

Position paper

The role of participation in mission-oriented innovation policy

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The German, and even more generally the European research landscape is currently experiencing the demand for a realignment of innovation policy towards missions. According to this mission orientation, innovations should be consistently geared towards solving societal challenges. This demand is not fundamentally new, but has been newly sparked by concerns of societal upheavals. At the same time, the mission orientation makes it necessary to adequately involve the general public in shaping the desired processes of change. Participation is seen here as an essential element to ensure that innovation policy missions are accepted by the population.

However, this is also where criticism of the public participation practised to date comes in: on the one hand, the expert discourse criticises that participation in its institutional implementation is reduced to solving a supposed problem of acceptance and is thus tantamount to compulsory fulfilment instead of using the creative potential of this very public participation. On the other hand, previous participation formats have to put up with the criticism that they first and foremost enable participation of already preferred groups and do not reach the desired “broad public”. They do not even reach those groups that actually have a legitimate interest in having a say.

This paper takes up this criticism and explores the question of how participation can be integrated into innovation policy decision-making processes for a successful mission orientation and what the prerequisites are for this. Along a five-phase policy cycle, different forms of participation, in the sense of a respective co-production, are presented and discussed. In the synopsis of the examples, it becomes clear that many formats are already being successfully implemented, but participation has so far only been realised selectively and for a limited period of time and has not been systemically anchored in the long term.

Subsequently, the authors present three theses on how participation can be further developed, in particular to ensure that participation is systemically anchored in the innovation process. The first thesis emphasises the need to strengthen a democratic and open innovation culture

in which people are empowered to participate in decision-making processes. The second thesis aims at building and using agile competences and tools along the innovation process. This includes experimental formats to adapt participation tools to the needs of the target groups and the achievement of goals. The third thesis covers the structures of the innovation system, which should enable cross-level, cross-actor and cross-thematic cooperation and impact chains.

I. State institutions in their role as drivers and shapers of innovation

Systemic transformations come into focus

A mission-oriented innovation policy is increasingly becoming part of the European innovation system. The approach aims to bundle innovation processes that may be taking place in isolation from each other in a strongly differentiated society with highly specialised scientific disciplines, economic sectors and administrative structures, and to focus them on crucial, current, societal issues. This includes a holistic understanding of innovation that encompasses not only the implementation of technical solutions, but also societal changes for the solution of complex problems. In contrast to the promotion of selected technology areas, it is about a universal approach to innovation that enables system transformations.

Not least the Corona pandemic showed how much society depends on overcoming challenges by applying scientific knowledge. At the same time, it became clear that, above all, the successful transfer of technical and organisational solutions into practice is an indispensable step for overall success. The same applies to other major challenges, such as slowing down climate change and the societal adaptations that are necessary to achieve this. In this respect, innovations – and the societal capacity to generate them – do not play the role of purely economic accelerators alone, in order to strengthen the growth and market positions of companies and regions. Rather, the global challenge of the Corona pandemic made it clear how much socio-technical innovations and their systemic coupling of the most diverse

fields and sub-fields – from biotechnology and a digital health system to digital learning and public administration – are needed to overcome a challenge of such societal scope. In this respect, the role of state institutions cannot be limited to regulating market-based framework conditions and remedying a market failure. Rather, the public sector is called upon to provide impulses in a guiding and proactive manner, to demand innovative services from actors and to enable the achievement of measurable goals.

Participation is crucial for such a mission-oriented understanding of policy. It coordinates the symbiotic relationship between the state's targeted innovation policy and the involvement of the social actors who are to be the driving force as well as the compass of this change. In addition, it shows the multi-layered interlocking of innovations in their societal sub-areas; for example, when new digital administrative processes or learning methods meet the practical living environment of people. The discussions of the science and health system as well as democratic structures that stood out in the course of the Corona pandemic also mark a need for communication and participation that bring people into exchange and negotiation of future developments. The participation of people in change and the new missions of innovation policy generates co-responsibility – an essential prerequisite for political goals and interventions to also have a transformative effect. At the same time, however, this presents innovation policy institutions with the challenge of involving people constructively and finding ways to implement participation in decision-making processes addressing innovation policy.

Mission orientation as a new guiding principle of innovation policy

The mission orientation approach is not a product of the Corona pandemic, but it is gaining attention and importance as a result. It was prominently called for in Germany by the High-Tech Forum and the Expert Commission on Research and Innovation (EFI) in their recent reports on research, innovation and Germany's technological performance as a new policy style (EFI). The authors suggest a transformation orientation of innovation policy. At the same time, they advocate for creating structures that enable agile and forward-looking action by public actors. Economist and advisor to the European Commission Mariana Mazzucato defines this as missions aimed at solving complex societal problems („wicked problems“) that initiate transformative systemic change

(Mazzucato 2021). In the context of innovation policy, this means focusing on promotional and steering activities, impulses and impacts on a predefined major societal goal.

