Values-Based Network and Business Model Innovation

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Abstract

Innovation management falls short in solving urgent societal problems, if it neglects the power of networks and the values of their constituent actors. Even though network and business model innovation have been acknowledged as innovation categories in their own right, their problem-solving potential remains unexplored. In this article, we argue that purposeful innovation requires considering the shared values of those engaging in innovation processes, where values are understood as subjective notions of the desirable. Values-based innovation can motivate the development of new networks and business models that address complex societal problems, such as the unsustainability of current forms of energy supply. We present a theoretical framework and facilitation methods for values-based network and business model innovation. Both have been applied in an exemplary workshop on regional energy networks in Germany. Reflecting upon the lessons learned from theory and practice, we conclude that crucial starting points for systemic sustainability innovations can be found in values-based networks and business models.

Keywords

Values-based innovation; value network; business model; collaborative innovation; future workshop; sustainability; energy business

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1 Introduction

In the last decade, the innovation management literature shifted its attention from products, processes, and single business activities to the level of business model innovation. While innovation in entire business models and their components moved to the centre of strategy and innovation scholars' attention (e.g. Breuer, 2013; Chesbrough, 2010; Teece, 2010), two crucial issues still need further attention.

The first is the interaction between groups of actors collaborating in networks. Cross-sector phenomena like value chain deconstruction and increased innovation speed challenge traditional value chains (Schweizer, 2005). Networks and inter-organisational collaboration become increasingly important contexts for business model innovation. The second issue is the role of values in innovation management. In particular, corporate visions, missions, and "the ask", i.e. what a business asks its customers to do or become (Schrage, 2012), are often considered as detached issues of a cultural superstructure, which are only loosely coupled with the core business of a company. However, some scholars point to the importance of values – here understood as subjective notions of the desirable (Schwartz, 1994, 2012) – for network and business model innovation.

In this paper, we argue that we need to elaborate upon this triad of *business model innovation*, *collaboration in networks*, and *values-based innovation* to better understand and design systemic innovations and to address the "wicked problems" (Rittel and Webber, 1973) of our time. Such wicked problems are seemingly insoluble, poorly formulated, confusing, and typically they involve different actors with conflicting values (Waddock, 2013). The search for sustainable energy systems is an example for such a problem that calls for a shift from authoritative and centralised solutions to collaborative and decentralised approaches (e.g. Rae and Bradley, 2012; Rohrbeck et al., 2013).

A better understanding of this triad also allows for discovering new potentials for innovation and collaboration across organisations based on their shared values, such as transparency, privacy, or sustainability (e.g. being committed to mitigating climate change or enabling a just distribution of scarce resources). Values may become powerful levers for collaborative engagement, but they can also mark borders between conflicting parties. They need to be theoretically understood and methodologically managed to drive innovation in collaborative networks and contribute to the mitigation of wicked problems.

In this article, we illustrate the idea of values-based innovation with the aid of cross-industry innovation processes that acknowledge ecological, social and economic aspects and might thus be

termed “sustainable” or “sustainability-oriented” (Hansen et al., 2009). We demonstrate the importance of shared values for network and business model innovation with a case study on the struggle for dominating technologies, organisational forms, and business models to create more sustainable, regional energy systems. We show that collaboration tools are needed to develop and maintain shared visions and missions as a common ground for cross-industry groups who engage in network formation and joint business model innovation. This values-based perspective can serve as a means to overcome context- and company-specific barriers (Laukkanen and Patala, 2014), as well as limitations resulting from current innovation tools and their influence on cognition and team dynamics (Eppler et al., 2011). Paying attention to not only individual values and the shared values of organisations, but also to how they enable or constrain certain activities helps to better understand conflicts and possible solutions, as well as to uncover potentials for systemic innovations on the level of networks and business models.

The goal of this article is to provide theoretical and methodological foundations for values-based network and business model innovation. Therefore, the major research question we seek to answer is: *How to develop networks, and how to support business model innovation within these networks, where value emerges from the distributed activities of different actors?*

In the following, the notions of value network and business model are discussed, before we review selected tools for their elaboration (section 2). We identify gaps in the literature and tools that call for the development of a values-based innovation framework and method. Section 3 gives an overview of our research approach. We then propose a framework for values-based innovation and introduce the future ideation and business modelling techniques that have been combined to make the framework actionable (section 4). A workshop on regional energy systems has been facilitated based on these techniques – challenges and results of these activities serve as an illustrative case (section 5). Reflecting upon the lessons learned from the workshop, we discuss theoretical and methodological implications and draw conclusions for sustainability-oriented innovation in networks and business models (sections 6 and 7).

2 Theoretical Background

As products and services are becoming increasingly digitalised, value chains are losing their linear properties. In addition, strategic alliances, “co-opetition”, and virtual organisations have become common forms of interaction (Lindgren et al., 2010; Paavo and Huizingh, 2014). These and related developments lead to a growing impact of networks, often referred to as value networks (Peppard and Rylander, 2006). Networks are frequently associated with new ways of creating, delivering and capturing value, i.e. business model innovation (Calia et al., 2007; Zott et al., 2011). In the following, we reconceptualise the notions of value network and business model as values-based

network (section 2.1) and values-based business model (section 2.2). We then discuss selected innovation tools to support their development in practice (section 2.3) and to highlight gaps in the literature and tools. These gaps call for a dedicated framework and method for values-based innovation (section 2.4).

2.1 Values-based networks

The terms "value" and "values" are regularly used in inconsistent ways. Their specific meaning can often only be derived from the particular contexts in which they are used. It is worth paying attention to the use of the singular and plural forms, as well as the contexts in which they occur. While "value" is usually used to refer to economic value, "values" refer to broader notions of the desirable, i.e. the underlying beliefs and motivational forces of individuals, organisations or society as a whole (see e.g. Agle and Caldwell, 1999; Schwartz, 2012; Schwartz and Bilsky, 1984). Joyner and Payne (2002: 299) define *values* "as the core set of beliefs and principles deemed to be desirable by (groups of) individuals". Likewise, in our understanding, values are considered important, worth working or even fighting for by individuals and complex social actors, such as business organisations or nation states. If values are codified and reinforced, e.g. through management measures or policies, they turn into obligatory *normative orientations.* Corporate vision, mission and values statements are typical expressions of such normative orientations. In the remainder of this paper, we argue that shared values and the resulting normative orientations can exceed single organisations and play a crucial role in the formation of networks.

The notion of the value network (Allee, 2000, 2011), or the networked economy (Peppard and Rylander, 2006), has risen to prominence during the past 20 years, due to major trends in technological, economic and societal developments (e.g. Christensen and Rosenbloom, 1995; Kothandaraman and Wilson, 2001; Peppard and Rylander, 2006; Stabell and Fjeldstad, 1998). As products and services are becoming dematerialised, mainly through digitalisation, their value chains lose part of their physical and linear properties, which are the basis of Porter's classic value chain concept (Porter, 1985). Accordingly, Allee (2000, 36) states that "value chain thinking is rooted in an industrial age production line model that gradually has been superseded [sic] by the new enterprise model of the value network or value web". Increasing technological complexity and innovation speed are major drivers of the emergence of value networks. For example, firms such as automobile manufacturers cannot perform all necessary steps and processes themselves since their products are highly complex "systems of systems" (Christensen and Rosenbloom, 1995), which contain thousands of special parts ranging from hybrid engines to board computers and seat covers. Their development and production requires a portfolio of capabilities that one single firm cannot develop (Kothandaraman and Wilson, 2001). Moreover, competition is no longer the only mode of

interaction between rivals. Inter-firm relationships, such as strategic alliances, "co-opetition", and virtual organisations, have become the rule rather than the exception, allowing for experimentation and the exploitation of otherwise unattainable opportunities (e.g. airline alliances, joint production facilities, shared innovation platforms).

While the traditional view on value networks focuses on the creation of competitive advantages and economic value, it does not systematically reflect upon the shared values and normative orientations of network members, which motivate the formation and persistence of networks or lead to their collapse in the case of diverging and incompatible values. Although the value network framework by Allee (2000, 2011), as a prominent example, extends the notion of value to account for the exchange of goods and services, knowledge, and intangible benefits, such as customer loyalty or image enhancement, it does not include the underlying shared values and normative orientations of exchange partners. Peppard and Rylander (2006, 136) refer to the importance of so-called perceived values: "Perceived value is a key driver of behaviour which in turn is a key force of network development. In a way, perceived values envisage a network member's highest level of steering toward influencing network development – it is the perceived values that steer what people and firms are willing to do and not do." While we agree that value and values are closely related to the behaviour of network members, we see the need for a more nuanced use of these notions to understand how they are related.

