Werner Rammert · Arnold Windeler
Hubert Knoblauch · Michael Hutter *Editors*

Innovation Society Today

Perspectives, Fields, and Cases

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Foreword

To what extent and in what sense does innovation characterize our societies today?

This is the central question and common theme connecting the various contributions of this book.

This book is based on the idea that we are witnessing a shift in modern society's relationship with innovation. This is mirrored in discourse, institution-building, and innovation research. In public and academic discourse, we observe multifaceted uses of the term: 'Ubiquitous innovation,' 'disruptive innovation,' 'open innovation,' 'social innovation,' or 'responsible innovation' are but a few examples. Others involve the relabeling of institutional structures and processes as 'national innovation systems,' 'regional innovation clusters,' 'innovation policy,' or 'council of innovation'–even the European Union has declared itself to be an 'Innovation Union.' Finally, empirical studies of the practices of innovation also indicate thorough changes: an expansion of the sites of innovation, an enlargement of the drivers and actors of innovation, and a broader spectrum of types of innovation.

As a consequence, innovations are no longer limited to technology, science, and the economic sphere. Today we find them almost everywhere in society. Moreover, as the contributions to this book demonstrate, new innovation fields are emerging between economy and culture, between politics, planning, and social movements, and between science and public policy. Doing innovation is no longer restricted to inventor-entrepreneurs, start-up enterprises, or global corporations as drivers. Innovation processes are distributed between and co-produced by research universities, state agencies, and regional clusters of industry as well. The case studies in the book demonstrate that the network of innovators is augmented by crowd

funders and social entrepreneurs, citizen panelists and open-source activists, user groups and creative artists.

Innovations cannot be reduced to improvements of material products and technical processes alone. Our case studies from different innovation fields indicate that the types of innovation are becoming more and more varied: deviant concepts of co-creation and valuation; different practices of caring, financing, and sharing; and new institutional forms of governance and participation are emerging, sometimes without but more often in combination with digital technologies.

This book offers new theoretical perspectives on the role of discourses, practices, and socio-material constellations in the social, institutional, and cultural change of societies. Its authors discuss theories of 'reflexive modernization' (Ulrich Beck, Anthony Giddens, Scott Lash) and the communicative or discursive construction of a 'regime of the new' based on a 'dispositif' of creativity and aesthetic sensation (Michel Foucault, Andreas Reckwitz). New concepts are developed such as 'doing innovation' by 'communicating the new,' co-producing 'fragmented fields of innovation,' or 'reflexive innovation.' The authors base their analysis on social theories of praxis and pragmatism, of communicative action, and of discourses. All studies are related to a broader concept of innovation than the economic one.

The book is a translation of an earlier publication in German: *Innovationsgesellschaft heute. Perspektiven, Felder und Fälle* (Springer 2016). More information about the authors as well as on the origins of and motivation for the book in the context of an interdisciplinary doctoral research program can be found in the introductory articles. We thank the translators David R. Antal, Nancy Chapple, Roisin Cronin, Karen Margolis, Sarah Matthews, and John Richardson, and especially the translator and chief copy editor Stephan Elkins and his colleague Eric J. Iannelli from *SocioTrans*. Last but not least, we are very grateful for the encouraging help of the editors Cori Mackrodt and Kerstin Hoffmann, both at Springer Publishers.

Berlin, the 14th of July 2017
The editors

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Introduction

Expanding the Innovation Zone

Werner Rammert, Arnold Windeler, Hubert Knoblauch and Michael Hutter

Innovation as transformation of a more or less intentional nature is a timeless phenomenon. By contrast, innovation as a sustained, creative effort and the systematic generation of novelty is regarded as one of the core institutions of a modern economy. Currently, a further shift is taking place in society's relationship with innovation: innovation is transcending its traditional boundaries to become the major driving force in the society of the future.

In contrast to earlier practice, innovation has moved out of the niches of sporadic novelty in monasteries, guilds, and the arts into the observable zones of organized innovation. The preferred areas for economically defined innovation are business, markets, and enterprises. The public is most aware of technically oriented innovation, that is, the engineering of new products and processes in research and industrial laboratories. Chronologically and sequentially structured, this form of innovation fills the space between conception and invention on the one hand and diffusion on the other.

With an eye to the society of the future, for a number of decades we have observed the persistent expansion of this innovation zone to the point where innovation in society is ubiquitous, heterogeneous, and reflexive.

The first expansion to *ubiquitous innovation* is the shift beyond the economically defined, exclusively entrepreneurial zone to reach into all areas and fields of society. Concepts such as political, social, cultural, and ecological innovation reference this transformation. That said, there is still a heated debate in many fields, including climate policy, cultural reform, and scientific and university reform, over whether this is an imperial expansion of the economic criteria of innovation or a

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liberal expansion toward social innovation with differentiated codes of evaluation. At the same time, the innovation zone is also expanding inwardly: business and enterprises are increasingly moving beyond purely economic criteria to include other societal references, such as ecological sustainability, political fairness, and social responsibility.