Although the implementation of this mission orientation is a recent development, it is no longer just a long way off or a theoretical guiding principle, but has already been tested several times in various innovation programmes. For example, within the years 2011 to 2016, the German Federal Government implemented the interdepartmental research agenda „Age has a future“. With a total volume of around 189 million euros, research programmes of several ministries were bundled and consistently oriented towards the challenges and opportunities of a society of longer life (Federal Ministry of Education and Research (BMBF) 2011). The Federal Government's High-Tech Strategy 2025 is similarly characterised by a mission orientation,¹ although the focus here is on technological progress, which in turn is oriented towards societal relevant areas of application – for example medical care (BMBF). A particularly ambitious concept of a mission-oriented innovation policy is the European Commission's research framework programme „Horizon Europe“, which launched at the beginning of 2021. This programme contains five missions: „Adaptation to climate change, including societal transformation“, „Combating cancer“, „Healthy oceans, seas, coastal and inland waters“ as well as „Climate-neutral and smart cities“ and finally „Soil health and food“.²

The EFI distinguishes the „new mission orientation“ from traditional and technology-oriented innovation policy approaches, and credits it with a stronger orientation towards „socially desired transformative change“. This orientation confronts innovation policy and its institutions with demands that also call for a change in institutional action. The EFI calls for an agile policy. For the EFI, agility does not just mean speed and flexibility. The required approach also includes the ability to proactively prepare long-term decisions, to shape them in a participatory manner and to constantly review them.

The – not entirely simple – role of participation

Participation plays a central role in this: it is supposed to turn the new mission orientation into a democratic innovation policy. Through this, involved citizens and stakeholders shall be informed about relevant issues, to convey democratic approaches and to disclose a multitude of viewpoints of those affected (cf. info box).

1 With regard to its strategic orientation, the High-Tech Strategy has been mission-oriented since 2010, although the language used was different (e.g. „future projects“). (Dachs 2015).

2 Website „Horizon Europe“: ec.europa.eu/info/horizon-europe_en (last accessed 16.04.2021)

With the focus on public participation, today's missions differ from missions such as the lunar landing in the 1960s. This mission was implemented entirely from the top down by the US government and accordingly drew strong social criticism. In contrast, the new missions of research and innovation policy should be consistently oriented towards societal challenges and involve the population. In this respect, Mazzucato demands that participation be part of the development and articulation of missions from the very beginning: "Participation requires reimagining the future together." (Mazzucato 2021: 201). Participation should not be reserved for committed elites, but should be distributed across all levels of an innovation system. With this approach, economic actors and, above all, the broad population are also involved. This requires openness of institutions as well as the ability to learn and adapt their decision-making processes, so that feedback from the groups involved does not only have a marketing effect, but transformations are actively shaped (Mazzucato 2018). The demand for more participation is not new. Related innovation policy approaches, such as „Responsible Research and Innovation“ (RRI), aim to ensure participation not only in concrete research projects, but already in innovation policy decision-making processes.

With regard to institutional implementation and the associated legitimisation of policy change, important criticism is set off: in their comparative analysis of institutional implementations of mission-oriented approaches, Frahm et al. show that this is often based on a "deficit logic" (Frahm et al. 2021). If the change is acknowledged, this could at the same time be used as a confirmation that innovation policy has lacked acceptance in the past. As a result, so the possible reproach, it could not have had the desired economic and prosperity-promoting effect. At the level of the Organisation for Economic Co-operation and Development (OECD), for example, the authors show that societal involvement in the management and regulation (governance) of innovation was only given institutional legitimacy by helping to increase acceptance among the population and to deal with uncertainties in demand. The authors' criticism is that participation is legitimised less from a democratic self-understanding than as a solution to problematic governance. Taking up this criticism, such a narrow understanding of participation – solely as an instrument to increase acceptance among the population – bears the danger that participation fails, because it is not seen as a source of the new and as a force for co-design, but as a downstream fulfilment of duty.

