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ATLAS OF SOCIAL INNOVATION

2ND VOLUME: A WORLD OF NEW PRACTICES





PREFACE: ATLAS OF SOCIAL INNOVATION – ALLOWING PERSPECTIVES BEYOND SILO THINKING

Since the release of the first volume of the Atlas of Social Innovation in early 2018, the pace of change around the world has continued to intensify. In the last year, there has been a collective awakening to the urgency of the climate crisis, thanks in part to the actions of one Swedish school girl; there is a swell of populism and citizens are establishing a new relationship with our political systems, as we see from Venezuela to Hungary to Hong Kong; our relationship with data, technology and automation is increasingly front of mind.

This means social innovation is needed now, more than ever. In order to make headway on these global challenges, we must further strengthen the global social innovation ecosystem. We must reinvigorate the social innovation movement around its core values of pluralism and diversity, in order to come together to work on these big global challenges.

From the experience of SIX, creating a strong network across practice fields and sectors is essential for successful social innovations. We challenge key institutions to re-examine themselves: philanthropic organisation must be bolder to increase the flow of funding into social innovation; universities must reimagine their purpose, seeing themselves as a resource for society, not just academia; our political institutions need to reconnect to people and share power; private sector companies must realign around purpose. We also bring these sectors together to have purposeful conversations around our shared challenges, in order to drive the transformation and impact we so urgently need.

The Atlas of Social Innovation is underpinning such network activities by providing an overview of social innovation around the world, its regional mainstems, its current trends, ecosystems and infrastructures. By doing so, it is allowing perspectives beyond silo thinking towards better cooperation and joint activities across sectors and their specific viewpoints.

Since the release of the first volume in early 2018, a lot has happened in the diverse world of social innovation, particularly in Europe. Creating a Social Innovation Community that resulted in handing over the Lisbon Declaration on Social Innovation to the European Commission is one of the more important developments.

After the success of the first volume of the Atlas, this new edition widens the overview of the first by focusing on new aspects of the growing variety of social innovation in practice. Together with its virtual representation and the map of initiatives around the world, it is contributing to the important diffusion of accessible, shared knowledge on social innovation. It is a great help to all stakeholders across the world and across civil society, research, politics and business to better understand the potential and capacity of social innovation.

Louise Pulford
CEO, SIX

INTRODUCING THE ATLAS OF SOCIAL INNOVATION



Jürgen Howaldt / Christoph Kaletka / Antonius Schröder / Marthe Zirngiebl

In the two years following the publication of the first volume, social innovation has increasingly been attracting attention. Countless approaches and initiatives illustrate the dynamism and potential of social innovation to address the most urgent societal challenges and develop continuously new solutions for pressing problems. At the same time, social innovation is gaining importance in coping with the fundamental socio-digital transformation by increasing the innovative capacity and future sustainability of society. It is regarded as an important factor to achieve the Sustainable Development Goals and creates repeatedly more sustainable social practices in production and consumption.

Social innovation has become an integral part of the European Research Agenda and Innovation Policy. In Fall 2018, Carlos Moedas, the European Commissioner for Research, Science and Innovation, emphasized that “In the European Union, we are going to put more money into social innovation, not because it’s trendy, but because we believe that the future of innovation is about social innovation.”¹

For a global community joining forces it is important to improve the groundwork. ESSI, the European School of Social Innovation, is a think tank strengthening social innovation by enhancing research and scientific knowledge on social innovation. It is considering itself as part of a growing transdisciplinary social innovation community bringing together stakeholders from civil society, academia, policy and companies. This growing Social Innovation Community is a joined force creating a supportive framework and a social innovation friendly environment of a world of new practices.

The Atlas of Social Innovation’s second volume ‘A World of New Practices’ is a pivotal building block among ESSI’s many activities. The **first chapter** provides insights into current research streams focusing on social innovation and contributing to its conceptual underpinnings. The articles provide an overview of different conceptualizations focusing on the creation of a new innovation paradigm, transformative innovation policy, insights from business innovation and for public policy, social movements, the relationship between work and digitalisation, and more. Furthermore, the chapter sheds light on the role of social innovation in urban

development and draws connections between the concept and the spread of transition towns. In the **second chapter**, we follow the tracks of social innovation around the world and present insights into its variety in several countries including Australia, Brazil, Japan, Mexico and Switzerland. The **third chapter** provides an overview of the conceptual development and practical examples of social innovation labs, discusses the role of higher education institutes and presents the process of creating a European social innovation declaration. However, a sound infrastructure supporting the creation and diffusion of social innovations has yet to be built. The establishment of social innovation labs in different parts of the world and in a variety of institutional settings provides a first idea of what this infrastructure could look like. Furthermore, supportive policies and programmes on national and European levels can further anchor social innovation in society.

By bringing together leading experts, the Atlas opens up new insights into current trends of social innovation research and its connection to other schools of thought and research traditions. As diverse as the new practices labelled social innovation are, the conceptual underpinnings draw upon the experiences of a variety of disciplines contributing to the rich, multi-layered nature of the phenomenon. The new Atlas of Social Innovation provides exciting insights in an emerging world of new practices.

¹ <https://horizon-magazine.eu/article/carlos-moedas-eu-will-fund-more-social-innovation-because-it-s-future-innovation.html>

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THE SOCIAL INNOVATION LANDSCAPE – GLOBAL TRENDS

The development of the social innovation research landscape is not bound to a single concept or theory but rather connects strongly to other schools of thought and research traditions. As diverse as the new practices described as social innovation are, the conceptual underpinnings draw on the experience of a variety of disciplines contributing to the rich, multi-layered nature of the phenomenon.

The following chapter provides insight into current research streams focusing on social innovation and contributing to its conceptual underpinnings in various ways. The articles provide an overview of different conceptualisations focusing on the creation of a new innovation paradigm, transformative innovation policy, insights from business innovation and for public policy, social movements, the relationship between work and digitalisation, and more. Furthermore, the chapter sheds light on the role of social innovation in urban development and draws connections between the concept and the spread of transition towns. It closes by presenting a framework for the development of indicators measuring the impact of social innovations.