By applying more differentiated notions of value and values, we can point to two closely related facets of these terms: first, value as a form of *expected outcome* (e.g. access to complementary resources or revenue opportunities); and second, values as *subjective notions of the desirable*, expressed as beliefs, attitudes, and behaviours (Schwartz, 1994, 2012; Schwartz and Bilsky, 1984). Accordingly, values are fundamental criteria for individual, organisational and societal decisions, as well as evaluations (Agle and Caldwell, 1999). In the first case, i.e. value as an expected outcome, the prospect of valuable results motivates network formation (*what* is perceived as valuable). In the second case, i.e. values as subjective notions of the desirable, it is the perception of "doing the right thing" that motivates network formation (*why* it is perceived as valuable). For example, an entrepreneur might join a renewable energy network in order to gain access to knowledge and technologies. New knowledge and technologies are valuable outcomes in and of themselves; however, her reason for joining the network might be her conviction that renewable energies should be supported to achieve ecological justice. In this case, it is the belief in the importance of justice that motivates the entrepreneur's behaviour. With this in consideration, the above quote of Peppard and Rylander (2006) can be refined: It is the perceived values of a network's members, i.e. the valuable outcomes they expect, as well as their subjective notions of the desirable, which steer what they are willing to do.

Therefore, we suggest a re-interpretation of the notion of value networks as *values-based networks.* Values are the fabric of a network and at the same time an assumingly extensive source of untapped innovation potential for its members (Breuer and Lüdeke-Freund, 2014, 2015). With or without recognition, values underlie the allegedly "objective" monetary, technological or strategic value of networks that usually motivates or impedes joint innovation and business activities.

2.2 Values-based business models

A business model describes how a company creates, delivers, and captures value for its customers and itself (Chesbrough, 2010; Teece, 2010; Zott et al., 2010). Different interpretations can be identified in the literature. Sometimes it is seen as an implemented operational model and as rationale for how a company creates customer value and earns money (Baden-Fuller and Mangematin, 2013). It is also defined as "a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm" (Osterwalder et al., 2005, 17). As with networks, the values of entrepreneurs and companies can have a fundamental influence on this business logic. *Values-based business models* describe the way organisations create, deliver, and capture value by pursuing values of their internal and external stakeholders. Stakeholder values can impact the design of value propositions, i.e. the benefits offered to target groups, as well as further business model components and configurations. Sustainability-oriented business models are an example of how particular values can exert such an influence.

Research on sustainability-oriented business models tries to identify business logics that contribute positively to the development of the natural environment, human society, and economy (Boons and Lüdeke-Freund, 2013; Schaltegger et al., 2012; Wells, 2013). The term "sustainability-oriented" (Hansen et al., 2009) indicates an integrated view on ecological, social and economic wellbeing. The concept has recently been defined as follows (Schaltegger et al., 2016, 6): "A business model for sustainability is a conceptual approach that helps describing, analysing, managing, and communicating what sustainable value a company proposes to its existing and potential customers, and all other stakeholders, how it creates and delivers this value, and how it captures economic value for the company while maintaining or regenerating natural, economic, and social capital beyond the organization's boundaries." Practical examples of such models are described in a recent report by SustainAbility (Clinton and Whisnant, 2014). The authors define 20 sustainability-oriented business model innovations, including ones based on new industrial processes (e.g. closed-loop systems), financial models (e.g. crowdsourcing) or resource-sharing between different social groups (e.g. cooperative ownership) (see also Beltramello et al., 2013, Bisgaard et al., 2012).

Despite attempts to extend the business model perspective towards an inclusion of ecological and social issues, traditional business model concepts take a single-actor perspective, an approach we call "egocentric". Most of the business model literature and widely adopted tools, such as the "Business Model Canvas" (Osterwalder and Pigneur, 2010), aim at improving the focal company's financial bottom line. Accordingly, the layout of the Business Model Canvas resembles a profit-loss calculation. Most traditional business model concepts support this egocentric perspective and focus on maximising the monetary outcomes for the focal company. Another example provides Teece (2010, 191) when he defines: "The essence of a business model is that it crystallizes customer needs and ability to pay, defines the manner by which the business enterprise responds to and delivers value to customers, entices customers to pay for value, and converts those payments to profit through the proper design and operation of the various elements of the value chain."

Some scholars point to the importance of multi-actor perspectives and more comprehensive value definitions (e.g. Joyce and Paquin, 2016; Upward and Jones, 2016). Stubbs and Cocklin (2008: 121-122), who developed a generic "sustainability business model" concept, state that a "sustainable organization expresses its purpose, vision and/or mission in terms of social, environmental, and economic outcomes" and that it adopts "a stakeholder view of the firm, rather than a shareholder view". They argue for models that involve a broad range of stakeholders and create more than just economic value. Building on that, Randles and Laasch (2016) take the abstraction one step further by proposing a "normative business model", which in essence theorises the embedding of actors' shared values as normative orientations into the design, practices and identity of organisations and their business models. These examples of values-based business model conceptions may become part of a normative turn in innovation research and management, which goes beyond purely strategic and technological perspectives on innovation and pays greater attention to the role of values and normative orientations.

While the notions of values-based networks and business models provide a new theoretical perspective, the question emerges how such networks and business models can be elaborated in practice to probe the applicability and usefulness of this new theoretical perspective.

2.3 Tools to support network and business model innovation

Given the diversity of actors who can be involved in processes of network and business model innovation, a joint reflection on the "normative foundations of entrepreneurial activity" (Ulrich, 2013) is needed to identify a common ground for network and business model innovation. Different tools and methods are worth considering to formulate shared goals and visions within entrepreneurial teams, and even more so in inter-organizational alliances. Normative scenarios for instance provide a clear and shared team vision, as well as a number of activities and milestones to

reach them (Kosow and Gaßner, 2008), while utopian imagination can drive the formation of normative scenarios and enable the development of ambitious visions that exceed incremental innovation (Breuer et al., 2012).

With regard to network and business model innovation beyond the egocentric view on single organisations and a narrow focus on value creation in monetary terms, we identified two approaches: the "Collaborative Business Modelling" method by Rohrbeck et al. (2013) and the "Value Mapping Tool" by Bocken et al. (2013). The Collaborative Business Modelling method developed by Rohrbeck et al. (2013) aims to overcome barriers to systemic sustainability innovations in multi-actor settings (see also Laukkanen and Patala, 2014, for an analysis of specific barriers to sustainable business model innovation). Their method uses the Business Model Canvas (Osterwalder and Pigneur, 2010) as a template to develop new business ideas, embedded in a systematic group work process comprised of ideation, priorisation, and validation. Making proper use of the creativity and knowledge of multiple and diverse organisations in a workshop format leads to business model designs that are rather unlikely to occur in a non-collaborative process. However, the focus of this approach is on strategic, value creating and capturing business opportunities. Underlying values, e.g. expressed as organisational visions, missions or beliefs, are not explicitly taken into account. Of course, visions and missions are at least implicitly contained in strategies and the design of value-creating activities, but the method in question does not facilitate the explication and discussion of visions and missions and their underlying values. In this regard, this method is limited by the major tool it uses, which is the Business Model Canvas.

The Value Mapping Tool developed by Bocken et al. (2013) provides a method to develop shared value propositions for diverse stakeholders, such as customers, suppliers, and governments. It helps to distinguish between what the authors call value captured, destroyed, missed, and new value opportunities. By taking a network, rather than a company-centric, perspective the value mapping tool offers a way to integrate the perceptions of multiple stakeholders in relation to a particular value proposition provided by the network these stakeholders form, or, as the authors define it, "the network of stakeholders involved in creation, delivery and receipt of value associated with provision of a product/service" (Bocken et al., 2013, 489). The particular strengths of this tool are that it helps companies "[to] understand the positive and negative aspects of the value proposition of the value network …; [to] identify conflicting values …; and [to] identify opportunities for business model redesign and realignment of interests to reduce negative outcomes and improve the overall outcome for the stakeholders in the value network – especially for society and the environment" (ibid.). While this tool helps to systematically identify network stakeholders' differing perceptions of the value that is created (or destroyed or ignored), it does not support a

systematic exploration und explication of network stakeholders' particular values and normative orientations.