Another point of criticism is the failure of participatory formats to achieve broad participation so far. All too often, the implementation of participation only reaches privileged population groups and individuals, while, for example, groups remote from science or people with low digital

Info box

Aims of participation from the BMBF's policy paper on participation (BMBF 2016)

- increasing the social relevance of research and innovation policy
- using the knowledge of the many
- making decisions comprehensible/transparent/-accessible
- creating trust
- arousing interest

Target groups and stakeholders of mission-oriented participation (PRO-Ethics 2021) among others:

- *citizens*: the general public, lay people, people with civic expectations; in the sense of „public participation“
- *users*: beneficiaries of the end product of the innovation process
- *experts*: people with specific professional expertise or sector knowledge
- *civil society actors*: organisations that have knowledge and influence different from that of citizens and represent social interests
- *economic actors*: for example, companies or associations that have an interest in shaping innovation policy

literacy are not reached. The EU project "PRO-Ethics" points out the challenge that successful implementation of participation must include creating low-threshold access. This is the only way to involve those groups that have a legitimate interest in having a say. According to the project's findings, this also means involving actors who are not traditionally part of the innovation system. These include citizens or civil society organisations (PRO-Ethics 2021). This criticism does not mean that entire social groups cannot be represented by individual representatives of these groups. Rather, the criticism draws attention to the fact that the implementation of participatory formats is associated with its own ethical tasks. These factors, such as low-threshold access, generally understandable communication as well as regional diversity and target-group-specific channels, must be taken into account and translated into appropriate solutions. This may require considerable efforts for innovation policy institutions and organisations.

Against the background of this criticism, participation requires a reformed self-understanding of innovation policy organisations as well as coordinated efforts to constructively put the values and promises associated with it into practice. The organisations whose strategic and practical efforts influence new mission orientations and thus at the same

time the quality of participation include not only the governmental and non-governmental institutions promoting innovations through funding, but also the advisory and implementing organisations, such as project management agencies, research institutions, innovation agencies and economic as well as civil society actors.

From the perspective of organisations that implement innovation policy, the authors of this paper raise the question:

How can participation be integrated into innovation policy decision-making processes for a successful mission orientation and what are the prerequisites for this?

To this end, successful examples of participation are presented below along five phases of the innovation policy decision-making process. The order points to the rather prototypical character of participation; only in the synopsis does a holistic perspective become possible. Subsequently, three core theses are articulated and elaborated on how participation should be implemented and what the prerequisites are to support the new mission orientation of innovation policy.

II. Participation in the innovation policy decision-making process

Innovation policy decision-making processes can be described on the basis of a policy cycle (Schubert and Klein 2020). In this model cycle, a problem is identified (problem definition) and, if necessary, placed on the political agenda (agenda setting). Policy measures are then developed and decided upon (policy formulation) so that they can be implemented in the next phase (policy implementation). In the evaluation phase, the achievement of objectives, efficiency and effectiveness are examined (policy evaluation), after which the policy closes the process (policy termination) in order to obtain capacities for a new problem definition. The fields of application of participation listed below already support decision-making processes today and can each be structured in the sense of a respective co-production (Figure 1).³

Co-design: participation for agenda and theme development

In innovation policy agenda setting, a specific political goal or problem is put on the agenda. In principle, democracies

are characterised by a multitude of politically action-relevant and possibly competing issues as well as by a multitude of actors involved in agenda setting, for example through the separation of powers of government and parliament or through consultative processes of scientists, experts or other stakeholders.

Participatory activities here have a forward-looking as well as lifeworld-related character. A variety of formats that involve citizens from different backgrounds in addition to the traditional actors of the innovation system have already been successfully implemented for many years. One example of this are future workshops in which people develop a vision for the future for a social challenge. In the past, these have certainly had an impact on innovation policy. For example, the demography workshop discussions of the German Federal Ministry of Education and Research (BMBF) in 2013 that brought together elderly citizens and experts and resulted in the very successful funding measures of the Senior Citizens-Technology-Ambassadors and the Municipal Advice Centres (2014-2016). A forward-looking perspective for citizens is also provided by technological test sites and experience spaces, so-called „living labs“. Engels et al. point out that these can also be places for jointly developing socio-technical futures (Engels et al. 2019). Instead of being mere enablers of technology, test environments could serve as real societal tests for the desirability of certain transformations, the authors argue, based on a comparative case analysis. This requires rethinking notions of success and failure, planning with reversibility in mind, and a closer examination of the distribution of power in such environments. Test environments should not only be viewed as zones of low technical regulation to drive innovation, but should be used strategically to develop socially desirable governance frameworks associated with emerging technologies in real time.

