construction materials in Spain. Consequently, they had to import these materials. This

experience motivated the users to solve the problem for other users, thus to found a sustainable venture in the domain of living. Noem offers prefabricated design houses that are constructed with renewable and locally sourced materials. For the construction process, non-toxic materials are used. The name of the company stands for “no emission” and represents the intention of the company: to create and promote solutions for energy efficient and CO<sub>2</sub> emissions minimized living.

**Mobility.** Otodojazd is a carpooling platform from Poland and directed to both individual as well as corporate clients and universities. It was the founder’s own need for common commuting between work and home, which motivated him to establish this company. The technological innovation of the company is the geo-location, which enables drivers and passengers to locate each other in accordance to their proximity. By connecting car drivers and passengers, the company contributes to building up a community of commuters. Simultaneously, the company helps to reduce the usage of natural resources and to decrease the extent of air pollution.

Our results from different parts of Europe indicate that user producers set important impulses for transitions towards sustainable systems. Thus, they play an important role in triggering transition processes and in creating innovations that depart from the usual. Such radical innovations are *a conditio sine qua non* for achieving a transformation towards a smart, inclusive, and sustainable economy (Europe 2020). However, due to lower growth rates in sales, minor market shares and less profitability, these small companies act in niches, with limited power to achieve changes in socio-technical regimes. This is why user legitimators take over an important role, supporting user producers to legitimize their innovations.

### **User Legitimator**

Users in the role of user legitimators shape the values and views of niche actors. They provide meaning, purpose and rationale for the activities of user producers (Schot et al. 2016).

An example for a user legitimator in the EU-InnovatE project is the project’s strategic partner SEA. SEA stands for Sustainable Entrepreneurship Award, an internationally

oriented award, which honours enterprises, projects and ideas that address ecological or social problems by combining innovative solutions with profitable commercial strategies. By providing sustainable entrepreneurs a media platform to showcase their innovation, they seek to legitimate sustainable entrepreneurship as the economic model of the future (EU-InnovatE SEA 2017). In addition, SEA connects young sustainable ventures with impact investors, thereby assisting the ventures to move from the start-up phase to the acceleration phase.

User legitimators seek to establish a sustainable niche by sharing a vision and interacting with as many actors as possible, yet they still act on a niche level. This is where user intermediaries come in, taking over the important role of moving the sustainable innovation from a niche level to the mainstream.

### **User Intermediary**

User-intermediaries are involved in the up-scaling and mainstreaming of a niche into an existing regime. They help to align producers, users, regulators and organizations and create networks (Schot et al. 2016).

An example for a user intermediary that we identified as part of EU-InnovatE is the Economy for the Common Good (ECG). The ECG is a movement across the globe, which is particularly active in Europe. It works towards a novel economic system that places the common good (i.e. social and environmental values) at the foreground of all business activities (ecogood.org). Thereby, the ECG acts as a real user intermediary, connecting thousands of supporters, including individuals, companies, NGOs and cities across the world (ecogood.org), which are united by the aim to change the current economic system and to establish sustainable economic activities as the primary economic system worldwide. By means of a common good balance sheet, companies can transparently measure their contribution to the common good, thereby creating new rules and regulations and shaping new user expectations of how to conduct business.

As a result, user intermediaries like the ECG play an important role in moving sustainable entrepreneurship from a niche towards mainstream. Besides lobbying in favour of the emerging niche, it is important to destabilize the existing regime to allow for a real transition. This is where user citizens play an active part.

## User Citizen

User-citizens are the activists who mobilize for a particular niche and challenge the incumbent regimes. They try to overcome the defensive strategies of regime actors in businesses and in government (Schot et al. 2016).