The second expansion to *heterogeneous innovation* enriches the arsenal of objects and operations that usually serve to create innovations. In addition to material products and technical processes, the basis for innovation can include new symbolic artifacts and institutional forms. The spectrum of symbolic and conceptual innovation ranges from business models to computer simulation metamodels, from the aesthetic design of conventional objects to forms and formats of visualization. Examples that demonstrate the diversity of institutional and organizational innovation include the introduction of kindergarten, social security, and feed-in tariff laws that provide price incentives to supply renewable energy to the grid. Other examples are the current phenomena discussed in this book, such as flash mobs and crowdsourcing, which, although only possible thanks to the Internet and the appropriate platforms, are ultimately novel, relatively fixed forms of organizing gatherings or the technically mediated collection of many small investment contributions for risky or niche projects.

The third expansion to *reflexive innovation* extends the attention zone well beyond the gap between new prototype and mass distribution. Under the pressure of accelerating global competition, the linear chronological sequence of conception—invention—innovation—diffusion is being transformed into a reflexive, synchronized innovation process in which all steps have to simultaneously refer to each other at all times. Basic research, for example, nowadays embraces potentially 'disruptive' innovation and early-stage patenting; technical development proactively anticipates future user trends; subsequent diffusion is anticipated by open user involvement and expedited by public testing. In expectation of future distribution, the label of 'innovation' is applied to effects recently discovered in laboratories or data networks and novelties smartly packaged in future scenarios and at trade fairs, although strictly speaking they are frequently no more than potential innovations at this stage.

Such expansions of the innovation zone are changing the practice of innovation, the institutional processes that coordinate it, and the innovation regime in society as a whole. In addition to detailed empirical and comparative studies, getting a grasp on these expansions also requires efforts to develop theories for a new conceptualization of the concept of innovation, the areas of innovation, and the structures of the society of the future.

The contributions in this volume give due recognition to both concerns, though the emphasis differs. The first part highlights the theoretical work on the concepts of innovation, with constant reference to empirical studies and varying reference to theories of practice, communicative action, social differentiation, and reflexive modernization. In the other three parts, conceptual considerations and empirical case studies refer more directly to the fields of innovation within and between societal areas and are also more diverse.

This volume reflects the diversity of the fields of innovation by embracing a range of disciplines and research approaches. Besides sociologists who deal with knowledge, organizations, and discourses, with politics, spaces, and urban planning, and with economics, science, technology, and culture, the contributors include a number of economists who specialize in the production of cultural goods, creative marketing, Internet-based innovation, and the management, documentation, and promotion of innovation. Environmental and urban planning experts round out the range of perspectives.

Perspectives of Social Theory and Theory of Society

We have determined that there is a new form of social dispute in which innovations take center stage and are no longer limited to economic relationships. Today this innovation zone embraces almost all social areas. This insight is the subject of the contributions in the first part of this volume. Although from the perspective of social theory each viewpoint is somewhat different, they share one insight: innovation is no longer a process restricted to planned, long-term, largely technological improvements but has evolved into a broad, sociologically relevant social process.

A first step in the expansion of innovation is the shift in the focus of observing innovation from economic added value to the more general characteristic of communicative creation of novelty. As *Hubert Knoblauch* writes, "Innovation is … a reciprocally reflected communicative construction of the new as something new." This construction takes place in a process of communicative action: if the *novelty* is rooted in the physical performance of acting, its mutuality forces the recognition of the novelty by others; its objectification facilitates the reflexive display of novelty as novelty, which can develop in independent discourses. On this social theoretical basis, the approach distinguishes between two competing models of handling novelty: creativity and innovation.

As *Jan-Hendrik Passoth* and *Werner Rammert* have established, the "call for innovation … has transformed into an intensive, strategic quest for opportunities for innovation across all social domains." At the same time, the attributions to

traditional functional areas such as economics, technology, science, politics, and culture are also shifting. Passoth and Rammert argue that "it is precisely the bypassing and bridging of differences specific to these social spheres that represents a key feature of innovation processes today." The result of this 'practical reflexivity' is hybrid fields of activity and discourse located in the gaps that, on account of their specific dynamics, are termed *innovation fields*. The coordination of such fields is not based on stable guiding principles clearly aligned along distinctive social spheres but "on the situational creation, practical combination, and reflexive mediation" of heterogeneous points of reference and valuation.

Arnold Windeler's focus is rooted in social theory. Taking a practice-theoretical perspective, he discusses *reflexive innovation* as a medium and result of radically modern socialization. In his view, innovation societies are characterized by the modern principle of reflexivity, ensembles of driving forces, and institutionalized positions in innovation processes. In addition, he emphasizes the importance of organizations, networks, and innovation fields as well as the skills of the participants in innovation processes.

Andreas Reckwitz takes an even wider view. Whereas the theoretical approach of the authors of the other three contributions highlights the reflexivity of the innovation orientation, Reckwitz maintains that the cultural, aesthetic switch of the *novelty regime* drives the more fundamental structural change. In his view, a dynamic disposition toward *creativity* has emerged in recent years: "As a *dispositif*, it crosses the boundaries between functionally differentiated systems, encompassing the arts as well as broad segments of the economy, the mass media, city planning, and areas of psychological counseling. Thus, late-modern society is changing direction toward a structure of expecting and producing the aesthetically new." Ubiquitous and networked, social expression is shifting to an expectation structure of creativeness. Knoblauch also emphasizes the value of creativity in addition to reflexive innovation; however, the importance that Reckwitz attributes to the aesthetic form of novelty oriented toward affective attraction succeeds in creating a different view of the 'innovation zone.'