³ This differentiation of participation formats along a policy cycle can be understood as a supplement to other forms of differentiation of participation formats, such as levels of participatory formats according to their depth of intervention. (cf. Unger 2014). A differentiation along the policy cycle lends itself to the focus on participation pursued here in the context of a mission-oriented innovation policy, in order to clarify in which phases of mission implementation participation can be relevant.

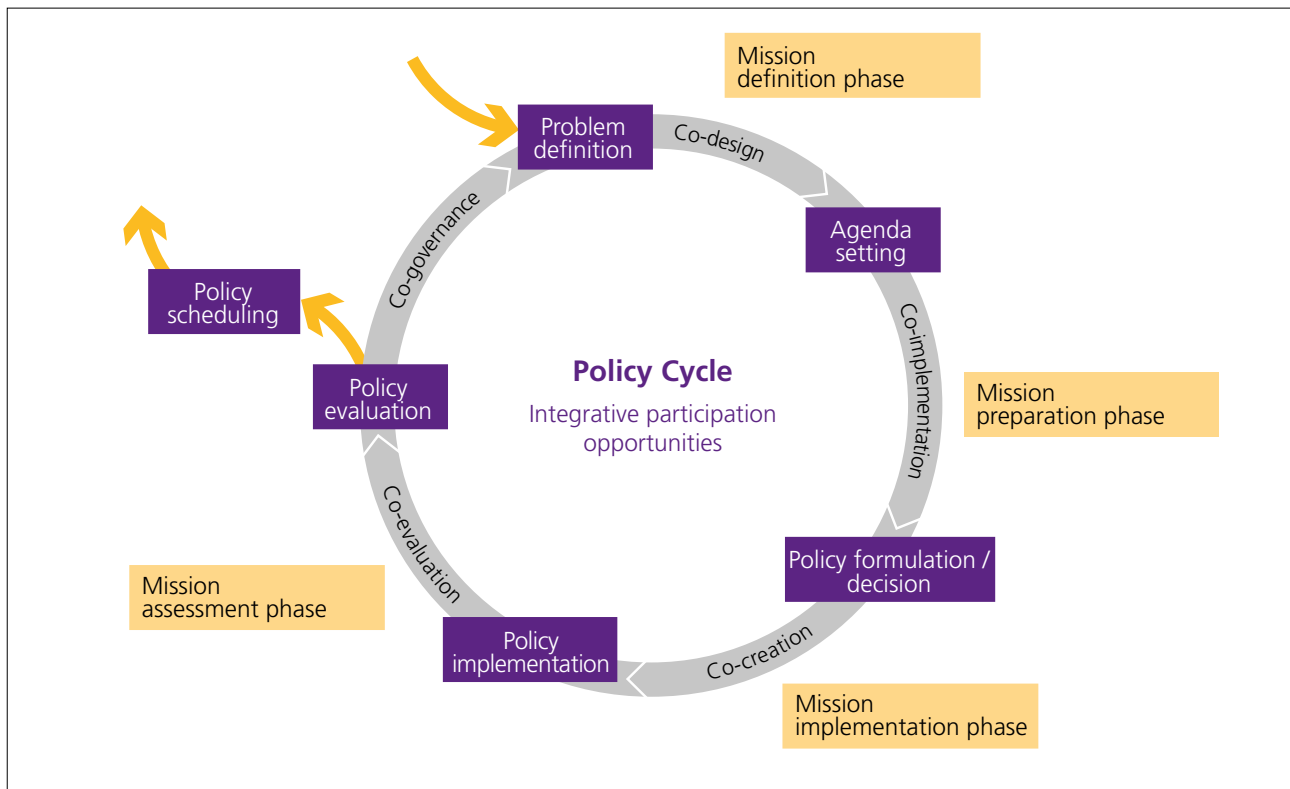


Figure 1: Participation in innovation processes (own presentation based on (Gerybadze 2004; Schubert and Klein 2020)).

Example Box I “Mobility4EU”

In the EU project “Action Plan for the Future of Mobility” (Mobility4EU), a common vision of the mobility system in 2030 was first drafted with the participation of stakeholders from research, business and civil society, and then a plan for its implementation was drawn up. This successfully reconciled competing and quite extreme demands in the areas of sustainability, inclusion and seamless integration. Companies that develop and operate transport solutions were involved, as were the subsequent users. The participatory co-design process was based on the joint visualisation of future wishes and concerns, the identification of obstacles and the development of proposed solutions. This was complemented by a scientific survey and evaluation of interests and solution spaces. Only the broad understanding of participation, involving citizens as well as companies, and the accompanying scientific reflection enabled legitimate and valid project results. These serve as recommendations for action for the further design of European innovation policy in the field of mobility and transport.