FROM INNOVATION TO X-INNOVATION TO CRITICAL INNOVATION

Today, innovation is one of the key concepts of our vocabulary, a value and an injunction. How did we get here? For centuries, the concept was pejorative and contested. This article documents the history of the concept over the centuries and how social innovation contributed to giving the concept a higher status.

Benoît Godin

“Innovation is certainly a ‘buzz-word’ today”, claimed engineer Jack Morton of Bell Laboratories in 1971. “Everyone likes the idea; everyone is trying to ‘innovate’; and everyone wants to do better at it tomorrow” [1]. The concept of innovation is everywhere. In the media, in government literature and in academic journals. Innovation is a concept of Greek origin (kainotomia). The concept originally had an essentially political and contested connotation: introducing change into the political and social order. It entered the Latin vocabulary around the third and fourth centuries as “renewing” (innovo), with prominent uses that were positive: spiritual (return to pure or original soul – before sin) and legal (reenacting an old act). As a third step, at the time of the reformation, the concept entered the everyday vocabulary. Its use was widespread and mainly pejorative in the seventeenth century [2]. Over the last few decades, the concept gave rise to a plethora of new terms that gave some specific sense to an old concept. ‘Technological innovation’ is such a term, and it is certainly the dominant representation of innovation. Yet other terms that contest this representation have emerged more recently. ‘Social innovation’ is such a term that is now part of the semantic field of innovation. This article aims to make sense of the concept of innovation, historically and critically.

FROM RELIGION TO RELIGION

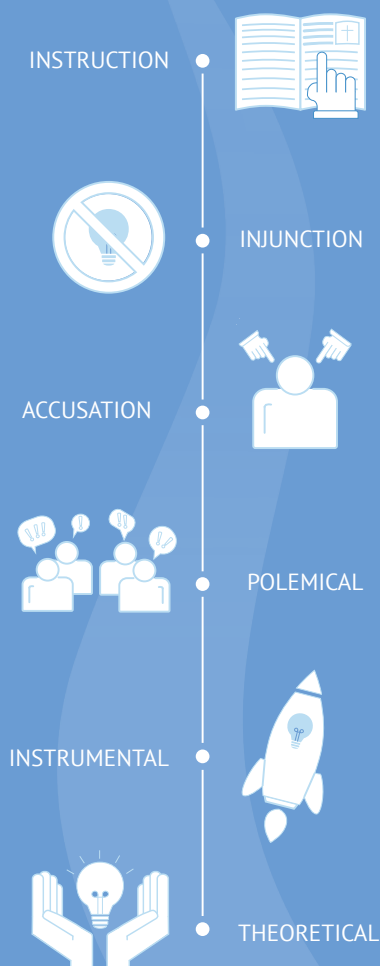
At the root of our modern concept of innovation is religion. The widespread use of the concept started at the Reformation, namely in England. As an innovation, but not so called at the time, the Reformation and its Reformers had to develop political, administrative and legal means to enforce and secure the Reformation. Language must also be added to this list as Monarchs used the concept of innovation to control the conduct of their subjects, through proclamations, declarations and statutes.

The use of the concept began as an instruction not to innovate. Henry VIII’s private correspondence of the 1530s is full of letters to councilors and ambassadors as messengers, instructing them that His Majesty will not “endure” or “tolerate” innovation. In a second step, innovation became a public injunction. In 1548, Edward VI issued *A Proclamation Against Those that Do Innouate*, the first ever royal injunction against innovation. The proclamation placed innovation in context, constituted an admonition not to innovate (not to change but to respect the new doctrine and discipline of the Church) and imposed punishments on offenders.

From then on, the concept served every cause, political and ecclesiastical, and soon became an accusation. Throughout his reign (1625-1649), King Charles I suffered the accusation of innovating. The Presbyterian Scots and the English Parliament were particularly violent in their words against Charles, who was accused of “popish innovation”. It is during this period that the concept became polemical. Everyone (archbishops, bishops, parliamentarians) accused the others (puritans, catholics, separatists) of innovation in religion and government. During the Reformation and afterward, the concept was used predominantly in the pejorative sense. The very few positive uses that existed were legal and spiritual. For example, popes used it for renewing a previous Act, and Thomas More for renewing of the soul. Overall, however, the negative meaning of the concept of innovation, a dominant connotation, continued until late in the nineteenth century.

Then in the twentieth century, innovation became a word of praise. It came to be considered a source of progress, political, social and material.

Evolution of the Uses of the Concept



Evolution of the use of the notion of innovation

Then in the twentieth century, innovation became a word of praise. It came to be considered a source of progress, political, social and material. To be sure, such a discourse began in the decades following the French Revolution. What was called “dangerous innovation” before, like revolution, became a “happy innovation”, a key phrase to Auguste Comte. The latter makes a contrast that became very popular later. In his *Cours de philosophie positive* (1839), Comte contrasts “esprit de conservation” [the spirit of conservation] to “esprit d’innovation” [the spirit of innovation] as two fundamental instincts, and explains social progress as the result of the latter. Yet a complete rehabilitation of the concept of innovation had to wait until the twentieth century, thanks to or because of engineers, practitioners and policy-makers, seconded by economists. The view of the seventeenth and

eighteenth centuries was eminently conservative. There was no question of progress. Then, after a long period of conflict, a new conception emerged. The qualities that were denounced as social vices emerged as moral virtues. In the name of economic growth, technological innovation became instrumental to economic policy. “*There is little doubt*”, stated the OECD in one of the first titles on technological innovation ever produced in the Western world (Government and Technical Innovation, 1966): “*that if governments succeed in helping to increase the pace of technical innovation, it will facilitate structural changes in the economy, and increase the supply of new and improved products necessary for Member Governments to achieve rapid economic growth and full employment and without inflation*”.