Between Economy and Culture

In his article, *Michael Hutter* diagnoses the 'self-centered desire for experiences' as the driving force behind *innovation in the experience economy*. In this segment of the economy, novelty is not rooted in purposeful improvements. The physical experiences and mental recollections enable the participants to experience themselves as new and changeable while they search for 'familiar surprises.' Thus,

Hutter argues, experiential novelties contain their value as surprise and sensation within themselves. Participants realize the added value in the aesthetic experience, and these experience constructs are reached through the market. The experience economy thus prepares experiences and offers them either in a form for which the co-players, the spectators, or the audience are prepared to pay, or in a form, based on predetermined settings, in which they are even willing to participate as co-producers.

In his contribution, *Franz Liebl* discusses far-reaching effects of the innovation society on strategic marketing. In his view the particular entrepreneurial challenge facing business is the need to develop an innovation-oriented strategic marketing that appropriately addresses the innovative potential of both customers and society through *innovations in the business models* of enterprises. According to Liebl, companies today are faced with the task of identifying and understanding innovation activities outside their own organizations. Customer surveys are not enough. Rather, it is a question of independently developing sources of novelty, among which Liebl counts, in particular, strategic forms of embracing quality cultural products such as literature, which enable enterprises to discover elements of strategic innovation in artistic works.

In their article *Innovation with the Help of the Crowd*, *Stefan Hopf* and *Arnold Picot* analyze crowd sourcing as a new way of organizing collaborative innovation. The authors focus on forms of collective problem solving in innovation projects by—and this is crucial—integrating external actors. Their point is that, by transforming cost structures, the spread of information and communication technologies and growing dematerialization of products and services has drastically narrowed the range in which manufacturers have an advantage in creating innovations themselves. The authors think *crowd innovation* offers a solution to this problem. It also promotes the paradigm shift from manufacturer-centered to customer-oriented and collaborative innovation.

In his contribution, *Knut Blind* presents conceptual considerations and the initial results of a new global instrument to capture innovation activities in cities, the Berlin Innovation Panel. According to Blind, ongoing monitoring enables this panel to create a comprehensive analytical framework for visualizing progress and setbacks in innovation strategies in a metropolitan region. This facilitates comparisons over time between regions and industry segments. On the basis of the results, it is possible to formulate both short-term and long-term political recommendations. For instance, a representative survey of 5,000 enterprises in Berlin revealed structural differences between Berlin and Germany as a whole and between Berlin and metropolitan regions in western Germany. For instance, in terms of innovation, larger companies in Berlin are relatively weak, whereas the opposite

tends to be true of micro- and small companies in Berlin: they are relatively strong innovators.

Between Politics, Planning, and Social Movement

Jan-Peter Voß, who studies hybrid innovations between politics and science, makes it clear that the fields of innovation in question lie *between* the conventional institutional areas. Significantly, hybrid innovations are also called *governance innovations*. More precisely, Voß's focus is the new institution of citizen panels; he reconstructs their emergence in recent decades. A particular characteristic of citizen panels is the role of technology and science. In his view, this reference to science and technology generates a reflexivity that passes through different stages in the course of its development. Voß talks about a veritable spiral of reflexivity that develops up to six different levels of reflexivity. He calls this reflexivity a postmodern form of regulation.

Paul Gebelein, *Martina Löw*, and *Thomas Paul* are interested in flash mobs as innovation. Flash mobs are a new social form of technologically mediated assembly. They emerged around 2003 when mobile text messaging was popularized as a means of connecting and linked with mailing lists. The result was a new form of gathering. Using ethnographic data supported by participants' informational data, Gebelein, Löw, and Paul focus on flash mobs that congregated in Dresden between 2012 and 2014. These flash mobs turned out to be a dual form of *doing innovation*. As the astonishing discontinuity of the participants shows, this is not only an innovative kind of event but also an event in which novelty in the form of surprise is itself the object.

The problem of innovation in the planning sciences is very different. When *Gabriela Christmann*, *Oliver Ibert*, *Johann Jessen*, and *Uwe-Jens Walther* inquire into the creation of novelty in spatial planning, they are interested in whether and how re-orientation in spatial planning not only optimizes tried and trusted routines but also breaks with them. Their concept of *societal innovations* indicates that the planning takes account of change not just in its environment but as part of the planning itself. Societal innovations are social constructions characterized by the production of something different in the actions of subjects and by third parties' perception of the difference as something 'novel' or 'innovative.' In their contribution they sketch their intention of applying this concept empirically to the emergence, implementation, and spread of innovations in urban development, urban restructuring, neighborhood development, and regional development.

Large-scale planning is the subject addressed by *Johann Köppel*, who looks at the energy revolution and asks whether it is a 'break in the path or a manifestation of the starting path' of an innovation. As the threat of energy crises looms, the energy sector is very open to innovation. This raises the question of whether in this regard we can observe a break with the traditional *path of renewal*. Using constellation analysis, the author breaks the issue down into the question of whether, for example, the new competition with the fossil-based energy system is a transitional phenomenon or whether, for instance, the propagation of carbon sequestration or unconventional (shale) gas extraction promotes a renaissance of the fossil energy systems—a question to which there is, admittedly, currently no final answer.