An example for a user-citizen that we identified as part of EU-InnovatE is Daniel Überall, co-founder of Kartoffelkombinat, co-founder of IHA, member of the management board of “taste of heimat”, staff member of “Anstiftung”, initiator of “Stadtimker”. Daniel Überall can be seen as a user citizen who addresses a wider spectrum of social and environmental issues including (but not limited to) biodiversity, food, waste, or refugees. By utilising a combination of digital technologies (twitter, facebook, blog) as well as offline measures (founding businesses and associations, organizing demonstrations, mobilising individuals), he attempts to confront incumbent regimes. Despite active individuals like Daniel Überall, user citizens can also be movements or non-governmental organisations, which mobilise against the existing regimes. An example of an organization acting as a user-citizen is the Danish NGO Orange Innovation. The NGO cooperated with the Rockwool group, the world’s leading producer of stone wool, and together developed refugee shelters as an alternative to the typical tents for refugees. For Rockwool, accessing refugee camps, even for testing a product, was challenging due to strict privacy protection of people in such difficult life situations. In order to push the development of the shelter, Orange Innovation supported the company to reach out to refugee aid organizations and organized the testing of shelters.

By destabilizing existing regimes, user citizens play an important role in lobbying for sustainability related reforms and in up-scaling and mainstreaming niches. While user citizens play an important role in destabilizing existing regimes, user consumers are required to adapt to the emerging regime, thereby stabilizing the emerging products, routines and practices.

## User Consumer

User consumers are not synonymous to ordinary consumers. This group can also be referred to as lead consumers. They adopt niche developments early and embed them into their daily routines, thereby defining their lifestyles. These consumers often work



together with companies to test products and systems and to give feedback on what could be improved (Schot et al. 2016). Contrary to the multitude of user producers we identified, it was difficult to find examples of incumbents that open up their innovation processes and integrate users into new sustainable product development (see D 3.2). We observed that incumbents involve different stakeholders in their innovation processes, but also that users do not take on a superior role yet and thus that user integration is just emerging. From the long list of sustainable user producers we analysed 20 case studies in depth (see D 3.2). A case example of how user can be integrated in sustainability innovation processes in each of the four domains coming from different European regions will be described in the following.

**Food.** Frigo y tu is an example for involving user-consumers in the innovation process in the area of food. The project was set up by Unilever, one of the world's leading fast-moving consumer goods companies, to fight young unemployment in Southern Europe. Unilever created a new retail business model for ice-cream, recovering the original spirit of ice-cream delivery and consumption: the mobile vending ice-cream. The aim of the project is not only to provide a temporary job for young unemployed people, but also to offer training, mentoring and support to the users for acquiring the necessary skills in micro-entrepreneurship, marketing and finance, and food handling management to be able to run their own small enterprise in the future. Unilever integrates participants in the design, planning and the strategy of their small business. Participants provide constant feedback for the improvement of the operation to Unilever.

**Energy.** The Polish company Mazovia Energy Agency (MAE) is an example for user-consumer integration in the area of energy. The company was established to set up the regional energy policy and to provide consumers with individually adjusted energy management plans. With this practical solution, consumers become more aware of effective energy management solutions. The process of user integration starts with a series of individual face-to-face meetings that are to design a plan of energy management according to their specific needs. Furthermore, MAE provides practical trainings for users in order to gain know how on existing financial schemes.

**Living.** An example of a company that integrated user-consumers in the sustainability innovation process in the area of mobility is Rockwool group from Denmark, the world's

leading producer of stone wool. Together with the NGO Orange Innovation, Rockwool developed refugee shelters as an alternative to the typical tents for refugees. For Rockwool, accessing refugee camps, even for testing a product, which might improve refugee living conditions, was challenging due to strict privacy protection of people in such difficult life situations. In order to help the development of the shelter move forward, Orange Innovation supported the company to reach out to refugee aid organizations to get their initial feedback and organized the testing of shelters among guests of the Roskilde music festival.

**Mobility.** An example in the lifestyle area of mobility is BMW. BMW, one of the most successful manufacturers of cars and motorcycles worldwide, integrated user-consumers in the development process of the BMW i3. The BMW i3 is the first mass-produced electric vehicle. Besides its electric operation, lightweight construction material (carbon-fiber-reinforced plastic), highly energy-efficient manufacturing processes and recycling of materials positively influence the environmental footprint. Users were involved in the form of an ethnographic study, a co-creation lab and field trials throughout different phases of the innovation process.

User consumers attach meaning and status to the new developments and thus contribute to the positive construction of ideas about the niche within wider society. As a result, they play a pivotal role in stabilizing new socio-technical regimes and in completing the transition process.