Religion, or rather a new kind of ‘religion’, remains in the background here. The concept of innovation diffused widely because of the context of the Reformation. Now innovation is THE modern belief or faith, as the OECD Innovation Strategy (2010) and the Europe 2020 strategy proclaim (2010):

“*Most current social, economic and environmental challenges require creative solutions based on innovation and technological advance.*” (OECD)

“*Innovation is our best means of successfully tackling major societal challenges, such as climate change, energy and resources scarcity, health and ageing, which are becoming more urgent by the day.*” (European Commission)

FROM INNOVATE TO WHAT KINDS

After World War II, technological innovation was studied as a fact of life, and was promoted to individuals (e.g. farmers), organizations (particularly firms and industries), and then whole nations. The concept gave rise to a growing literature concerned with firm strategies and public policies for innovation, in management, economics, research policy and sociology. Innovation acquired a new meaning here: the commercialization of inventions or new goods embodying knowledge or research and development (R&D). In the name of economic growth, innovation became a matter of market. Technological innovation is the commercialization of new products for the customer. Economic growth is no longer explained mainly by industrial processes as source of productivity (technological change), but by firms’ capacity to invent and sell new products.

Starting around 1980, a series of criticisms appeared that questioned the dominant idea of innovation as being concerned principally or even entirely with the market, or technology and industry. New terms began to appear that argued for a different kind of innovation. As Geoff Mulgan from NESTA put it recently: “The big question now is not whether to innovate but what kinds of innovation we need” [3].

I call these new terms X-innovation – a semantic pluralization of forms or kinds of innovation. Scholars began theorizing about X-innovation in the 1950s-60s. At that time, X-innovation was concerned with an object, like technology, industry, organization or education. In a second step, namely c.1980s-90s, new forms appeared that define innovation with adjectives: disruptive, open, frugal, responsible and sustainable. Certainly, adjectives existed for a long time in typologies of technological innovation: 1. major, revolutionary, radical, paradigmatic, systemic; 2. minor, incremental. However, now an adjective rather than an object defines what innovation is. This has to do with the ‘quality’ of innovation: we need a different type of innovation. Two characteristics define the newest kinds of X-innovation. Firstly, the societal in X-innovation. On one hand, namely on the input side (the process) X-innovation emphasizes inclusion, namely the participation of the public in the deliberations about innovation, from an early stage and in the decision process. Hence, we have X-innovation forms like inclusive innovation, democratic innovation and free innovation. On the other hand (the outcome), X-innovation places the emphasis on societal, ethical and environmental considerations. There is a moral imperative here. Innovation must be social, responsible and sustainable.

Social innovation is the oldest of these terms, which originates from the mid-nineteenth century. At the time it was contested, as was the concept of innovation. To some, social innovation was socialism and was subversive of the

social order. In 1888, a popular edition of the Encyclopedia Britannica included a long article on communism, which begins as follows: “Communism is the name given to the schemes of social innovation which have for their starting point the attempted overthrow of the institution of private property”. To others, social innovation was much needed. Among these others are reformers of a different kind than religious reformers, namely social reformers like Jeremy Bentham, Auguste Comte and the French socialists (Claude-Henri Saint-Simon, Charles Fourier) and their followers (Victor Considérant, John Patterson). Socialism was to many the ‘new spiritual power’ in post-revolutionary France and elsewhere in the Western world. The concept of social innovation served this “new Christianism”, as Saint-Simon called it.

Social innovation as a term re-emerged (in a positive light) in the last 20 years as a reaction to technological innovation and to hegemonic discourses on industrial innovation. As “new ideas that work to meet pressing unmet needs and improve people’s lives”, to use Mulgan’s definition, social innovation is a counter-concept to technological innovation. Social innovation came to mean alternatives to established solutions to social problems or needs, that is, alternatives to industrial innovation and state or government-supported social reform. In this sense, residues of the nineteenth century’s concept of social innovation as socialism are still inherent in the theories. To many scholars, the term is situated within a left-wing ideology, either explicitly or implicitly. Social innovations favor (or should favor, to be so named) the non-institutional, the ‘alternative’ and the ‘marginal’. Furthermore, the ‘community’ and non-profit organizations are favored sources of social innovation and the focus of many studies. Autonomy, liberty, democracy, solidarity and liberation are key words that came into use in theories on social innovation. Social innovation is “democratic, citizen- or community-oriented and user-friendly”; it assigns significance to what is “personalized, small, holistic and sustainable”; its methods are diverse, not restricted to standard science, and include “open innovation, user participation, cafés, ethnography, action research”, etc.

Historically, social innovation is a further development of (and a reaction to) the concept of innovation as a pejorative category. One hundred and fifty years ago, it served to make a contrast to, and a distinction between, other types of innovation. It emphasized something. To early critics, the purpose of ‘innovation’ in ‘social innovation’ was to equate ‘social’ or societal novelty (socialism) to innovation, and to label it as a pejorative category. To others, the ‘social’ in ‘social innovation’ was to contrast it to other types of innovation or to qualify the innovation: social innovation is innovation of a public or participative nature. It is distributive and good. To most writers, the distinction is moral. This rhetorical practice has not changed very much today. The ‘innovation’ in social innovation serves to put (more) innovation into the social. The ‘social’ of social innovation serves to put (more) social into innovation.

X - INNOVATION	
Oldest (an object)	Newest (an adjective/ a metaphor)
Technological innovation*	Inclusive innovation
Product/process innovation	User innovation
Industrial innovation	Free innovation
Marketing innovation	Democratic innovation
Organizational innovation	Common innovation
Educational innovation	Open innovation
Political innovation	Hidden innovation
Social innovation*	Disruptive innovation
	Reverse innovation
	Frugal innovation
	Jugaad innovation
	Responsible innovation
	Sustainable innovation
	Grassroots innovation
	Eco-innovation

*Another word used in place of ‘innovation’ in these terms is ‘change’

The 'innovation' in social innovation serves to put (more) innovation into the social. The 'social' of social innovation serves to put (more) social into innovation.