Between Science and Innovation Policy

Science is generally held to be the social area in which—freed from the need for practical action—novelty emerges as thesis, theory, or tested empirical analysis and is reflexively produced in the form of methodically verified knowledge. Science itself tends to be regarded as a source of inspiration and invention rather than as the site of technical and economic innovation. This is changing as the innovation zone expands: the types and fields of research are increasingly shaped and promoted with an eye to future exploitation and a role in shaping the future of society. Moreover, research practice and the organization of scientific activity are themselves becoming the object of reflexive innovation.

In her contribution, *Martina Merz* concentrates on *epistemic innovation*. She asks how modern science studies view the genesis of novelty in science. She reminds us of the insight of the great scholar Thomas S. Kuhn that novelties first become apparent as minor deviations and cumulative anomalies against the background of an accepted paradigm, a familiar reference system of 'normal science.' Making the dynamics of new paradigms in scientific fields and beyond comprehensible requires a microperspective viewpoint and an object-centered perspective on the practices and objects of epistemic processes such as Hans-Jörg Rheinberger and Karin Knorr-Cetina have developed. In the case of computer simulation discussed here, Merz presents a novel epistemic practice with its own specific dynamics.

The analysis by *Nina Baur*, *Cristina Besio*, and *Maria Norkus* looks at *organizational innovation* in science. In the early days of modern science, Jonathan Swift ironically referred to projects as 'dabbling'; today, projects in this sense have become one of the leading organizational forms in science. Their long genesis can be traced from the sporadic transfer of industrial and, later, military forms of

organization of targeted research and development through to the current 'normal form' of 'projectification.' From the perspective of systems theory and figurational theory, the driving force behind this institutional innovation is attributed to the evolving interdependence between science, economics, and politics and the growth of networking between actors and authorities. Case studies from empirical university research illustrate the extent to which science's gain in the form of greater flexibility in socially defined topics and interdisciplinary cooperation goes hand in hand with the loss of autonomy and at the expense of predictable careers.

Cornelius Schubert's contribution deals critically with the concept and politics of *social innovation*. Referring to the 'sociotechnical dynamics' that apply to all social innovations, he argues against the reduction of innovation to 'purely' technical or social innovations. In his view, this is a return to positions that dematerialize the social aspect and abstract from forms of its mechanization. Regarding the growing field of European research policy, which seeks to establish social innovation as a separate funding category, he diagnoses a 'normative model' of 'good' social activities, sustained by grassroots initiatives and local actors, that have emerged in reaction to social and ecological problems that top-down policy and the markets have failed to deal with—a kind of 'caring innovation' in other words. Schubert presents this innovation policy, which has been pursued with much success by, among others, the Young Foundation, a think tank, as a notable example of reflexive innovation: the purposeful generation of knowledge about social innovations is used as a lever for selective social change, whereby the positive connotations of 'technological and economic innovation' and of 'innovation' are also used to enhance and implement change in social and ecological policy.

Reflexive innovation, one could provisionally sum up, is the key concept that defines this new principle. Increasingly, innovation processes are recursively observed and repeatedly shaped in light of information about innovations. They are becoming collaborative, spread across a growing number of heterogeneous actors and institutions, and furthered in cooperation and competition. They are also increasingly situational, evaluated, and justified in keeping with changing and hybrid references in the differentiated fields of innovation. In light of the contributions and examples collected in this volume, one might hazard the diagnosis that, as the innovation zone expands beyond the classic fields and phases of technological and economic innovation, reflexive innovation develops into the dispositive aspect in social discourses on the future, into the ubiquitous imperative of innovative activity, and into the pervasive regulative of institutional renewal. If further research in different fields can show that 'ubiquitous innovation,' 'heterogeneous innovation,' and 'reflexive innovation' in this sense are the dynamism driving contemporary society, then our thesis of the transformation into the future innovation society as

well as the theoretical perspectives and case studies collected here under this title are to be taken as a contribution to the current discussion in the theory of society: they enrich the growing archive of societal diagnoses. With their variety of perspectives, they promote interdisciplinary discourse and comparisons between fields of research, and they reflect the future of modernity as mirrored in the social and historical transformation of the present.

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Because it served many colleagues, including some of the authors in this volume, as a reference text for suggestions about and critical analysis of our core ideas and concepts (see Hutter et al. 2015), a slightly revised version of the original proposal can be found after this introduction. For us, the initiators, the proposal and the everyday program work would have been far more challenging without the enthusiastic commitment of the other 12 contributors: Nina Baur, Knut Blind, Gabriela Christmann, Christiane Funken, Hans-Georg Gemünden, Wolfgang König, Johann Köppel, Jan-Peter Voß, Harald Bodenschatz, Gesche Joost, Franz Liebl, and Uwe-Jens Walther. In recent years, the newly appointed colleagues Sybille Frank, Martina Löw, Marcus Popplow, and Jochen Gläser have joined the group. We thank all of them for their participation, creative ideas, and tutoring.