Source: project website www.mobility4eu.eu

Co-implementation: implementation of innovation programmes and selection of projects

The implementation of agendas within the framework of innovation programmes essentially determines how the transformation potential of a topic can be exploited with regard to the impact for a desired goal in specific projects. It is a matter of preparing and making decisions about which approach, which project idea or which partner constellations have the best chances of making a constructive contribution to achieving the programmatic goal. These decisions are part of the substantive implementation of laws, regulations or – quite essential for innovation policy – budget titles into concrete material benefits such as project funding. In the context of funding, this process presupposes that goals have been defined and ideas exist as to which research and development work can be used to achieve these goals.

The majority of these processes have so far been carried out by institutions, sometimes with the participation of experts. These are, for example, consultations about the priorities of funding calls and jury processes in which project applications are evaluated on the basis of sketches or competitive presentations of ideas (so-called “pitches”) and thus given a chance to receive funding. At present, these processes are definitely evolving: there is less selection behind closed doors; transparency and diversity of the jury are gaining in importance. For example, the juries of the “Creative

Pilots” and “Innovation Programme for Business Models and Pioneer Solutions” programmes of the German Federal Ministry for Economic Affairs and Energy (BMWi) are made up of people who contribute not only scientific expertise but also experiential knowledge from entrepreneurial and professional practice. This experiential knowledge enriches the selection process by linking the novelty value of a project to its practical impact.

However, a broad participation of different groups or citizens in these processes has been rare so far. A look at other European countries, however, shows that participation has the potential to play a constructive role, for example in the form of a citizens’ jury.

Example Box II “Co-creation and co-selection in a resilience programme of the city of Brussels”

Since 2015, the Brussels-Capital Region (BCR) has been funding a programme that aims to increase the region’s resilience through participatory research projects. The co-creation programme requires close cooperation between a wide range of actors (research organisations, non-profit organisations and businesses) at all stages, from the preparation to the implementation of the projects. This approach implements the goal of addressing socially relevant issues through transdisciplinary, cross-sectoral, participatory action research.

A case study of the programme shows that the set-up of the programme has raised many questions and challenges in terms of the regulatory framework, new concepts (and associated vocabulary) and their respective understandings. Nevertheless, the decision was taken to launch the programme and work on an essentially empirical and experimental basis, leaving room for incremental improvement based on mutual learning between all stakeholders (including the funding agencies in charge). In order to manage the various difficulties related to the nature and scale of the programme, a mediating structure has been set up: the “Co-create Support Centre”. This project aims to accompany the co-creation dynamic, to facilitate collective learning and to disseminate the knowledge produced. In 2018, the support centre proposed to expand citizen participation, from involving people as beneficiaries to active participation in the proposal selection process (ex-ante evaluation of projects).

Source: case study within the framework of the EU project PRO-Ethics (www.pro-ethics.eu); website of the programme: innoviris.brussels/program/co-creation and cocreate.brussels/

Co-creation: participatory implementation of innovation activities in projects

The participation of citizens and users in research and development projects has advanced considerably in recent years. Approaches such as user-centred design, responsible research and innovation or integrated research have already been implemented in research funding programmes and calls for proposals on projects to involve future users in the development process from the very beginning of the research. As a result, a variety of methodological approaches have been developed on how impulses, suggestions and experiential knowledge from everyday life can be taken up and processed. This development is being continued: in the new EU research framework programme “Horizon Europe”, the implementation of open science principles is an important selection criterion for funding research and innovation projects. In the new BMBF programme “Together through innovation”, too, integrated research is a central cross-sectional task and requirement for the research attitude of the projects. Involving all relevant knowledge carriers, especially citizens, user groups and civil society in the sense of “Citizen Science” will thus continue to be an integral part of the co-creation of project content.

The participation of citizens in research designs, such as citizen science projects, can make scientific activities in research and innovation programmes more transparent. Citizens can contribute to penetrating global societal challenges (“Grand Challenges”) at local level (Chicot and Domini 2019). In turn, public research and development becomes more transparent. Irvin and Stransbery see a high degree of information sharing from day one, transparent rules for decision-making processes and dialogue-based mediation as fundamental framework conditions for resolving conflicts that may arise within participatory processes and for accelerating decision-making processes (Irvin and Stansbury 2004).