CONCLUSION

I trace the history of the term social innovation as a two-step process, firstly as an appropriation (extension or application) of the concept of innovation, and secondly as a contestation of that concept. There is a third step to consider: critical innovation.

X-innovation terms emerged as a critique of the dominant framework or paradigm of innovation: the economic or market connotation. Yet innovation itself, whether social, sustainable or responsible, remains uncontested. Innovation is an a priori solution to social problems, to every social problem. Our worldview spontaneously suggests technological solutions, without any need to inquire seriously into the real problems of society. Such is the case with environment. Innovation is a panacea. But is innovation really the solution to environmental problems, to poverty, to literacy and education, to welfare? 'Social needs' (often called 'demand'), a major concept of innovation in the 1960s, has almost disappeared from view today. Supply (innovation) is the main focus of studies. Even where need takes first place, as in theories of social innovation, innovation (supply) is always the ultimate solution. Innovation as an object of study has an autonomous status.

As scholars of innovation, we have to learn to be more critical and more reflective about our objects of study. We espouse "sympathy" for innovation, to use Howard Becker's word [4], or what sociologist Everett Rogers calls a "pro-innovation bias": innovations "are good and should be adopted by everyone" [5]. Max Weber thought that a distinction between facts and values should guide scholarship. Today, we know that the moral is inevitable in social research. What is important is to be aware of it, to be critical and reflective. Currently, we are writing narratives in the form, or under the name, of theory.

Being critical means:

- Taking seriously the scholarly imperative to discuss, argue and criticize.
- Questioning our representation of innovation, especially when it is called an 'alternative' representation, and asking to what extent our assumptions are normative and performative.
- Placing innovation as a solution into balance with other possible (but less fashionable) means to achieve 'progress'. Innovation may appear to not always be the best solution.
- Asking whether we are writing a piece of academic work as a scholar or an ideologue (in scholarly journals).

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RETHINKING INNOVATION: SOCIAL INNOVATION AS IMPORTANT PART OF A NEW INNOVATION PARADIGM

The concept of innovation has become more and more important for societies to cope with the great societal challenges, while technological innovation encounters limitations in resolving them. To understand the variety and diversity of innovations in society and to cope with the challenges we need a new understanding of innovation focusing on social innovation and the capacity of the whole society.

Jürgen Howaldt

INTRODUCTION

Although there is widespread recognition of the need for innovation and a long history of academic debate, there is no clear understanding of how innovation leads to a sustainable and inclusive society. “To find a way to bring together the triple objectives of smart innovation-led growth, inclusion and sustainability, we must first answer the critical question of how to direct innovation to solve the pressing global challenges of our time” [1, p. 2]. For most of the challenges summarised in the Sustainable Development Goals of the UN there are no pure technological innovations available. To cope with the great societal challenges a new understanding of innovation focusing on social innovation and the innovation capacity of the whole society is indispensable. Against this background, the article traces the emergence of a New Innovation Paradigm as a basic condition for a mission-oriented innovation policy.

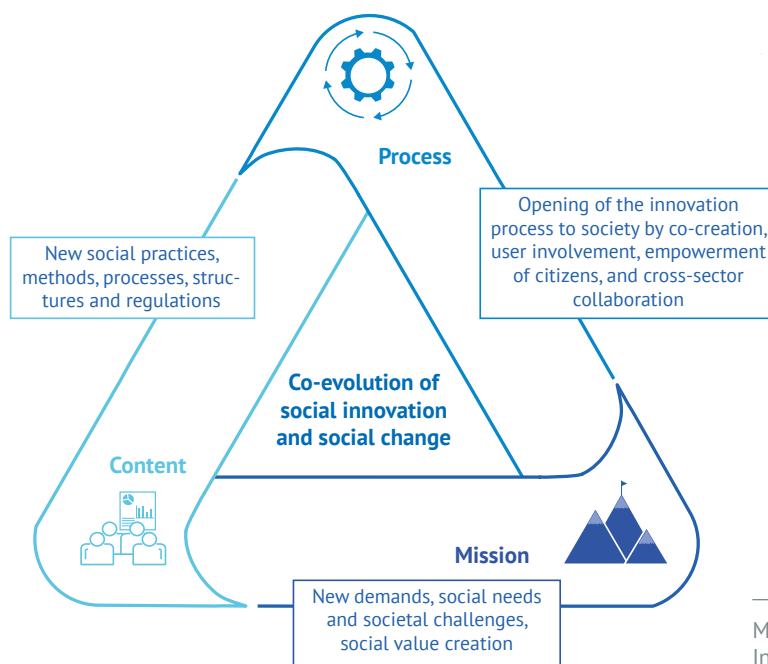
SCIENCE, THE ENDLESS FRONTIERS

The idea that innovation should help societies to cope with societal challenges and lead to growth and social welfare formed the starting point of modern innovation policy. More than seventy years ago, Vannevar Bush, in his report to President Roosevelt, directed the pioneering spirit of the US towards exploring the “endless frontiers” of natural science research, hoping that this would promote social welfare: “The Government should accept new responsibilities for promoting the flow of new scientific knowledge and the development of scientific talent in our youth. These responsibilities are the proper concern of the Government, for they vitally affect our health, our jobs, and our national security. It is in keeping

also with basic United States policy that the Government should foster the opening of new frontiers and this is the modern way to do it” [2, para. 17].

These ideas were strongly connected with Schumpeter's Economic Theory in which innovation plays an important role for understanding the dynamics of the economic system. According to this work, economic development takes place as a permanent process of ‘creative destruction’. What propels this dynamic, the impetus, and origin of economic fluctuation, is innovation in the sense of the ‘execution of new combinations’, of ‘establishing a new production function’. Inventions become innovations if they successfully take hold on the market. Introducing and realising innovations is considered the actual work and function of the entrepreneur. Schumpeter focuses not only on technical innovation, but also distinguishes between product-related, procedural, and organisational innovations, using new resources, and tapping new markets. Moreover, he underscores the necessity of social innovation occurring in tandem in both the economic arena as well as in culture, politics and a society's way of life in order to guarantee the economic efficacy of technological innovations.