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Innovation Society Today

The Reflexive Creation of Novelty

Michael Hutter, Hubert Knoblauch, Werner Rammert
and Arnold Windeler

1 A Research Framework for Reflexive Innovation[1]

Society's ability to reinvent itself is currently under debate. This discussion no longer centers solely on new technologies and economic innovations but on how novelty is currently created in all spheres of society, how it is discerned in its nascent stages, defined in different ways, and asserted in a variety of social spheres, even in the face of resistance. 'Creative districts' (Florida 2002) and 'creative capitalism' (Kinsley 2008), 'social,' 'open,' and 'public innovation' (Howaltdt and Jacobsen 2011; Chesbrough 2006) are just a few of the buzzwords being cast about in public debates in Europe and the USA. The theoretical framework presented here places the purportedly new reflexive quality of actions, orientations, and institutions, both as an overarching and crosscutting social phenomenon, at the center of its analysis. Studies that refer to this framework should help one gain a better understanding of the dynamics of creative processes in different fields of

1 This paper is an abridged and slightly revised version of the doctoral program proposal initiated by the authors of this paper at the Department of Sociology, TU Berlin and funded by the DFG *(Deutsche Forschungsgemeinschaft*—German Research Foundation). Twelve affiliated scholars contributed to the program proposal: Nina Baur, Knut Blind, Gabriela Christmann, Christiane Funken, Hans-Georg Gemünden, Wolfgang König, Johann Köppel, Jan-Peter Voß, Harald Bodenschatz, Gesche Joost, Franz Liebl, and Uwe-Jens Walther. This paper was previously published in German in 2011 (Hutter et al. 2011) and in (a former version in) English in 2015 (Hutter et al. 2015).

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innovation and explain the success of specific innovations by examining social mechanisms of justification, valuation, imitation, and strategic network creation.

Our approach to analyzing the responses of different social spheres to the ubiquitous imperative of innovation differs from other agendas of innovation research and analyses of macro-level social change in various respects. First, unlike the predominant perspective with its underpinnings in economic theory, this approach does not limit itself to familiar fields of innovation such as the manufacturing and service sectors. Instead, we adopt and develop a more comprehensive concept of societal innovation rooted in the social sciences (Rammert 2010). Based on this conception, innovation is defined according to what actually counts as such in specific fields, for instance, in the arts, science, politics, or social planning. The economic concept of innovation is not abandoned in the process but rather specified in terms of its main reference points, which are increased productivity and market presence. This positioning allows us to learn from the operational success of earlier notions of innovation while adopting a critical distance toward a purely economic assessment of innovation in other social fields.

An additional defining feature of this framework lies in the crosscutting approach of examining the reflexive creation of novelty at several levels of society (micro, meso, macro). The political and economic sciences often focus on the macro level of society, politics, and economy or on specific organizations by analyzing, for instance, issues of governance or the management of innovation. With the approach under discussion, these levels remain analytically intact. The difference is that they are enriched by the specific micro level of creative and innovative action. This allows for a productive dialogue with studies that examine practices and processes of experimental inquiry, 'playful' engineering, creative and improvised planning, as well as theories of subjectivity and reflexive action.

As a third notable aspect of the framework, empirical analyses of innovation can integrate two or three observational forms. The objective is not only to capture the discourses, practices, or institutions of innovation; rather, starting from the focused analysis of a case, field, or development, scholars can identify and interrelate the semantic, pragmatic, and grammatical aspects of their chosen phenomena in order to go beyond the purely discourse-based or institutional analyses commonly found in current research. This approach should enable young researchers to differentiate between merely propagandistic (pseudo innovations), unrecognized (hidden or informal innovations), or strategic versus unintentional innovations, for example.

With this systematic perspective, individual research projects conducted across individual disciplines (e.g., new developments on the Internet; social change in various fields such as urban planning, the marketing of art, simulation in the sci-

ences; innovations related to political instruments or financial products) can be situated in the context of a systematic theory of society, in which the contemporary signatures and regimes of an innovation society can ultimately be identified and analyzed. Further lines of inquiry in this context might include, for example, a) whether the emergence and diffusion of a new reflexive model of action can be observed across different social spheres (i.e., along the lines of Weber's rationalization thesis), b) whether the mode of institutional differentiation is shifting towards fragmented and heterogeneously networked patterns of societal coordination, and c) whether institutional innovation processes are increasingly occurring along set paths or as individualized innovation biographies.

Studies that follow this approach will therefore enrich established economic innovation research with new insights and findings and open up previously unexamined fields to a more interdisciplinary research perspective and more specific lines of questioning. This comprehensive framework will also permit researchers to touch base with relevant fields in economic sociology, the sociology of knowledge and cultural sociology, organizational institutionalism, as well as science, technology, and innovation studies and work to intensify dialogue and common points of reference among these disciplines.