When it comes to aligning network stakeholders, it makes a difference whether the preferred outcome of a network (e.g. financial value) has to be negotiated or what motivates the formation of that network, i.e. the values and normative orientations of network stakeholders (e.g. personal security, a luxury lifestyle). The currently available approaches do not grasp these motives due to their one-sided conceptual focus on the creation and capture of value as an expected outcome.

2.4 Specifying the research gap

Based on the above discussion of values-based networks, business models, and tools for their elaboration, we identify a critical research gap. The role of values, understood as notions of the desirable, and normative orientations has so far been neglected in innovation research and in the development of tools supporting practitioners. This is critical, for example, for innovation projects aiming at solving sustainability problems. Any notion of sustainable development as a societal process or sustainability as an ideal state is based on particular values and requires normative orientations as guiding principles (Boons and Lüdeke-Freund, 2013). These principles have to be negotiated. What is to be sustained, why and how? The answers to these questions change depending on geographical region, relative urgency of issue(s) and point in time, due to specific contextual, socio-economic and socio-cultural contingencies (Faber et al., 2005; Lélé, 1991). This leads to two conclusions.

First, we have to extend our understanding of value as an expected outcome, such as improved financial performance, to an understanding of values that also includes the underlying motivational forces, such as the shared beliefs and norms of business organisations (see e.g. Manohar and Pandit, 2014, who study shared organisational values and their influence on innovation performance).

Second, tools that support a values-based view in the context of innovation and its management are currently missing. Related approaches, such as those proposed by Rohrbeck et al. (2013) and Bocken et al. (2013), help in dealing with complex actor settings; however, they do not support the identification and explication of values as underlying notions of the desirable and normative orientations for the actors involved.

Table 1 summarises our review of the Collaborative Business Modelling method and Value Mapping Tool. It also defines major characteristics of an ideal-type framework and method that help in developing values-based networks and business models.

		Framework		
		Value mapping tool (Bocken et al., 2013)	*Collaborative bus. modelling (Rohrbeck et al., 2013)*	*Values-based framework and method to be developed*
Conceptual feature	*Recognition of multiple kinds of stakeholder/actor*	Inclusive to any key stakeholder related to a particular network value proposition	Inclusive to any type of organisation working together in a value creation and value capture system	Should be open to include multiple stakeholders and identify and balance their tensions and expectations
	Recognition of multiple value conceptions (expected outcome)	Explicit identification and conception of multiple key stakeholders' perceptions of value	Identification of strategic, value creating and capturing models for the organisations in the network	Should integrate multiple stakeholders' outcome expectations, i.e. forms of value creation and capture
	Recognition of multiple underlying values (subjective, normative)	Focus is on value creation and capture; stakeholders' subjective and normative values **not considered**	Focus is on value creation and capture; stakeholders' subjective and normative values **not considered**	Should start from underlying subjective and normative values as motivational and creative forces
	Specification of framework, tool, and process	Value innovation framework, template-tool and application process are specified	Business model innovation framework, template-tool and application process are specified	Should support value, business model and network innovation with a tool and process

Table 1: Comparison of current frameworks for sustainability-oriented network and business model innovation and specification of the research gap

3 Research Approach

This section describes our research approach. It builds on (a) insights from related literature, including our review of the above mentioned Collaborative Business Modelling method and Value Mapping Tool; (b) the role of values as relevant drivers and guidance for innovation; and (c) a new combination of well-proven ideation and business modelling tools. It is this combination of theoretical and instrumental perspectives that justifies the proposed framework and method as a new way of approaching values-based network and business model innovation. Developing the framework and method involved the following three steps.

1. Development of a values-based innovation framework. Based on our review, which revealed that so far there exists no theoretical framework for conceptualising values-based business model innovation in network contexts, we decided to outline such a theoretical framework. This framework pays special attention to actors' values and normative orientations, without specifying these values and normative orientations in advance, i.e. without pre-defining the domain-specific meaning of sustainability in the case of the development of a sustainable energy region presented below. This specification has to be done individually and prior to every innovation project.

2. Design of a workshop format; selection and adaptation of supporting tools. Based on an enhanced understanding of the role of values for innovation in general and business model and network innovation in particular, we reviewed potential support tools and -methods. These included the above discussed Collaborative Business Modelling method (Rohrbeck et al., 2013) and Value Mapping Tool (Bocken et al., 2013) (section 2). In order to instantiate the framework and the values-based view, a "future workshop" format (Jungk and Müllert, 1996; Breuer et al., 2012),

which aims at designing a desirable future, was adapted and combined with an already established tool that has been validated through extensive practical application, the "Business Innovation Kit" (Breuer, 2013).

3. Application to an illustrative case of network and business model innovation. To apply the idea of values-based innovation to a case of sustainability-oriented network and business model development, a workshop was organised with the aim to distinguish a shared vision and develop a renewable energy region through new business models based on the virtual power plant concept. Both the framework and the chosen workshop format and tools facilitated this innovation project. This illustrative case is described in section 5. Its results and implications are discussed in section 6.

4 A Framework and Method to Develop Values-Based Networks and Business Models

Establishing new values-based networks and business models and fostering collaborative innovation requires going beyond individual actors by considering their wider ecosystems. From a management perspective, this involves thinking not only about strategy and operations, but also about the values and normative orientations of organizations. Since deliberately dealing with values in innovation management is a relatively new approach (Breuer and Lüdeke-Freund, 2014, 2015), it can be seen as a form of "managerial innovation" that requires certain capabilities beyond traditional innovation management skills (Ayhan and Oztemel, 2014). A fitting values-based innovation management framework is developed in section 4.1. Section 4.2 specifies the impact of values on innovation and its management, and section 4.3 describes the method and tools that were used to apply our framework in practice.

4.1 Developing a values-based innovation management framework

Entrepreneurial activities always follow specific values and normative orientations within and beyond the pursuit of profit – "the business of business is not only business" (Ulrich, 2013: 14). When a company like Google declares as its mission "to organize the world's information and make it universally accessible and useful" (Google, 2014), this mission goes well beyond any competitive strategy or profit goal. Even when such a mission or vision is not explicitly stated, corporate performance is inevitably driven by values-based assumptions, e.g. the responsibilities of individuals and the "right" business philosophy (Pless et al., 2012).

Corporate mission and vision statements can exceed purely economic forms of value. For example, Aravind, one of the world's largest eye care facilities, is not only dedicated to "compassionate service for sight" (Aravind, 2014) and high-quality, reliable eye care, but rather it is

pursuing the mission to "eradicate unnecessary blindness" (ibid.) by offering free eye care to the poor.

In order to specify the potential of values-based innovation for networks and business models, we need to differentiate between various management levels and the impact of different types of values. Building on Bleicher's (1994, 2011) integrated management concept, we distinguish between three levels of management in general and innovation management in particular: *normative, strategic* and *instrumental management* (see e.g. Alsan and Oner, 2003, and Schwaninger, 2001, for further applications of Bleicher's concept).

- Bleicher (1994, 141, italics added) states: "Normative management deals with the general aims of the company, with principles, norms, and strategies which are aimed at corporate survival and development capabilities". It has "to ensure the surviving capabilities of a company through the preservation of its *identity*". Large companies invest substantially in the exploration and explication of their vision, mission, and corporate values to manage and communicate their identity. This allows for critical discussion and self-reflection, but also reinforces compliance with a company's values and overarching goals. Corporate policy, governance and culture are central issues on this level. Just like an individual identity is formed in interaction with others in an environment, the normative level exceeds an egocentric view and engages with societal spheres. We consider this level of innovation management to be crucial for the development of shared goals and values for networks and refer to this function as "grounding".
- "Strategic management aims to identify, achieve, and exploit a position of *strategic advantage* … While normative management functions as a foundation for activities, it is the task of strategic management to direct these activities" (Bleicher, 1994, 141, 143, italics added). This level describes how value is created and captured through achieving goals, such as specific growth rates or market shares. Organisational structures, strategic programmes, problem solving and learning capabilities are developed on this level. The literature provides rich insights into the relationships of strategies and business models and how they interact (e.g. Casadesus-Masanell and Ricart, 2010). We consider this level to be significant for decisions regarding business model innovation within the framing of values-based innovation management.
- "Normative and strategic management objectives are translated at the operational level into the economic *processes* of performance, finances, and information" (Bleicher, 1994, 143, italics added). This level is associated with organisational processes, performance management, and other operational activities. We consider this level to be relevant for innovations in single business model components, which may involve all forms of product

and service design innovation, but also changes in marketing instruments like distribution channels, pricing schemes, or communication policies. Since innovation mainly occurs in single business model components and marketing instruments on this level, we refer to it as the "instrumental" management level (Figure 1).