Influenced by the works of Schumpeter, the concept of innovation was increasingly reduced to technological innovations. Remarks on social innovation in literature after Schumpeter are scarce and marginal. Innovation research in the social sciences has been dedicated, by contrast, primarily to the relevance of innovation's social framework conditions. The central focus is on the social preconditions and influencing factors for (predominantly) technological innovations, the correlation between the technological and the social, between technological and social innovations, between innovations and societal development, the



institutional context and the interaction between those involved in the process of innovation. Innovation research in the social sciences has made great contributions to the development and spread of an enlightened sociological understanding of innovation. Its interpretative possibilities have become widely and ‘successfully’ practical. However, the belief in the central role of science and technologies is still the basis for the contemporary innovation policies and large areas of innovation research.

THE EMERGENCE OF A NEW INNOVATION PARADIGM

In recent years, there has been a growing realisation that innovation policy is falling short of its potential to address the multiple globally derived challenges that affect contemporary and future societies. However, attempts to address these challenges through innovation demand an understanding of ‘the new nature of innovation’, including the changing role of technologies [3]. These challenges are not only grand in scope and scale, but also complex, made up of wicked problems. To better understand the variety and diversity of innovations in society and to cope with the great societal challenges we need a broader concept of innovation or a New Innovation Paradigm [4].

In that spirit, international innovation research provides numerous indications of a fundamental shift in the innovation paradigm. New economic sectors and industries increasingly determine the look of the economy and society and are changing the modes of production and innovation. Challenges such as social inclusion or climate change entail social demands and action, for which traditional ways, in which markets, states and civil society responded so far, are no

longer sufficient. At the same time, technological innovation encounters limitations when it comes to resolving pressing societal challenges.

In recent years, there has been a growing realisation that innovation policy is falling short of its potential to address the multiple globally derived challenges that affect contemporary and future societies.

This New Innovation Paradigm is characterised by three major aspects, which are closely interlinked and benefit from each other:

1. its orientation towards the major societal challenges which find practical expression in a mission-oriented innovation policy,
2. a stronger recognition of non-technological innovations geared at changing social practices, and
3. innovation processes opening up to society.

1. ORIENTATION TOWARDS THE MAJOR SOCIETAL CHALLENGES

Since the beginning of the 1990s, innovation policy in the European Union is more and more oriented to the major societal challenges. For many years, innovation policy had been directed to technological innovation that promotes

economic growth and increases the competitiveness of the national economy. However, in recent years large parts of the European research programmes as well as the German Hightech Strategy have been structured in accordance with the major societal challenges. *“Mission-oriented policies can be defined as systemic public policies that draw on frontier knowledge to attain specific goals ... Missions provide a solution, an opportunity, and an approach to address the numerous challenges that people face in their daily lives. Whether that be to have clean air to breathe in congested cities, to live a healthy and independent life at all ages, to have access to digital technologies that improve public services, or to have better and cheaper treatment of diseases like cancer or obesity that continue to affect billions of people across the globe. To engage research and innovation in meeting such challenges, a clear direction must be given, while also enabling bottom-up solutions”* [1, p. 4].

The SDGs of the UN constitute a more and more important point of reference and inspiration for a mission-oriented innovation policy building a collection of 17 global goals set by the United Nations General Assembly in 2015 for the year 2030. A closer look reveals the complexity and social embeddedness of these goals. For many of them pure technological solutions are not available. To meet the ambitious challenges expressed in the SDGs, we need a broader understanding of innovation beyond the traditional focus on Science and Technology.

In the face of the depth and development of change in modern societies and the rising dysfunction in established practice, social innovations are gaining greater importance, also in terms of economic factors, over technological innovations. They are not only necessary, but can also contribute proactively to anticipated macro-trends, such as demographic developments or the effects of climate change to modify, or even transform, existing ways of life.

To meet the ambitious challenges expressed in the SDGs, we need a broader understanding of innovation beyond the traditional focus on Science and Technology.

SUSTAINABLE DEVELOPMENT GOALS



concepts such as open innovation, customer integration, and networks reflect individual aspects of this development. At the same time, innovation – based on economic development – becomes a general social phenomenon that increasingly influences and permeates every aspect of life [3].

Thus, social innovations need to mobilise citizens to take an active part in innovation processes and thereby enhance society's generic innovative capacity [8]. This requires new models of governance in favour of self-organisation and political participation, allowing sometimes unexpected results through the involvement of stakeholders. This also requires interplay between actors, their networks, policy makers, and the market on the one side, and processes in support of scaling-up and diffusion on the other. This shift in perspective towards social innovation directs the focus to the experimental shaping of social learning processes, to mechanisms of imitation, and hence, to non-linear, non-sequential forms of diffusion, institutionalisation and routines.

Social innovations need to mobilise citizens to take an active part in innovation processes and thereby enhance society's generic innovative capacity.

CONCLUSION

To better understand the variety and diversity of innovations in society and to cope with the great societal challenges we need a broader concept of innovation or a New Innovation Paradigm. This is the foundation for a mission-oriented innovation policy exploiting the potential of social innovation and enhancing the innovation potential of the whole society. Just as the conditions to explore the potentials of the natural sciences and to make them usable for society were created through a systematic innovation policy in the middle of the last century, at the beginning of the 21st century we need just as great a pioneering spirit in search for new social practices that enable us to secure the future and allow people to live a richer and more fulfilled human life.

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TRANSFORMATIVE INNOVATION POLICY & SOCIAL INNOVATION

Transformative Innovation Policy brings together social innovation and technical innovation to address the systemic challenges that most affect us today.