2 Research Agenda

2.1 Motivation and Central Focus: Reflexive Innovation as a Pervasive Social Phenomenon

Innovation was long restricted to the labs of scientists and engineers, R&D departments in the private economy, and—though seldom acknowledged—artists' studios. Today, creative practices and innovative processes have become a ubiquitous phenomenon across all areas of society. What has changed is that the creation of novelty is no longer left to chance, ingenious inventors, and the creative habits of specialized fields. Innovations are increasingly driven with purpose, with numerous beneficiaries in mind, and in the context of broad-scale demands for strategic innovation. Innovations are managed as complex processes distributed among various entities and reflected in terms of the actions and knowledge of actors in other fields. Reflexive innovation refers to the interplay of these practices, orientations, and processes while noting that the path of an individual innovation is observed, shaped, and influenced by its specific institutional setting and ties, discursive justifications, and the forms and paths of other innovations. This new form of innovation is not confined to laboratories or R&D departments—as can be seen

by cross-disciplinary and regional innovation clusters—nor does it shy away from shaping new innovation regimes. Innovation society today is characterized by a wide variety of innovative processes in all fields and by the unifying social imperative to innovate reflexively. Innovation itself has become a topic of discourse driven by a 'culture of innovation' (UNESCO 2005: 57ff.; Prahalad and Krishnan 2008) that pervades all social spheres reflexively.

> *The central research questions guiding the studies on the proposed reflexive innovation society today are thus these: What degree of reflexivity can be identified in contemporary innovation processes, where do these processes occur, and how are they distributed among different actors?*

Hence, the main theme is the broader societal relevance of reflexive innovation. This includes practices, orientations, and processes of innovation in selected fields and how they develop and are strategically advanced within and between different areas of society. These innovative practices, orientations, and processes should not only be analyzed in the classic fields of economy (industry and services) and science (research and technology development) but also in contexts that involve culture (the arts and creative cultural production) and politics (policy-making and social-planning processes).

The objective is to analyze how specific innovative practices, discourses, and institutional arrangements have become increasingly reflexive in recent decades. We are additionally interested in whether new developments in other fields have promoted or impeded individual cases or paths of innovation. Empirical analyses in the individual fields and case comparisons will ultimately permit an assessment of the extent to which the principle of reflexive innovation has become not only a rhetorical but also a practical and institutional imperative in the current social climate of innovation.

We thus employ a more encompassing concept of innovation in society than that found in economics (Rammert 2010), which also allows us to capture new developments in the arts, social planning, and design by extending beyond the traditional economic calculations and rationalizations that surround innovation. This concept also goes further than 'social innovation' (Zapf 1989) and 'political innovation' (Polsby 1984) in addressing the links between and different constellations of technical, economic, and social innovation. As a key distinction already described by Ogburn (1922) and Schumpeter (1939), this extended concept differs from 'normal' social change in that it refers to new developments that do not just 'happen' and are then recognized and promoted. Instead, what we are interested in is the intentional, systematic creation of new material and immaterial elements,

technical and organizational procedures, and socio-technical combinations of all of the above that are defined as 'new' and legitimated as an improvement compared to what came before. In contrast to Schumpeter's early writings, contemporary innovations are seldom brought forth by individual business entrepreneurs; rather, they are created by different types of collective entities (teams, communities, companies, networks) that—however influential or reflexive—are also only in partial command of the overall innovation process, which is distributed across numerous other entities.

'Doing innovation' has therefore become an explicit aspect of what social actors do with regard to knowledge, discourses, actions, social systems, and institutions. Continuous reflections on and about innovation are accompanied by elaborate discourses that justify the new developments based on the interests of specific actors and actor groups. These arguments can involve situational explanations, organizational and institutional rhetoric, and taken-for-granted ideologies. They can build on modern concepts of progress or subjectivity (Reckwitz 2008: 235ff.) or pragmatic regimes of justification (Thevenot 2001) and valuation (Stark 2009: 9), construct views that make innovation seem necessary—or even unavoidable, and promote investments in innovation. These ideas slowly crystallize into indisputable and sometimes highly authoritative 'facts' or social imperatives for all actors involved.

On the basis of the above considerations, we can specify our research focus even further: *How reflexively do actors define and organize innovation in different fields of innovation, and which justification discourses guide their practices and interpretations?*

This phrasing permits a specifically sociological approach to innovation that draws from areas such as the sociology of knowledge, organizations, economics, and science and technology studies (STS). This approach should, however, be supplemented and supported by economic, historical, political, and planning-based perspectives from other disciplines.

In contrast to the engineering sciences, the sole focus of our framework is not the production of new technologies, processes, or materials. Technical innovations in this stricter sense are a relevant point of reference; nevertheless, they are investigated in terms of their relations to non-technical social innovations as well as their reflexive ties to economic, political, cultural, or artistic innovations. In contrast to economics, the main issue is not to increase the efficiency of different factors and processes. This conceptually limited economic understanding of innovation does constitute a central reference point in terms of its practical relevance. However, it is expanded to include other areas and ultimately superseded by a more encompassing concept in which complex interrelationships count. Economic

innovations can thus also increasingly draw from various other references, such as artistic (Hutter and Throsby 2008) or political innovations. Unique hybrid regimes of innovation can even emerge from incongruities or 'dissonance' between these references (Stark 2009) through the conflicts or compromises that occur as different regimes collide.