This framework describes how a company's normative orientations – constituted of corporate governance, policy and culture, and articulated, for instance, in vision or mission statements – frame strategies and operations and thus business model-related decisions. Figure 1 relates the three innovation management dimensions to relevant values on the left and broad innovation categories (called "innovation levers") associated with these dimensions on the right.

Each level and its associated innovation activities can be driven internally. Bottom up, for example, new online communication channels can create new customer touch points, enhance presence and fulfilment of customer values, and facilitate new value capture mechanisms that, taken together, form a new business model. Top down, for instance, external public pressure or new chief executives can introduce new values that turn into new normative orientations. The US-American carpet maker Interface, whose late founder and CEO Ray Anderson declared a "Mission Zero" in the mid-1990ies, is often discussed as an exemplary case. This mission provided a long-lasting stimulus for ecological innovations in fields such as production processes, material substitution, glue-free carpet installation, and material-saving designs (Interface, 2014). Innovations can also be driven externally (e.g. by changing societal expectations). Changes in public valuations, e.g. with respect to climate change, can force companies not only to revise their values and normative orientations, but also to develop new products, markets, and alliances. Many traditional energy companies cooperate with green start-ups to enhance their portfolios (e.g. Pinkse and van den Buuse, 2012) and this is mostly seen as being driven by market and/or political strategies (e.g. Kolk and Pinkse, 2004). Still, this interpretation blinds out that these strategies are values-driven, i.e. motivated by personal, public or business ethics and fitting values and normative orientations.

4.2 Ubiquitous impact of values

On all three management levels and with respect to different stakeholders and entities, different types of values come into play (Figure 1). With respect to customers, product-related values (such as ease of use or durability), company-related values (such as instant service orientation), and global values (such as safety and health) do matter. Within a business model these customer values are addressed by means of a value proposition. A new value proposition and new customer values can be a basis for innovations in processes, products, or service offerings, as well as individual business model components. Different business models, describing how companies create and capture value, contribute to a corporate value architecture. It describes how the company relates to its

environment. Organizational values that exceed the economic domain are corporate values, such as ethical guidelines for interacting with stakeholders within and outside the company. Changes in the value architecture or corporate values may lead to business model innovation.

Accordingly, such innovations may result from the introduction of new values and normative orientations into an organization or network of actors. Figure 1 depicts the relations between the different management levels, related concepts of exemplary values, and innovation levers. Figure 2 shows how values-based networks are centred on shared values and normative orientations, while the participating actors pursue these within their different business models and business model components.

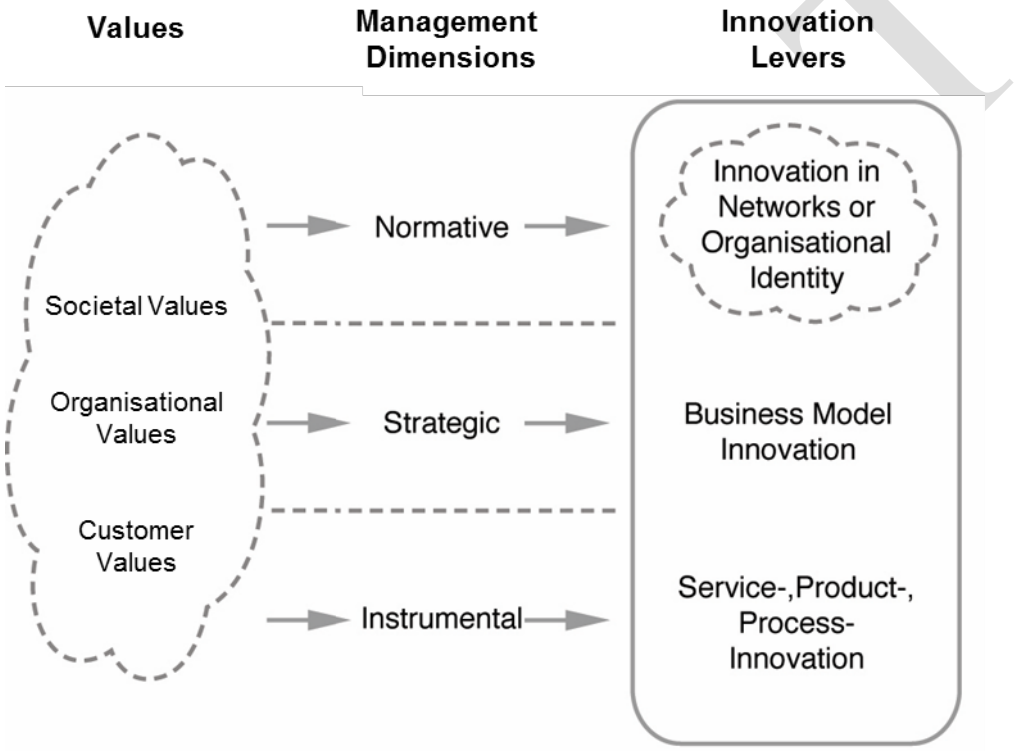

Figure 1: Values (left) impact normative, strategic, and instrumental management and may be leveraged to inform innovation activities (right) such as innovation in values-based networks.

The change in societal values towards ecological consciousness and a higher appreciation of sustainability affects not only consumer culture and buying patterns (Burg, 2007), but all levels of corporate performance. Introducing new values into organisations and networks is a particularly strong lever to promote and implement an orientation towards sustainability in industries such as energy, health or finance. In contexts such as the wicked problem of unsustainable energy supply, the problem-solving potential of business models comes into play. Against this background, we propose that the formation of values-based networks consisting of viable and sustainability-oriented business models. This requires a synthesis and careful definition of not only the values and normative orientations of all network stakeholders, but also the multiple value propositions offered to them and the valuable outcomes created with and for them.

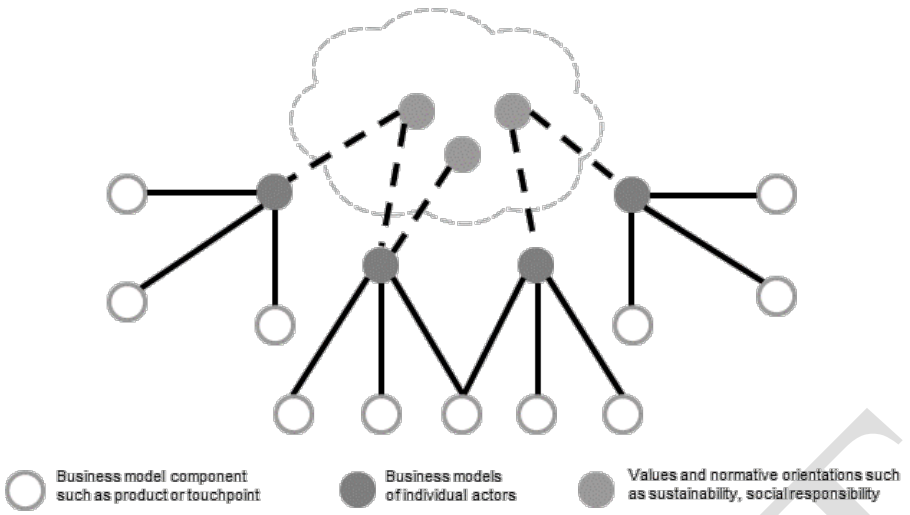

Figure 2: A values-based network consisting of associated values and normative orientations (within the cloud), distributed business models, and business model components.

4.3 Method for developing values-based networks and business models

Several methods for exploring and elaborating upon values in organisations exist, including interview techniques, ethnographic inquiry, collaborative mapping, and structured discourse. In order to facilitate the ideation and development of values-based networks and business models, and thereby translate the theoretical framework described above into an actionable management approach, we combined a "future workshop" format (workshop part 1) and business modelling techniques (workshop part 2).