Johan Schot / Alejandra Boni / Matias Ramirez / Carla Alvial-Palavicino

INTRODUCTION

Practitioners of social innovation are familiar with ideas of social change and radical transformation. Yet, such ideas are less common in the world of innovation policy. In the world of policy makers, science and technology and social innovation are often seen as two different domains, the former delegated to economic and higher education policy, and the latter to development and social policy. Transformative Innovation Policy (TIP) is a perspective that brings together these two worlds, the social and the technical, into concepts and practices for transformation. This socio-technical perspective acknowledges that current societal challenges, such as climate change, inequality and migration, are systemic problems that cannot be solved only by technological intervention. Nevertheless, science and technology are crucial for system transformation as they provide an imaginary for a future and a repertoire of possibilities.

Science and technology are crucial for system transformation as they provide an imaginary for a future and a repertoire of possibilities.

This understanding implies that a change is required in the way we conceptualize and conduct science, technology and innovation (STI) policy, beyond simple notions of economic growth or the pursuit of pure science. The endeavor of Transformative Innovation Policy is to provide such a framework, starting from the acknowledgement that in the context of complex problems, such as those embodied in the Sustainable Development Goals (SDGs), there are no miracle one-fits-all solutions. Such a framework builds on the possibility of alternative futures, the non-neutral nature of

technology, the transformative potential of citizen movements, firms, governments and knowledge organizations, co-construction and the needs, dreams and desires of users and non-users.

THE THREE FRAMES OF INNOVATION POLICY

Science, technology and innovation (STI) has played a central role in the development of the world as we know it today. Especially after WWII, STI policy became a concern for governments as a driver of growth, development and wellbeing. Yet, as we know today, technology and innovation have also become a part of the problem. To understand how STI policy can contribute to transformation, we need to understand the logics behind it.

We distinguish three frames of STI policy [1, 2]. Frame 1 or 'Innovation for Growth' emerged in the post-war period, stressing the benefits of science and technological change to the economy. In an epoch in which the massification of new technologies, such as the car, television, washing machine and passenger airlines, brought enormous changes to the lives of ordinary people in the West, policy makers became concerned about the role of the public sector in supporting these life-changing inventions. These innovations, which in the language of economists constitute a public good, suffered from 'market failures', that is, the inadequacy of the market to support their development at the level and quantities desired, hence requiring state intervention. This frame, also known as the linear model of innovation, reflects a time of rapid economic growth and technological development, a modernist belief in the inevitability of progress, and the notion that unintended consequences such as pollution can be dealt with by means of more science and technological development and regulation.

Frame 2, or 'National Systems of Innovation', emerged in a context of growing international competition, marked by economic shocks such as the 1970s oil crisis. Analysts started to recognize that knowledge transfer was difficult, and there were tacit and organizational components not accounted for before. Following the emergence of Japan and Korea into knowledge economies, this new frame brought attention to the different paths that countries and regions followed in the constitution of innovation systems, characterized by systems and institutions that support learning, capacity building and entrepreneurship. This frame led a move from a linear view of innovation to a more systemic one.

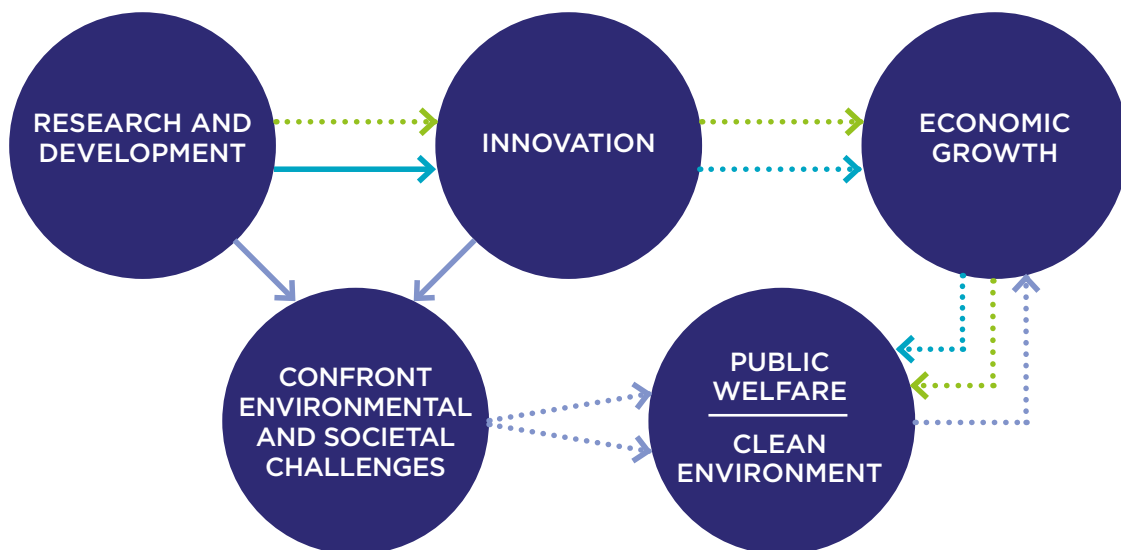
Frame 3 is what we call 'Transformative Innovation Policy'. For more than a decade the question of how to align STI policies with existing societal and global challenges has been discussed. This frame takes environmental and social challenges as the central component of STI policy, questioning assumptions about the neutrality of technological innovation. It starts from the question, what needs to be transformed in order to achieve these challenges? We argue that the socio-technical systems that fulfill basic needs, such as energy, mobility, food, water and communications, need to have a fundamental shift in order to become truly sustainable. This is different from what

constitutes a mere system optimization, e.g. improvements in agricultural yields. Changes that are needed involve infrastructures, such as food supply systems, and cultural norms and practices, such as what we consider a healthy diet. Hence, this frame brings the attention to the direction of innovation, namely the different social and political choices embedded in technological choices.