In the orientation of this programmatic call, it has become apparent that while citizen science should be clearly articulated as a requirement, it should not strictly prescribe methods. At this point, research and development thrives on being open and experimental. In addition to the diversity of methodological approaches, this also implies that project goals can change due to impulses from participatory activities and that a project can take a different direction than initially planned. If programmes do not allow this openness of projects, they will not be able to open up to participation in the long term, because participants would become vicarious agents of the experts. Here it is necessary to strengthen an open culture of innovation so that new solutions can emerge from the experience of citizens and be implemented for specific problems.

Example Box III “UpdateDeutschland”

“UpdateDeutschland” is an innovation programme initiated by the social enterprise ProjectTogether under the auspices of the German Federal Chancellery that focuses on social issues of the future. Here, citizens, start-ups and associations work together with actors from all federal levels of business, science and civil society to find solutions to the most pressing challenges. The first step is the co-creation format of the “hackathon”, where solutions are developed and challenges or actors with solutions are brought together. Promising solutions are followed up in a six-month implementation programme with the support of the Federal Government. The predecessor hackathon “#WirVsVirus” with the associated implementation programme, which focused on combating the Corona pandemic, serves as a model. This example shows how a crisis can be effectively countered with broad cooperation between the state and civil society. The Federal Government’s aim is that “challenges of civil society and administration are brought together with innovative solutions. [...] We want to ensure that innovations reach where they are really needed. [...]”, emphasises Helge Braun, head of the Federal Chancellery and patron of the programme. With a participation of over 40,000 people, this concern was successful in mobilising citizens. The all-digital format can enable as well as hinder access, because the use of digital tools such as Slack and DevPost has to be learned. In assessing the format, the editors of the Netzpolitik.org portal raise the question of sustainability and ways to actually take up the impulses of civil society.

Sources: updatedeutschland.org, netzpolitik.org/2021/updatedeutschland-zivilgesellschaft-im-wettbewerbformat

Co-evaluation: evaluating and reassessing transformative impacts

An essential requirement of mission-oriented innovation policy is the verifiability of measures and their success control. Evaluation is an essential instrument for further developing approaches and tracking their effects. In evaluations, basic research activities in particular face the challenge of presenting their concrete contribution to a goal, since opportunities for exploitation often depend on concrete results that can only be predicted to a limited extent.

Participatory evaluation is an approach that involves stakeholders or the intended target groups of a programme or policy in the evaluation process. This involvement can take place at any stage of the evaluation process, from evaluation design, through data collection and analysis, to reporting on the study. However, the nature and extent of participation will necessarily vary between different types, for example between an outcome evaluation at local level and an evaluation of impact in terms of policy change (Gujit 2014). To maximise the effectiveness of the approach, it is important to consider what purpose stakeholder involvement shall serve and which groups should be part of it in what way. It is also particularly useful to refer to people who have already been involved in defining objectives, programmes and selecting projects.

Participation of non-traditional actors is a rather minor implemented element in innovation policy evaluations and usually limited to experts and stakeholders. There is a need to catch up here, as it is precisely the mission orientation approach that aims to strengthen actual transformations that reach people and support social change. Policies must be consistently measured against this claim and effects must also be evaluated by the people they are supposed to affect. However, this claim requires a lot of preconditions. It requires that citizens understand the limitations of research and that a basic understanding of science (“science literacy”) is widespread. Aspects such as the necessity of risk and failure, the provisional nature of the results, scientific dispute, the construction and verification of knowledge, academic freedom and other factors are basic principles that must be taken into account in an evaluation – also by citizens.

Example Box IV “Participatory Evaluation in Colombia” and “Participatory Evaluation Toolkit”

Concrete examples of participatory evaluation of innovation policy programmes and activities are hard to find. However, there are examples from municipal contexts from which conclusions and methods for transfer can be drawn.

In Colombia, ACIN, an indigenous peoples’ association comprising 13 communities, is involved in monitoring and evaluating their own multi-sectoral, regional development plan. They study the links between productivity and environmental and cultural factors, track changes over time and compare plans and results in a systematic way. This has helped communities to identify their strengths and improve their management

skills, which in turn leads to a change in power relations. Links are created between communities, which form a common voice in negotiations with the national and provincial governments and the private sector.

Source: Gujit und Gaventa 1998

A transfer of participatory evaluation methods is facilitated by the “Participatory Evaluation Toolkit” of the Canadian civil society organisation HC Link. This concept describes key qualities to ensure that participatory evaluation activities are both empowering and effective, and outlines steps for coordinating evaluation methods. It includes descriptions of seven participatory evaluation techniques that help communicate, align and make collaborative activities attractive.