A "future workshop" consists of three phases of *critique*, *vision* (or fantasy), and *realisation.* Several creativity and planning techniques can be used in each phase. The format was originally developed by Robert Jungk and his colleagues in the 1970ies to empower small groups to proceed from critique to change (Jungk and Müllert, 1996). Later, this format was further developed and adapted to the requirements for dealing with business challenges (e.g. Eickhoff and Geffers, 2008; Breuer et al., 2012).

To create stakeholder-specific values-based visions and identify new business opportunities, the original "future workshop" format was redesigned with a consistent focus on values. This redesign allows directing collaborative reasoning in the critique phase towards forms of value that are neglected or counteracted in the current situation (such as the current setup of the energy system). In the visionary phase, participants are asked which ideal values could be achieved in a utopian setting, i.e. in the best of all cases (such as a perfectly sustainable and autonomous energy region). They are also asked to provide live graphic recordings of emerging associations and ideas to enhance their imagination. In the realisation phase, participants generate ideas on how to realise selected aspects of their ideal values and on how the different participating actors could contribute

to the realisation of these values (through new value propositions, such as offering green energy services, which later serve as starting points for the business modelling exercise).

The upper section of figure 3 shows the sequence of these activities (the detailed storyboard, including definitions of group tasks, descriptions of group activities, exemplary content, and results, is available in German upon request to ensure full replicability of the format). The ideal values agreed upon in the visionary phase assume an anchor role for all subsequent workshop tasks and discussions. They are represented by "values clouds" that name and differentiate the core values of participants, such as efficiency, flexibility, reliability or transparency.

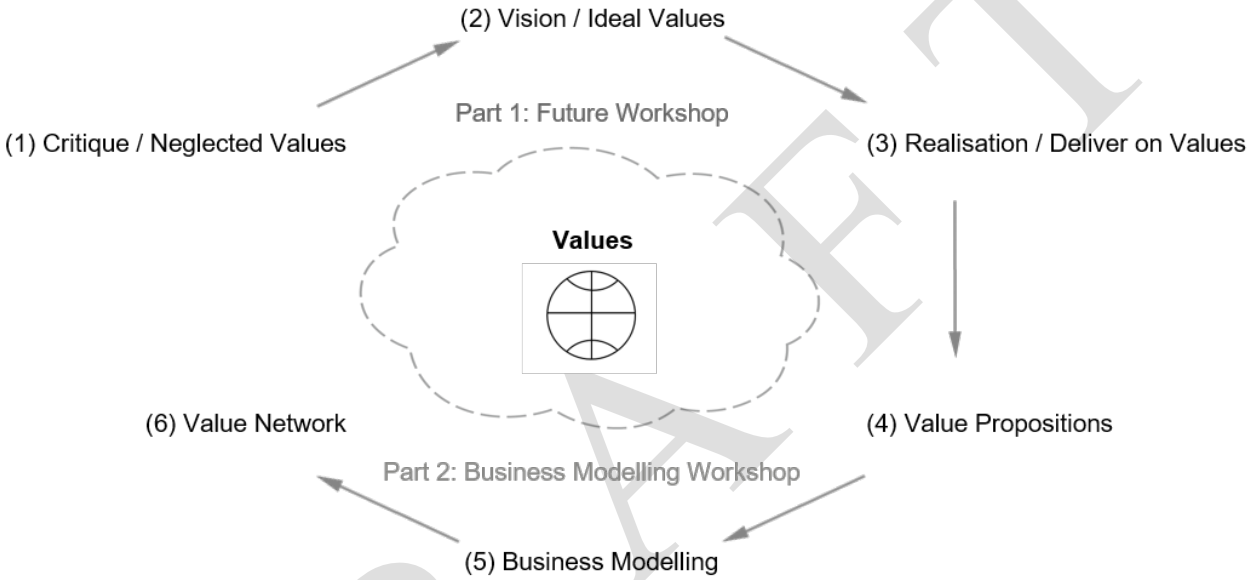

Figure 3: Facilitation methods and procedure.

The second workshop part shown in figure 3 is dedicated to business model and network development using the Business Innovation Kit. Its basic layout is shown in figure 4. The Business Innovation Kit enables entrepreneurial teams to explore the range of ideas and viable business models for a new or existing business. Results provide the basis for business model implementation that proceeds through iterative exploration, elaboration, evaluation, experimentation, and evolution of assumptions. Its initial version was iteratively developed, formatively evaluated and refined through more than 50 workshops with start-ups and corporate venture projects, most of which have been conducted at the Technical University of Berlin, at Telekom Innovation Laboratories between 2010 and 2012 (Breuer, 2013; Breuer & Ketabdar, 2012), and through consulting projects.

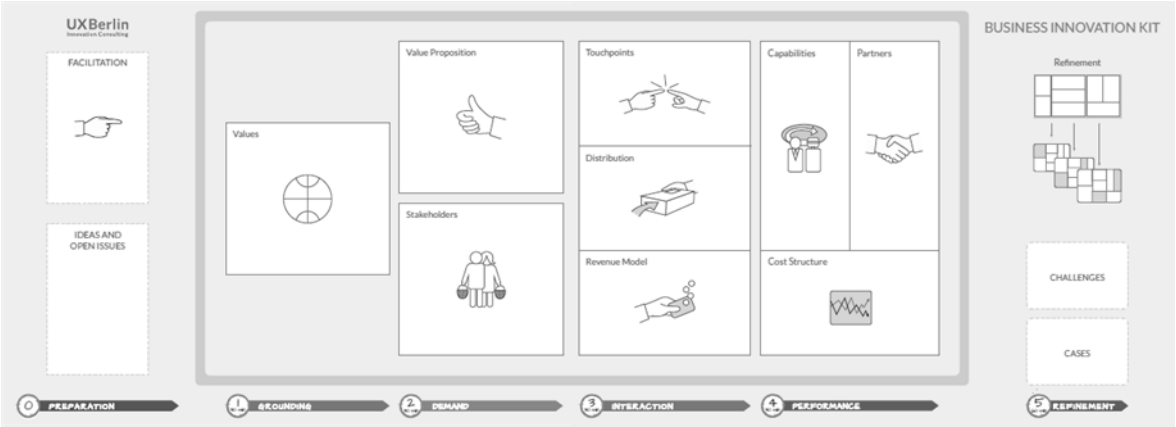

Figure 4: Playground of the values-based "Business Innovation Kit" (redesigned based on Breuer, 2013)

The toolkit contains self-explanatory instructions guiding workshop teams through five pre-defined steps: (1) definition of values or a "common ground" (i.e. the grounding in ideal values or a shared vision); (2) exemplification (through cases and business model patterns); (3) ideation (for single business model components); (4) modelling relations across components and models; and (5) challenging implicit assumptions with scenarios. The layout of this tool supports values-based, and thus also sustainability-oriented, modelling in collaborative settings and accounts for the participants' varying and potentially conflicting values and normative orientations.

First, the normative orientation of business reaching beyond economic goals is highlighted in the "grounding exercise". Starting into the process, participants create a common ground for their endeavour by explicating their values, overarching goals, and, for instance, their understanding of sustainability. In the regional energy business workshop, the ideal values identified in the first workshop part were used. Second, business model patterns can be used to stimulate thinking in terms of particular models and model elements, e.g. suitable patterns proposed by Gassmann et al. (2014). Exemplary cases include such patterns to inform participants about a range of possible designs. Third, stakeholder segments are included as a new component, so that a range of interest groups beyond immediate beneficiaries are considered. Finally, future scenarios, written on "challenger cards", serve as an initial check for the robustness of new business model assumptions. The final step is the integration of the reconfigured and mutually compatible business models into a new network.

5 An Illustrative Case from the Regional Energy Business

This section illustrates the application of the above introduced values-based innovation management framework and method. To explore if and how values-based networks and business models can be synthesised in a specific context, a workshop with a group of practitioners in search for sustainable, regional energy systems was conducted. We will briefly describe the challenge of

initiating such energy systems (section 5.1) and report on how the framework and method played out during the workshop (section 5.2). Section 5.3 describes how parallel shifts in the emerging network motivated new business model designs.