These three frames co-exist in STI policies, and each of them fulfills an important role. Yet, more emphasis on frame 3 is required for innovation to play a prominent role in finding solutions to global challenges.

TRANSFORMATIVE INNOVATION IS ABOUT SYSTEMS CHANGE

As social innovation is concerned with social change, transformative innovation policy integrates the concern for social change into a transformative perspective. It focuses on transformation of what is called socio-technical systems in the sustainability transitions literature. These are complex systems composed of aligned technologies, knowledge, infrastructure, markets, governance and regulation, culture, and industry structures that interact, mutually re-enforce



→ Frame 1 → Frame 2 → Frame 3

Solid line = This shows the frame addresses explicitly this aspect (e.g. the link between knowledge creation and utilization in frame 2).

Dotted line = This indicates that an aspect is assumed to follow automatically (e.g. the utilization of the results of basic scientific research by industries in frame 1).

each other and co-evolve (see the infographic for the energy system, but similar ones could be made for food, mobility, healthcare, water etc.). The OECD has recognized the importance of systems innovation for societal challenges, defining it as “a radical innovation in socio-technical systems which fulfil societal functions, entailing changes in both the components and the architecture of the systems” [3, p. 15].

As social innovation is concerned with social change, transformative innovation policy integrates the concern for social change into a transformative perspective.

The literature on sustainability transitions, and in particular the multi-level perspective (MLP), provides a framework to understand how changes in socio-technical systems occur. It distinguishes three levels: niche, regime and landscape. Change emerges in spaces called niches, protected spaces for the emergence of new socio-technical systems without direct pressures from the dominant regimes. The dominant regime refers to a set of rules which drive socio-technical system change in a particular directionality, for example more centralized production. Niches often nurture a different set of emerging rules than the ones of the dominant regimes. Yet, as these are in constant fluctuation, they require some protection as the niche builds and stabilizes. The landscape refers to the exogenous environment shaping both niches

and regimes, with pressures such as globalization, climate change, wars, natural disasters, and economic crises. Transitions in a socio-technical system are the result of interaction of events on all three levels [4].

Systemic change cannot be addressed with the same policies and instruments already in play; changes in the organizational and institutional contexts of science policy are therefore required. TIP proposes some directions for these changes.

TRANSFORMATIVE INNOVATION IS ABOUT EXPERIMENTATION, LEARNING AND INCLUSION

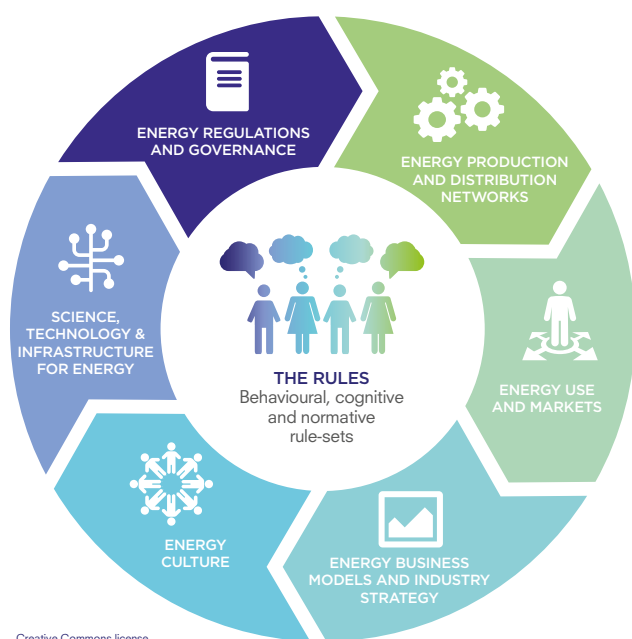
Frame 3 starts by acknowledging that there are no best and optimal approaches to complex problems. Therefore, it focuses on experimentation, a structured learning process informed by evidence and experience to explore potential paths and their consequences. An experiment is a series of practices, methods and objectives used to inform and facilitate processes of learning and changes in policies. It allows to test ideas at small scale and in real contexts before full implementation, without the compromises of large-scale policy intervention. Experiments can be instruments (initiatives, programs, policies, etc.) that support aspects of TIP, such as changes in learning and reflexivity, changes in expectations and the way people think about the future, and changes in the networks of actors that participate in an experiment. An example of such an experiment are the mechanisms to support the development of grassroots community energy initiatives in the search of sustainable and scalable business models [5].

These experiments require evaluations that differ from traditional evaluations of public policies. These evaluations should seek to assess the level and process of learning, if niches with transformative potential have emerged and evolved, and the type and degree of change generated by an intervention. Each evaluation develops a specific Theory of Change (ToC) for the experiment, based on an MLP perspective.

We propose six elements that help identify a policy with transformative potential. We will use the example of the socio-technical system of energy provision to illustrate these dimensions.

- 1. Directionality:** the collective process of understanding and engaging with the multiple potential paths of development and enabling a process of critical appraisal and learning. For example, large-scale and centralized versus small-scale, distributed energy sources provide different alternatives regarding efficiency, resilience, empowerment and participation, which are not comparable under a single optimization.