## Practical Implications

As the synthesis report has shown, users play a pivotal role in the transition process towards a sustainable economy. The findings of the EU-InnovatE project show that business leaders and policy makers have to think about innovation and entrepreneurship in a new way in order to enable socio-technical change for sustainable lifestyles. The insights from the synthesis hold important practical implications for 1) end-users; 2) managers and companies; and 3) policy makers. The recommendations for these three target groups will be outlined in the remainder of this report.

## End Users

For users the results of the synthesis provide one important key message: the power of people, referring to the potential of every user to have a positive sustainable impact and to play a role in the transition process towards more sustainable lifestyles. More pointedly, the results of EU-InnovatE provide a typology and systematization of the types of users involved in the transition process towards sustainable lifestyles. This is practically relevant as it allows users to reflect about their own role, which may reach from very active and autonomous (user producer), to actively involved (user consumer). By providing best case examples, EU-InnovatE may inspire potential user innovators and entrepreneurs, highlighting that social and environmental problems can be profitable opportunities to be seized.

## Managers and Companies

The transition towards sustainability cannot be achieved through traditional management and policy practices and structures for innovating because they aim for technological innovation in pursuit of economic growth. Distinct from technological innovation, innovating for socio-technical change involves not only the outputs of the innovation processes, but the beliefs, norms and other social goods that are produced during these collaborative processes of innovation, as well as the values and mindsets that innovators build through them. Management and policy therefore have to place emphasis on interventions that enable the innovator rather than the innovation. Focusing on the values, mind-sets, skills and capabilities of users is a way of increasing the predisposition of innovators to enable the transition towards sustainability (Adams, Angehloiu & Armstrong 2016).

Companies have to raise their awareness that the wisdom and engagement of users who deal with sustainable products and services is immense. They experience specific needs before the rest of the market does. They often develop products and services that stem from their own interests, passions, and even idealism. Harnessing on such knowledge is an advantage for companies, especially in fast moving markets, when the demand side

becomes increasingly diverse and products ever more complex (Nielsen, Reisch & Thøgersen 2014).

### **Policy Makers**

To encourage users in taking over active, policy needs to develop support structures, such as funding pilots, incentive mechanisms, accelerators and incubators, to embed a learning structure for best practice to cross-pollinate. An example can be a dedicated government website, in cooperation with regional or national innovation hubs, where interested innovators can easily find training programs, “how to” steps and funding opportunities. This site could also feature good examples of policies that worked in other countries, and could be a central platform for innovation competitions (Reisch 2016). Policy makers also need to develop an understanding of network dynamics in order to be able to effectively use networks as enabler for sustainability transitions. Policy has to take on the role of catalyzing new models of self-organizing networks (e.g. OuiShare) (Adams, Angehloiu & Armstrong 2016).

Finally, laws and regulation should be carefully reviewed regarding their supporting or hindering impact on sustainability innovations and entrepreneurship driven by users. In Germany, for instance, crowdfunding opportunities are profoundly impeded by strict consumer protection regulation on grey financial markets. Policy should therefore try to find good exception rules that serve both, consumers and user-entrepreneurs (Adams, Angehloiu & Armstrong 2016).

### **Conclusion**

This report provided a concise synthesis of the results obtained during the three year project EU-InnovatE. A key result relates to the role of users, which EU-InnovatE finds to be manifold and diverse. Accordingly, users can take on different roles in transition processes, including user producer, user legitimator, user intermediary, user citizen, and user consumer. All of these user roles are present and play a pivotal role in the entire

transition process, however, they have different prevalence in specific phases of the process, i.e. in creating, distributing and legitimizing innovations. Reflecting on the project's aim to explore the innovative, creative, and entrepreneurial role of users, a particular focus was put on the user producer, which EU-InnovatE finds to be a steadily increasing group of sustainable entrepreneurs who are driven by their values, norms, and beliefs in bringing about change. In addition, we find first evidence of user consumers taking over active roles in the sustainable innovation processes of companies. The results therefore suggest that companies and policy makers put a stronger emphasis on enabling users in exploiting their innovative and entrepreneurial potential to foster sustainable transitions.

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