5.1 The challenge to initiate a values-based regional network

Overcoming unsustainable forms of energy supply is one of the major challenges of our time. Termed “Energiewende” (energy transition), the transition from nuclear power and fossil fuels to renewable energies, energy efficiency, and energy saving are major goals of Germany’s energy policy. While several initiatives work towards enabling and pushing this transition, they face severe challenges, such as the diversity of powerful private and public actors with diverging interests and established large-scale technologies. One strategy is to focus on specific regions first, before moving onto a national or European scale. In order to explore such regional concepts for renewable energies, the EnERgioN (Renewable Energies in the Northern Region) project was established at the Leuphana University of Lueneburg. It addresses fundamental challenges of establishing autonomous energy regions based on renewable energies and virtual power plants in Northern Germany (e.g. Müller et al., 2011; Rae and Bradley, 2012).

The virtual power plant (VPP) is a metaphor for a computerised cluster of distributed installations for energy generation and distribution (Figure 5). It describes the potential of information and communication technologies to organise activities amongst heterogeneous actors in the energy market. Different energy technologies, such as wind turbines, solar panels, combined heat and power, and different distribution methods, can be combined to ensure efficiency, flexibility and stability in energy supply and demand (see Saboori et al., 2011 for an overview of VPPs). Advanced control and communication features are required to establish two-way flows of information and electricity within a widely distributed and highly automated energy delivery network (Fang et al., 2012). Within the energy sector, VPP technology represents the prototype of a technological network, where value, respectively energy, emerges from the distributed activities of different actors, instead of being centred on a single focal and dominant energy company. Just like other imaginary models (Breuer, 1998) the metaphor of the VPP serves as a medium for communication and collaboration and provides for orientation and anticipation. Like other imaginary models it combines aspects of feasibility and desirability. Without specifying details, it provides a kind of picture frame to be filled out by diverse actors. Accordingly, both the vision of a sustainable energy region and the VPP metaphor provided a suitable starting point for establishing a network based on values of sustainability and the instrumental means to this end.

In order to initiate a network that might offer the ground for a VPP, an open call for participation was issued by EnERgioN. About 30 experts from public utilities, wind turbine manufacturing, grid

operation, consulting, finance, and academia responded. These respondents were invited to participate in a workshop conducted in November 2013, in order to explore their potential stakes in the planned regional energy network.

5.2 Structured collaboration leading from ideal values to modelling new value propositions

Following an initial discussion with the project owners, we defined four guiding questions: How to design future energy markets? How may renewable energies contribute to regional self-sufficiency? Which prerequisites must be fulfilled? Which problems and challenges need to be mastered? These questions were consolidated for the two workshop parts (see section 4.3). The first part explored the assumed opportunities: *Which opportunities emerge for entrepreneurial action?* The second part extended the scope towards possibilities of realisation: *How may these opportunities be realised?*

Four main actors were identified: energy producers, grid operators, energy storage providers, and "prosumers" (i.e. energy producing consumers; figure 5). The VPP metaphor was introduced as a fifth "actor" representing the new business opportunities resulting from the transformations within the emerging network.

The "future workshop" was prepared to address the first question, while the collaborative business modelling approach was used to tackle the second one. The goal of the "future workshop" was to specify the values and vision of a sustainable energy region and to elaborate upon options for realisation. The business modelling workshop was based on the ideal values and value propositions resulting from the preceding "future workshop". To overcome the egocentric viewpoints of individual firms, a network perspective was applied to identify the most relevant actors and relationships in the respective energy business ecosystem, as well as the common values shared by these actors.

After an introduction to the topic, the recent energy market developments and the workshop approach and agenda, three groups were formed: *prosumers, energy producers,* and *grid operators.* Following their personal interests and professional backgrounds, participants selected one group for the "future workshop" on day one.

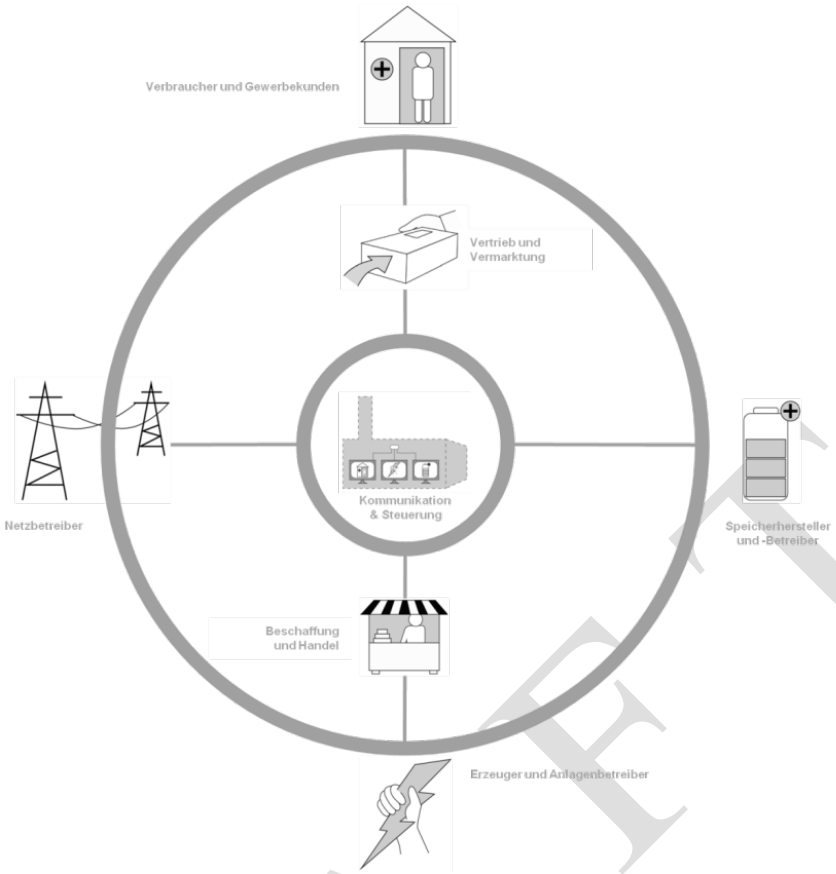

Figure 5: The regional energy business ecosystem and actors of a virtual power plant (VPP).

5.2.1 A values-driven "future workshop"

The first workshop was focused on identifying shared values and new business opportunities for conventional and sustainable energy entrepreneurs based on the initial dedication to establishing a sustainable energy region. In the *critique phase,* the prosumers group discussed which social and economic values were currently being neglected. For instance, they complained about a lack of transparency with regard to energy sources, pricing, and energy losses because of difficulties in feeding energy into the grid.

In the *vision phase,* the groups described ideal energy systems and the values they could contribute to in the best of all imaginable worlds. Energy producers, for instance, imagined harvesting energy (e.g. from surplus heat) wherever needed with increased flexibility through ancillary services that avoid inefficient and costly energy transmission. Grid operators envisioned moving up the value chain to enable exchange between different regions and VPPs by using their unique capabilities and know-how.

In the *realisation phase,* the groups discussed how each actor could be supported in realising these values and visions, as well as the requirements that need to be met in order to create promising new value propositions. Each group came up with different business opportunities and selected one for follow-up modelling.