From our relatively broad social-science-based standpoint, our first concern is to develop an adequate understanding of innovation processes that are both distributed across various social fields and interconnected: How are different actors able to reflexively create and coordinate new developments on the basis of existing patterns of action and justification? Second, we are concerned with understanding practices and processes: How are new developments distinguished as 'new' by recognized institutions in different fields and deemed 'innovations'? This includes the issue of power: Why, when, and in which constellations are specific actors and institutions able to define and successfully assert specific innovations?

Ample research is available for individual fields and forms of innovation (see, among others, Rogers 2003; Braun-Thürmann 2005; Fagerberg, Mowery, and Nelson 2005; Aderhold and John 2005; Blättel-Mink 2006; Hof and Wengenroth 2007; Rammert 2008; and Howaldt and Jakobsen 2010). Innovation research, with its predominantly economic slant, has produced numerous analyses of the dynamics of technological innovations. Profit maximization, rational decision-making, and transparent price signals are built into this set of explanations. Nevertheless, these models also include insights into the boundaries of rational technology choices as well as the historic or evolutionary character of long-term technology development (see, e.g., Rosenberg 1976; Nelson and Winter 1977; Elster 1983; Utterbeck 1994). With its strong focus on management, innovation research has presented in-depth studies of relevant personnel and organizational factors at the level of the firm (cf. Gerybadze 2004; Gemünden, Hölzle, and Lettl 2006) and corporate networks (cf. Sydow 2001). This research emphasizes creativity and cooperation, trust and heterogeneous organization. More recently, however, scholarly interest in innovation has shifted from scientific and economic loci to other groups such as users, early adopters, and social movements (Hippel 1988, 2005; Chesbrough 2006) as new focal points.

In recent years, also because of technological and scientific competition and the necessity of drafting national innovation policies, research within this disciplinary tradition has further picked up on insights that innovation can include new forms of work (Barley 1990; Barley and Kunda 2004) and the creation of activity spaces (Massey 1992, 1995; Moores 2005) for individuals and collective actors. Innovation is now also viewed as a societal phenomenon, often with a transnational scope. This requires a broader conceptual framework and the integration of other so-

cial-science disciplines. Innovations have thus been increasingly investigated in the context of organizational fields (DiMaggio and Powell 1983; Hoffman 1999) as well as national innovation systems and global innovation regimes (cf. Nelson 1993; Edquist 1997; Braczyk, Cooke, and Heidenreich 1998; Blättel-Mink and Ebner 2009). Innovation paths are regarded more and more as the result of cultural constructs and institutional selection, in which non-governmental organizations (NGOs) and professions play a substantial role alongside firms (Meyer et al. 1997; Meyer 2009; Fourcade 2009). Continuity and breaks among such constellations can result in different innovation biographies (Bruns et al. 2010).

The ongoing influx of new developments in cultural fields and the new creative industries has also been analyzed by scholars in order to integrate the various interrelationships of a modern society in the grips of permanent renewal in view of changing forms of media (Castells 1996; Florida 2002). Political science and sociological governance research have broadened the economic research perspective (Powell 1990; Kern 2000; Windeler 2001; Sørensen and Williams 2002; Lutz 2006; Schuppert and Zürn 2008). The history of technology, science, and economics provide the necessary historic dimension to the phenomenon of innovation and its economy (Wengenroth 2001; Bauer 2006; David 1975; Mowery and Rosenberg 1998).

A specifically sociological view of innovation has only begun to emerge, for example, with the transfer of constructivist and evolutionary models from research on the development of new technologies to the study of innovation (Rammert 1988, 1997; Braun-Thürmann 2005; Weyer 2008), with organizational and network research focused on innovation processes (Van de Ven, Herold, and Poole 1989; Van de Ven et al. 1999; Powell, Koput, and Smith-Doerr 1996; Garud and Karnoe 2001; Windeler 2003; Hirsch-Kreinsen 2005; Heidenreich 2009), and with models of creative production and cultural innovation from the sociology of knowledge and cultural sociology (Popitz 2000; Knoblauch 2013), all of which have expanded the scope of innovation studies.

The next step towards a comprehensive sociological understanding of the innovation society is research that focuses on the practices and processes of the reflexive production of novelty. Existing approaches to sociological and social-science-based innovation research can be bundled to develop a more comprehensive perspective by drawing from various empirical studies of innovation fields in different areas of society and comparing them systematically with regard to the rules and regimes of reflexive innovation. Through this comparison, we can gain a more thorough investigation of creative practices and innovation processes. Increased attention should also be paid to more overarching topics such as the societal embeddedness and varying interrelationships of different regimes.

2.2 Analysis: Dimensions of the Research Framework

Dimension I—Observation Forms: Semantics, Pragmatics, and Grammar

Innovations are not straightforward facts. They must first be made into such through practices of perception and legitimation. Innovations are linked to justification discourses that can contain both practical ('accounts') and theoretical ('ideologies') elements. Such ascribed concepts make innovations meaningful and comprehensible to direct participants in innovation processes as well as other actors. These processes traverse several stages of development: They are labeled, imbued with meaning, linked to existing knowledge, instilled with recognition and esteem, and invested with permanence through institutionalization. They can even come to develop their own paths.