Source: Kranias 2017

Co-governance: expanding mission-oriented instruments

Participatory governance involves state-supported institutional processes that enable citizens, interest groups or civil society actors to raise their voices and vote. In the best case, this leads to the implementation of public policies that bring about change in everyday life. Depending on how participatory formats are designed, their quality, outcomes and added value for all stakeholders can vary. In order to avoid that participation does not clearly pay into the positive impact of a mission, it is important to experiment, to define evaluation benchmarks and to learn from practical participation projects.

“True participation requires systems to be open to change and adaptation based on the feedback received” (Mazzucato 2021). Mazzucato describes the necessary development of learning organisations that engage in this process in the so-called ROAR framework.⁴ According to this, a central requirement is to design state institutions in such a way that they proactively accept the fundamental uncertainty inherent in the innovation process – and thus the taking of risks – and become learning institutions. Consequently, numerous capabilities are required for mission-oriented, participatory policy-making:

- good leadership that articulates bold visions;
- a strong grassroots-to-leadership (“bottom-up”) commitment that leaves room for adaptation and challenge alongside participatory mission definition;
- strategic initiation of partnerships in which state actors take on a formative role that is not reduced to remedying market failures.

In addition, successful implementation of mission-oriented policies also includes:

- identification of coherent policy mixes (instruments and funding) and coordination;
- conducting experiments (due to the requirement that new missions include not only technological solutions but also strong socio-political aspects);
- reflection and evaluation that include not only cost-benefit analysis but also system-level impact.

Finally, the management of new missions requires appropriate management skills: Capabilities that draw on a diversity of expertise and skills, from technological equipment to human-centred design, as well as meaningful organisational forms to link relevant previously unrelated areas of knowledge.

Accordingly, exchange and qualification programmes are an essential element to enable the people implementing new solution to connect the new and interlocked innovation system with an equally new work culture. Otherwise, mission orientation and participation are reduced merely to an attractive label.

Example Box V “Work4Germany”

“Work4Germany” supports public administration employees in integrating modern working methods and relevant future competences into their everyday work and accompanies strategic projects of the German Federal ministries to transform the work culture.

People from the private sector are therefore working together with employees in federal ministries and are developing various projects to make the work of the public administration more digital, agile and modern. This involves the use of new digital work tools and

⁴ „ROAR“ refers to a policy framework that includes strategic thinking about the desired direction of travel („Routes“), the structure and capacity of public sector organisations („Organisations“), how policies are assessed („Assessments“), and the incentive structure for the private and public sectors („Risks and Rewards“).

creative and collaboration methods. Recommendations for the transformation of ministries and possibilities for digital legislative processes are also being developed. The so-called "Work4Germany Fellows" provide support with their experience and skills so that change can be thought of holistically and applied at the individual, team, organisational and system levels and thus be effective in the long term.

Experiences that the initiative, which was launched in 2019, gained from its work with the first cohort primarily concern expectation management, which results from the realisation that the speeds of private-sector and political processes differ and that „fellows“ are primarily transformational rather than additional labour resources.

Source: work.4germany.org and tagesspiegel.de/digitalisierung/work4germany-start-up-trifft-wieder-auf-verwaltung

III. Requirements of a mission-oriented participation

The compiled examples show how diversely and constructively participation is already being implemented today. They show that participatory instruments can be creative, forward-looking and effective as well as a source and compass of innovation. However, the examples also show that participation is used in a very fragmented way and is rarely integrated systemically. In this way, the criticism raised at the beginning that participation is implemented institutionally primarily from a deficit logic persists: so far it has too often been implemented as a temporary event and is thus not yet firmly integrated in the innovation ecosystem. From this position, participation will have difficulties assuming the role in a mission-oriented innovation policy that is needed for successful social transformation.

Here, the institutions and organisations that put missions into practice in terms of innovation policy are essentially called upon to orient their actions towards new coordinated and constructively integrated forms of participation.

Against this background, the authors of this paper develop three theses in order to define the preconditions for successful mission-oriented participation.

Innovation culture: participation requires a democratic and open innovation culture

For participation to be implemented with integrity and credibility, a culture of openness and creative drive is necessary – from all actors. In a mission-oriented participation, the creation of something new is not reserved

for institutions or researchers. Rather, citizens are involved with their creative competences. This can work in all phases of the innovation policy decision-making process: from the articulation of new thematic priorities to the participatory implementation of research to its evaluation and assessment. Two key aspects are relevant for this. First, institutions must be willing to renegotiate power relations: If participation is wanted, goals and political priorities must also be able to be shifted by those involved. This implies that institutions open up and get more involved; not just to listen, but to join in the discussion. Secondly, it is necessary to allow not only people who are already in a privileged position to participate. An enormous effort is needed to create a culture of innovation in which all segments of the population are given the opportunity to participate in innovation and thus in fulfilling a mission. Ethical guidelines are needed to avoid bias and discrimination as well as to strengthen social participation.