THE ENERGY SYSTEM

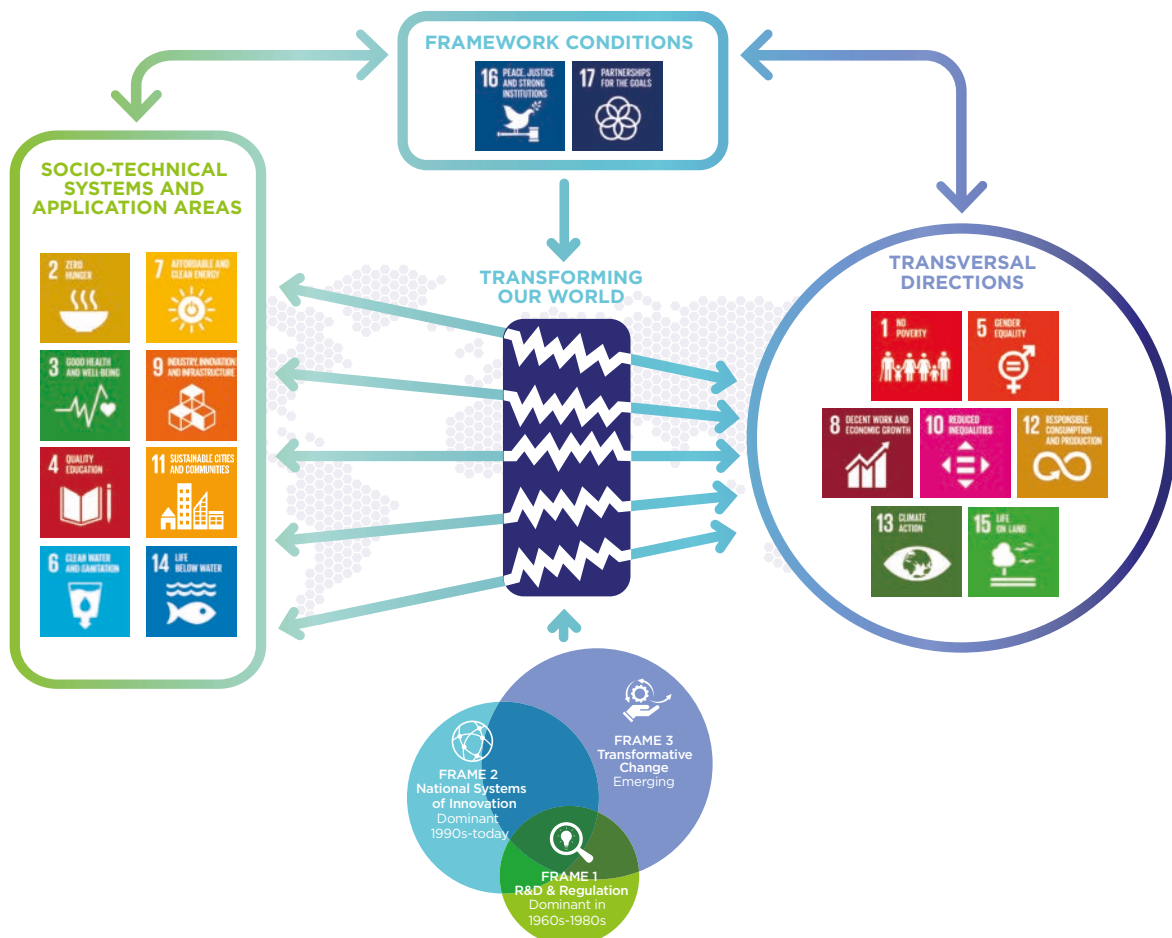


2. Societal Goal: the focus of the policy is in goals such as the SDGs or grand challenges. In this case, the societal challenge is to provide reliable and affordable energy in a way that is environmentally and socially sustainable.
3. Systems-level impact: addressing changes at the socio-technical level. A systems level perspective on energy does not only look at supply, but asks questions about how and for what we use energy, what social practices are associated to its use, and how we can do it differently.
4. Learning and reflexivity: promoting second order or 'deep learning', that is, learning about the mindset and assumptions embedded in dominant practices. Learning, for example, about the assumptions of efficiency and optimization embedded in our energy systems, about our notions of comfort, that shape the way we use and plan energy systems.
5. Conflict and consensus: different views about what is at stake in systems transformation can lead to conflict. TIP should acknowledge this conflict and include it as part of the process. Many communities might disagree with the development of hydropower or large solar infrastructures in the name of clean energy. These views should be taken into account.

6. Inclusiveness: including all relevant actors, such as civil society, users and marginalized communities. In the same line, discussion should not be limited only to experts, but also acknowledge that users have enormous agency in how we use energy efficiently, as well as workers and local communities.

AGENDA 2030 AND THE OPPORTUNITY FOR TRANSFORMATIVE INNOVATION POLICY

Global challenges as represented by the SDGs are a unique opportunity for systems transformation, bringing together social and technical innovation. Agenda 2030 is an urgent, inclusive and value-creating direction towards sustainability that calls for both research efforts and new policy approaches. Sustainability cannot be achieved by merely optimizing existing systems, and it should take into account the interactions and trade-offs between different objectives. The SDGs should not be considered a 'checklist', but instead should be seen as a systemic understanding of well-being, consisting of economic, social and ecological dimensions. In other words, to address the SDGs, policies should de-



centralize them, and instead focus on the underlying transformation processes which will, if they unfold in the desired way, address the SDGs. This focus on transformation is in fact responding to the strapline of the UN Agenda 2030: Transforming our World.

To enact transformation, STI can play a key role. However, this is only possible when STI is seen as a key factor in realizing all 17 SDGs, rather than being isolated in SDG 9 industry, innovation and infrastructure (as is currently the case). True, to play this role STI policy needs to become more focused on transforming socio-technical systems towards new directionalities (and thus should take frame 3 as its main rationale). From this perspective and to implement transformative innovation policy SDGs could be grouped in three different types: (i) SDGs about socio-technical systems, such as clean energy (SDG 7) or health (SDG3), (ii) SDGs that emphasize directionality, such as SDG 10 on reduced inequalities and SDG 8 on decent work and (iii) SDGs that focus on governance, e.g. structural transformations in the state, market, civil society and our knowledge system, such as SDG 16 on peace, justice and strong institutions and SDG 17 on partnerships for the SDGs. Transformative innovation policy should then be focused on using one set of directionality-related SDGs to transform socio-technical systems related SDGs through experimental approaches which require addressing the governance related SDGs.

Transformative innovation policy provides a framework that brings together the insights of social innovation and STI policy to address challenges such as the SDGs in a more fundamental way. As an emergent approach, there is an enormous opportunity for learning and cooperation between researchers and practitioners in these fields.

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