The distinction between semantics, pragmatics, and grammar—though not in the more narrow sense of linguistic analysis—has already been transferred to sociological technology studies (Rammert 2002, 2006). It furnishes us with three analytical dimensions with regard to observing society: social semantics, social pragmatics, and social grammar. Semantics refers to the significance of what is recognized in society as innovation in terms of meaning, knowledge, and discourses. However, innovation is not necessarily expressed explicitly in language; it can also be expressed primarily in actions as well as in new constellations of action and technology. We use the concept of pragmatics to refer to this dimension. Finally, grammar denotes the arrangements, regimes, and rule systems that make innovation possible in the first place, as they establish a basic framework that also places limits on innovative developments.

The three perspectives of semantics, pragmatics, and grammar allow differences in the relative importance and primacy of these elements in the creation of novelty to be captured empirically and juxtaposed for analysis and comparison. These perspectives may also diverge, such as when engaging in innovation (pragmatics) takes on a life of its own and divorces itself from that which is declared as 'new' (semantics). These aspects can override each other and assume a leading role in innovation processes in different ways. One of the research questions that follows from the proposed framework is thus to observe whether one or more of these three perspectives is absolutely critical—or perhaps even negligible—in the innovation fields analyzed as well as the significance assigned to this state in individual cases. Further, more specific lines of questioning include:

- Are there fields of innovation in which specific discourses (semantics) are strong drivers of innovation, as appears to be the case in politics and planning activities oriented toward sustainability and for artistic innovations?
- Are there fields in which systems of rules (grammar) from different areas of society either promote innovation or restrict new developments? Patent regimes could be postulated as an example of the former, the adoption of collaborative R&D forms from other countries in the USA until the mid-1980s as an example of the latter.
- Are there also fields in which innovations quietly prevail as implicit dimensions of practices or are concealed in material products (pragmatics) despite cumbersome rule systems and without explicit announcements? Social and cultural innovations that occur below the public radar could serve as examples.

In addition, as regards the interplay of different aspects of innovation processes, we are particularly interested in whether these take on a mutually reinforcing character and how this interplay might influence subsequent developments. This also lets us capture more complex social phenomena, such as those which can emerge through unintended consequences of social action and the overlapping of other social fields.

Dimension II—Aggregation Levels of Innovation: Action, Organizations, and Society

From a sociological perspective, we can observe innovations at different levels, regardless of whether we are dealing with cases of 'knowledge,' 'fiction,' or 'institutionalization.' We can distinguish between three levels of innovation: action, organizations, and society (see also Luhmann 1975; Röpke 1977). This distinction serves as a heuristic device to pinpoint the issues and areas of investigation and therefore also to coordinate project research.

At the level of conceptualizations, plans, and projections, we can consider innovation as a phenomenon rooted in action. As important as the social observation, negotiation, legitimation, and embeddedness of the innovation may be, they are usually based in action. Moreover, even though an innovative action can only be viewed as innovative (or not) in relation to other actions, our objective is to systematically account for the activity of knowledgeable subjects as the source of innovations and also to observe the creation of novelty as a micro-structural phenomenon in various research fields. One suitable point of departure for this endeavor is doubtlessly sociological theories of action, which also broach the issue of plans, imagination, and creativity (Joas 2006; Popitz 2000). Links between current forms

of flexible production, the development of creative industries, and the subjectification of work (Bolte and Treutner 1983; Voß and Pongratz 1998; Moldaschl and Voß 2002) emphasize the ongoing significance of subjectivity.

If interactions are already relevant at the micro-structural level, they play an even more important role at the organizational level. Key issues at this level of analysis are the internal organization of innovations, social forms of the production of novelty, and innovation networks. Research can analyze, for example, the interactive organization of scientific work, operational production processes, and management practices geared towards innovation in firms. Further focal points can include practices and processes at the firm level, in inter-organizational networks, and in organizational fields. A central assumption is that not only the diverse relationships between different organizations—labs and patent offices, studios and museums, and architecture firms and city planning departments—but that the ways in which these organizations coordinate their interactions and relationships also hold a relevance for the creation of novelty. The arrangements and rule systems constituted by these areas form the key elements of specific innovation regimes. These areas are simultaneously the contexts in which innovations emerge in practical terms and are semantically justified.

Society is the third relevant level of observation, which increasingly calls for an analysis at the global level (i.e., as a 'world society' traversing the boundaries of individual nation states). The obvious focus in this regard falls on the distinct macro-structural features of those areas of society most likely to be gripped by the imperative of innovation (e.g., science and economy). To do justice to our concept of a more comprehensive approach, we accentuate the need to analyze fields of innovation that are most prominently situated in other areas of society (culture and politics, for example). Research at the level of society could, on the one hand, focus on sets of semantics, practices, and grammar systems with an overarching social relevance; on the other, scholars could observe the formation of transnational sets and the adoption of mechanisms and actor constellations that either drive these developments or stand in their way.

Dimension III—Social Spheres and Fields of Innovation: Technology/Science, Industry/Service, and Fields of Comparison

Innovation studies today mostly focus on technological artifacts. Novel technologies are organized primarily in the highly differentiated spheres of science and economy as well as in the increasingly dense networks between the two (cf. Bommes and Tacke 2011). Central fields of innovation in these key areas include technological disciplines in which the lines between 'pure' technology and 'pure'