Innovation policy organisations should above all make use of the social potential that the „bottom-up“ impact principle entails and try to strengthen it through broad measures. Among these, the authors see:

- strengthening general science and digital literacy so that not only the results of research but also methods, potential and limitations become tangible for citizens.
- development of an innovation policy common language – a lingua franca with which people from different sectors of society can communicate; organisations are asked here to act in a role of "interpreter and facilitator", enabling communication.
- introduction of a code of conduct for participation in the context of innovation policy; this is associated with greater diversity of participants, their openness and impartiality towards the ideas contributed and equality in decision-making processes.
- the consistent promotion of equitable and diverse access to participation, which enables not only privileged groups to participate, but is perceived and used across society. Digital participation should be used to enable access (for example in rural areas or for less mobile people), but not to block participation of groups less trained in digital literacy.
- the promotion of forms of innovation in which technological and social innovations are not opposed, but social change is shaped with technologies and missions are implemented.

Capacities: participation requires the development and use of agile competences and tools along the innovation process

For the implementation of a mission-oriented innovation policy, the role of state institutions must be reflected and, if necessary, rethought. Experts call for more agility at the

actor and system level. This should make processes more solution-oriented and forward-looking. Participation is an essential element to meet the demands of such political action. For this, it is necessary to create the necessary capacities. On the one hand, these consist of competencies including reflexive methodological approaches as well as transfer knowledge, which must be anchored in institutions. On the other hand, the innovation and funding policy instruments must be in place to enable participation and constructively embed it in the innovation process, as well as to strengthen the necessary innovation culture. These include instruments that specifically enable participatory formats, such as citizens' councils or open foresight processes, and instruments that call for constructive participation in research and create the experimental space for it.

To this end, innovation policy organisations should also live out their openness in the sense of experimental governance and openly develop capacities. Important elements for this are, for example:

- *establish and maintain professional networks of funding organisations* in which experiences about instruments are shared and new ones are jointly developed and tested;
- *conception and sustainable practical application of systemic participation approaches* that make it possible to take up impulses from civil society, and in which participation does not have a temporary event character, but innovations are rather oriented towards their transformation value through participation in several phases of the innovation policy decision-making process (cf. Figure 1);
- *review existing innovation policy instruments for their suitability for participation*, such as access to funding, bureaucratic efforts or opportunities for co-implementation, and implement appropriate improvements at the interfaces between institutions and citizens;
- *measuring the effectiveness of innovation policy measures* should not only cover research-relevant indicators, but also include the transformative impact of measures, for which co-evaluation can be an important methodological building block.

Structure: participation requires cross-level, cross-actor and cross-thematic innovation ecosystems

A participatory innovation ecosystem goes beyond the discrete, event-based focus of common participation offerings and aims at understanding diversity and interactions in larger systemic contexts. Taking heterogeneity and systemic contexts into account poses new structural and political challenges, especially vis-à-vis institutional responsibilities. Mission-oriented participation cannot run

along traditional departmental responsibilities, but must have an impact at the levels that are necessary for successful implementation. This includes municipal, regional, national and European levels of impact, which must be addressable in their interrelationships through participation. Of course, instruments can never impact society as a whole or an innovation system in all its relations, but there must be corridors through which different levels are connected. Through these, European formats could be highlighted nationally and continued at the municipal level. The same applies to the substantive goals of participation, which cannot stop at departmental political boundaries, but for whose successful implementation necessary resources must be bundled.

Further development of innovation policy structures will make it possible to anchor participation in innovation systems and ensure it in the long term; the following aspects are essential here:

- in general, *the transformative effect of innovations across several levels* must be taken into account in the further development of innovation policy structures, for which participation is essential, because through this the practical connections between political impulses, regulations and everyday practical action become recognisable;
- *participatory definition of the meaning and impact goals of missions* on the basis of a common understanding of the problem must take place at all levels of governance (from the municipality to Europe) and gather the respective actors (stakeholders, citizens, etc.);
- further development of *funding partnerships* (such as „Joint Programme Initiatives“ or „Social Impact Bonds“), through which funding can become more agile and solution-oriented and thus better aligned with the implementation of impulses from participation;
- *synergies and interrelationships between funding objectives* must be identified and better used so that public funds are directed towards achieving the objectives; formats in which citizens are also involved can become cooperation platforms here.

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