5.2.2 Modelling new energy business models

The key task of the collaborative business modelling workshop on day two was to create different kinds of VPP business models for the new values-based network based on the value propositions that resulted from the first workshop. The essential facilitation medium for the second workshop part was the Business Innovation Kit. In the collaborative business modelling workshop, participants initially split again into three groups based on their interests in the prosumer, energy producer or grid operator roles. All groups started the exercise with a review and, if necessary, revision of their "common ground" – based on the ideal values and the value propositions that resulted from the preceding "future workshop". After exploring alternative business models, the three groups came back together to synthesise their results and discuss how the renewed business models could be combined to form a new value network that contributes to the overarching vision of a sustainable energy region and the different values that each group was ready to commit to. Three business models emerged during the business modelling workshop (table 2):

- VPP business model 1 – "Local Energy Community": The prosumer group considered *independence* from large corporations and interregional networks as a core value to pursue, as well as *education* of consumers about how they may trade their own energy. Based on this common ground, they created business models for a *local energy community* that could provide a local marketplace for direct trading of green energy with municipal utilities who manage transmission and load-frequency control. The business model included components such as *belonging to the community*, fair and *transparent pricing* as part of the value proposition, and *communal multiplicators* as key partners for communication. Alternative financial models of *cooperative equity holding* and *public provision* of basic infrastructure were discussed.
- VPP business model 2 – "Financial Equity Participation": The group of energy producers defined *independence*, as well as striving for *innovation in services, finance, and forms of co-operation* as core values. Based on their ideas, a *financial equity participation* model was proposed. The mission was set to involve customers who strongly *identify with their region* and wish to *support and utilise local energy sources* without constructing or operating own facilities (like photovoltaic installations on their roofs). Instead of owning and operating own facilities, customers can participate through *fixed interest-bearing securities* with modest returns, but *privileged access to sustainable energy* from the region.
- VPP business model 3 – "Inter-regional VPP Agency": The grid operator group favoured a *cross-regional perspective* and also values of *education* and *innovation.* Based on their ideas, the business model of an *inter-regional VPP agency* was described, *connecting*

VPPs across regions and *providing consulting* for various energy actors. Through the *bundling of resources, capacities, and competencies*, a real alternative to centralied energy provision and large corporations should be built that should still be capable of ensuring a safe, stable and efficient provision of energy on demand.

Table 2 summarises these business models, their underlying values and components.

		Network Actors		
		Prosumers	*Energy Producers*	*Grid Operators*
Innovation Levels	*Normative Innovation*	Regional sustainability, education and independence	Regional sustainability, innovation and independence	(Cross-)Regional sustainability and education to drive innovation
	Business Model Innovation for new Virtual Power Plants (VPP)	"Local Energy Community"	"Financial Equity Participation"	"Inter-regional VPP Agency"
	Process, Product, and Service Innovation	Advanced storage technology and trade platform	Partnering in marketing, finance & operation	Repurposing consulting capabilities

Table 2: Innovation levels, network actors, and business model innovations for virtual power plants

5.3 Parallel shifts in the values-based network

In the EnERgioN case, the fundamental values and resulting normative orientation within the emerging network of new, potential VPP business models was first introduced through the initial framing and shared vision of a sustainable energy region based on green and local resources. Following modifications and specifications of the "value cloud", additional key values, such as independence, transparency, efficiency, and proximity, emerged and provided an anchor for discussion and an evolving reference point throughout the workshop exercises. Unpacking the "wicked" problem of unsustainable energy supply, these values served as clues for potential solutions. Finally, participants discussed potential synergies and conflicts between the proposed VPP business models.

While some of the new models threatened some actors' original core businesses, the shared values and parallel creation of new business models for each group promoted mutual tolerance for assumed (temporary) negative impacts on the respective businesses of the participating parties:

- For instance, if prosumers extend their production capacities within a *Local Energy Community (VPP business model 1)*, they may endanger the current core business of traditional energy producers such as regional utilities. In turn, the energy producer group

proposed to harvest energy wherever it is needed, which would render transmission dispensable and thus threaten part of the grid operators' business and revenue sources.

- The *Financial Equity Participation model (VPP business model 2),* envisioned by the energy producer group, intends to motivate prosumers to invest in contracting services for small producers and consumers, i.e. regionally financed infrastructure contracting, driven by demand for green and local energy. Such multilateral contracts may serve as a pilot for new system services that could ensure stable infrastructure operations through the balancing of fluctuations in supply and demand. Again, this would pose a significant challenge for the grid operators' core business and their traditional capabilities.
- Still, moving up the value chain and looking at the whole energy business ecosystem, the grid operator group identified market potential for an *Inter-regional VPP Agency (VPP business model 3)* in the moderated exchange of resources and know-how across regions, offering a new and rather unexplored business.

Due to the exploratory character of this workshop, further specifications of these business models and their co-evolution towards a sustainable, autonomous and self-sufficient energy region had to be left to follow-up initiatives by the participants. The Business Innovation Kit suggests an iterative process. That is, further rounds of refinement could be used to adjust the three VPP business models and the network that emerged during the workshop, for example, to better conform to current laws, regulations and policy frameworks, specifically those that guide Germany's "Energiewende" (e.g. Strunz, 2014), such as the Energy Industry Act, the Renewable Energy Sources Act or the Power Grid Expansion Act (BMWi, 2014). These do of course have a fundamental influence on the feasibility of new VPP business models and their potential to create a network for sustainable, regional energy systems. However, this kind of "reality check" was intentionally not part of the workshop. Its primary purpose was to illustrate the applicability of our framework for values-based network and business model innovation.

6 Discussion of Workshop Results and Implications

The combination of a values-based "future workshop" and business modelling using the Business Innovation Kit allowed for an efficient and effective collaboration. The developed framework and method supported the exploration of shared values and normative orientations held by different actors from the energy industry, as well as the envisioning of three new virtual power plant (VPP) business models and fitting value propositions.

Acknowledging the importance of energy laws, regulations and policy frameworks for the industry in general and new technologies like VPP in particular, the workshop's purpose was to motivate the development of ideal visions and values in order to think "out of the box". Therefore,

participants were rather discussing what kind of support might be needed for their new VPP business models and value propositions, instead of limiting their thinking to what is currently (un-)feasible from an energy policy and regulatory perspective.

Working from different network actors' perspectives towards a reconfiguration of sustainability-related values yielded promising new business opportunities and strategic options for actor-specific business models, as well as the overarching values-based network. For example, the groups of energy producers and prosumers developed the utopian idea that renewable energy is generated just where and when it is consumed to avoid energy transmission losses. From this, grid operators learned not only about the threat to their current operating model, but also gained ideas how to prepare for increased local energy generation and consumption (e.g. through small-scale power grids). They also discovered opportunities to balance energy shortages between regions and offer their unique knowledge, IT services and consulting through the idea of an Inter-regional VPP Agency, according to which market potential might overcompensate potential losses caused by a dedicated regional focus.

The "future workshop" with its focus on values enabled participants to create ambitious visions beyond single firms and incremental improvements of their core businesses, which is in line with the proposition of our theoretical framework that values-based networks and business models require going beyond the "egocentric" perspective of traditional innovation approaches and narrow definitions of value. The business opportunities and models identified in the business modelling workshop imply substantial shifts in the network of actors and, if implemented, would result in a values-based network comprising a new energy ecosystem with new roles and relationships for all participants. Being connected through fundamental values as a common denominator should serve as an inspiration for joint and mutual exploration and exploitation of promising opportunities for new values-based and networked business models. Therefore, the values-based approach might also be seen as a means to overcome tool-specific and cognitive barriers that limit creativity and thus the amount and scope of possible solutions (see e.g. Eppler et al., 2011, who study the limiting effects of using the Business Model Canvas).

On the theoretical side, our framework and method extend the state of the art of innovation research in general and sustainability-oriented business model innovation in particular. While the focus of the more traditional literature on business model innovation is on how single firms can improve competitiveness and performance (e.g. Baden-Fuller and Haefliger, 2013; Chesbrough, 2010; Schneider and Spieth, 2013), some scholars propose broader multi-stakeholder or collaborative perspectives in order to cope with more complex actor settings and sustainability issues (Bocken et al., 2013; Joyce and Paquin, 2016; Laukkanen and Patala, 2014; Rohrbeck et al., 2013; Upward and Jones, 2016). The Value Mapping Tool developed by Bocken et al. (2013)

adopts a network perspective to integrate multiple stakeholders, asking for the kinds of positive, negative and potential value they expect in relation to a particular value proposition (e.g. a product or service offered by a company). The Collaborative Business Modelling method proposed by Rohrbeck et al. (2013) is an approach that supports collaborative efforts as a means to overcome barriers to sustainability innovation. Our framework and method have some commonalities with these approaches: as with the Value Mapping Tool, they aim at stakeholder-specific value creation (e.g. avoiding transmission losses for energy prosumers or opening up new markets for grid operators); and similar to the Collaborative Business Modelling method, they aim at supporting joint innovation to overcome barriers through direct exchange and mutual adaptation of different actors (e.g. seeing prosumers as complementary partners rather than rivals, i.e. to build on collaboration and partnerships rather than zero-sum game competition; see also the conclusions drawn by Laukkanen and Patala, 2014, on how to overcome barriers to sustainability-oriented business models by means of collaboration).

Our framework and method go beyond these approaches in that they acknowledge the fundamental role of values and normative orientations as motivational forces and guides for innovation processes – extending the notion of value as expected outcome of such processes. Both the Value Mapping Tool and Collaborative Business Modelling build on the (implicit) assumption that it is only the expected outcome of an innovation process that motivates stakeholder-inclusive, collaborative and sustainability-oriented innovations, i.e. the particular forms of value the involved actors expect for themselves. The new theoretical argument on which our framework and method builds is that innovation processes, be they on the instrumental or strategic level, are not only motivated by the expected valuable outcomes for these actors (such as monetising reduced ecological impacts or new business opportunities), but also, and more fundamentally, by their underlying values (e.g. creativity, social justice or honesty; see Schwartz, 1994, 2012). These values will of course differ depending on whether an individual, organisational or societal perspective is taken in an innovation project, and they will obviously not be predictable and deterministic. However, they will without doubt have a crucial influence on the direction and result of an innovation project. This theoretical perspective can be called the *values-based view on innovation* (Breuer and Lüdeke-Freund, 2015).

Figure 6 summarises the major theoretical arguments made by the values-based innovation framework and method developed in this paper (section 4), considering the learnings from the workshop on sustainable, regional energy systems (section 5). Figure 6 shows how a values-based network that integrates different business models can emerge when different actors (shown at the bottom) from an industry or region explore their shared values and normative orientations to formulate a common vision (values cloud at the top) – an exercise we call “grounding”. Building on

the different roles, capabilities and interests of the actors, multiple new business models can be developed (middle row of figure 6). The actors review these business model ideas with regard to not only their mutual dependencies and complementarities, but also possible tensions. This iterative exercise allows for the emergence of a network that integrates the values of its different actors and their new business models.

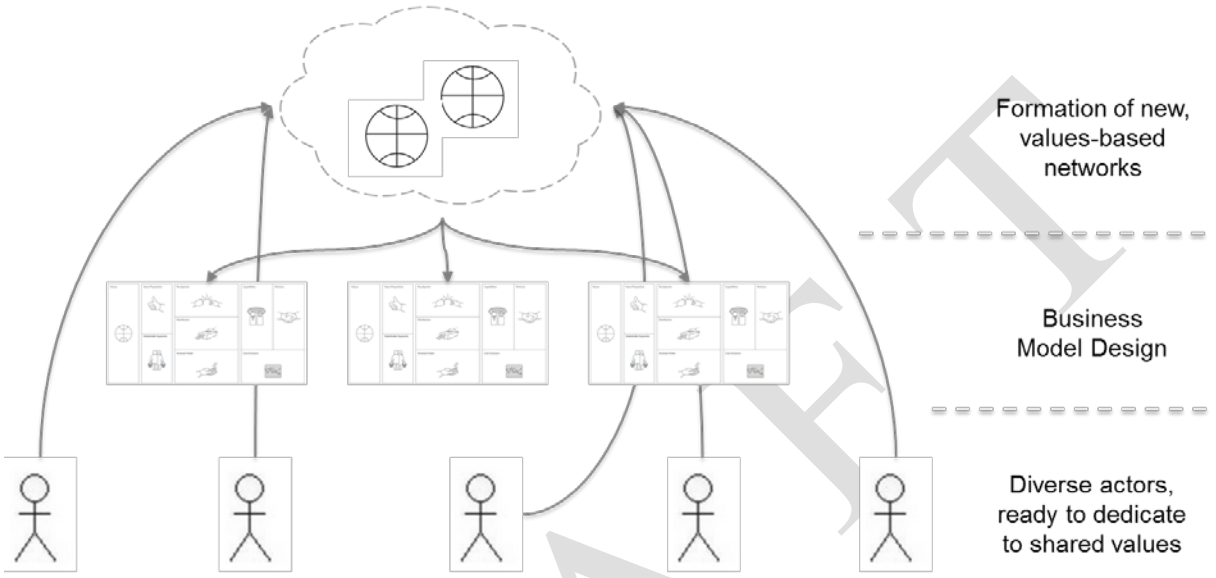

Figure 6: Visual summary of the theoretical arguments made by the values-based innovation framework and method.

Current empirical research studying leading innovative organisations finds that core values and beliefs are a basis for innovation performance, which strengthens our theoretical argument for a values-based view: "The highly innovative companies have a unique innovation culture. They nourish and share core values and beliefs which are practiced from top to bottom in these organizations. The ideology and the work philosophy of these companies emerge from the central core of values. These companies are quick to respond to threats and opportunities in the environment. They are constantly trying and experimenting with new ideas, ways, and methods to enhance their performance" (Manohar and Pandit, 2014, 679). Manohar and Pandit's study is one of the very few that makes a direct connection between values and innovation and thus applies a values-based view on innovation. The field of values-based innovation has not been defined yet in terms of theoretical and conceptual frameworks, research agendas and methods. Our framework and method are thus contributing to the development of this rarely explored field of research.

Given their ability to synthesise and balance stakeholder-specific goals and values, normative orientations and business models, the proposed framework and method could help researchers and practitioners alike identify and resolve barriers to sustainability-oriented innovation (Laukkanen and Patala, 2014). These cannot be understood and tackled sufficiently from an egocentric, single-actor

perspective that follows rather narrow definitions of (financial) value (Upward and Jones, 2016). On the highest level of abstraction, shared values provide a common ground among different stakeholders with diverse interests regarding normative, strategic, and operative concerns. This theoretical contribution, the *values-based view on innovation* (Breuer and Lüdeke-Freund, 2015), is relevant not only to better understand and conceptualise processes of sustainability-oriented innovation, but also for the field of innovation studies and management in general. It also plays an important role in the development of new future ideation tools, as shown in this paper.

In summary, companies and other kinds of innovation actors can contribute to sustainable development through collaborative business model innovation – which corresponds with the point made by Rohrbeck et al. (2013) – and this particular type of innovation has to build on a differentiated understanding of the involved stakeholders and the networks they create – as highlighted by Bocken et al. (2013). Building on these authors' approaches, we propose that collaborative and sustainability-oriented innovation requires a basis of shared, or at least mutually acknowledged, values as motivation and guide; not only forms of value as an expected outcome. That values can have an effect on innovation in general was shown by Manohar and Pandit (2014). In the specific case of sustainability-oriented business model innovation, we propose that it can and should be addressed from a values-based network and business model perspective.

7 Conclusions

We identified two critical gaps in the literature and current innovation tools: an egocentric focus on single firms and a lack of reflection on the values and normative orientations within value networks. Therefore, this paper proposes a conceptual framework for values-based innovation management, as well as a practical workshop and business modelling method, to support the creation of values-based networks and business models.

The resulting framework and method were applied in a workshop with 30 participants trying to envision a sustainable, regional energy ecosystem in Northern Germany. Representatives of municipal utilities, energy technology manufacturers, academia, and consulting adopted three actor perspectives: prosumers (i.e. energy producing consumers), energy producers, and grid operators. For each of these groups, future visions and value propositions were defined as a basis for actor-specific virtual power plant business models.

Based on the theoretical implications of our values-based innovation management framework and the reconceptualised notion of values-based networks and business models associated with our workshop method, we conclude that the crucial starting point for systemic sustainability innovations lies beyond single firms on the network level. Moreover, a promising lever for the development of fitting networks is seen in a collaborative elaboration of shared goals and values. Drawing network

members' attention to the fundamental role of values and normative orientations for innovation management creates a common ground for deriving new and possibly co-evolving business models. Elaborating upon shared values and visions is a promising way to overcome barriers to the implementation of sustainability-oriented innovations, that is through considering network members' perception and aligning "doing the right thing" (identifying a common ground) and their expectation of valuable outcomes (identifying relevant business opportunities).

The proposed framework and method allow for mitigated wicked problems, such as the transition towards sustainable energy, by modelling new business opportunities for different network members who together create a values-based network. The proposed combination of the "future workshop" format with business modelling grounded in a framework of values-based innovation management still has to prove its applicability through replication in different contexts. If and how our results and assumptions are transferable to other industries, such as international finance, health or education, which lack structured and scalable stakeholder dialogue formats, is an issue for follow-up research. A genuinely new aspect within the approach presented in this paper is the consistent values-based view on innovation management. It allows for the elaboration of values as levers for the formation of business networks used to solve problems that individual firms and business models cannot.

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