HIGHTECH FORUM

Agility in the innovation system – the state as actor

A discussion paper from the High-Tech Forum*

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HIGH-TECH STRATEGY 2025
Talents. Skills. Innovations.

1 The agile state and its role as a driver of innovation

Germany is currently one of the world's most innovative countries.[1, 2, 3] As for the future, however, there is still work to be done if Germany is to retain its innovative edge. At present, Germany is falling back in a number of key areas, not least in terms of digitalization and innovation in public administration, research and education.[1, 3, 4, 5, 6]

In the area of public administration, the capacity for innovation has both internal and external impacts. The internal impacts concern improvements to create a viable, efficient administration for the future; and the external impacts regard the state acting as an important catalyst for innovation in business, science and civil society.* On an international level, statistical comparisons of the degree of innovation in public administration are still in their infancy. In Scandinavia, however, surveys indicate that innovations in public administration can have a substantial impact, particularly in conjunction with business, science and civil society.[7]

The German federal government's High-Tech Strategy 2025 seeks to establish an open and agile culture of innovation in Germany, with the state itself acting as a powerful driver of innovation. In this discussion paper, the High-Tech Forum underscores the need to tackle the objectives identified by this strategy in the field of public administration. Other key insights and recommendations for greater agility in the innovation system are provided in discussion papers on social innovation, on the future of value creation, on training and on the subject of open science.[8]

The agile state and an agile culture of innovation: In political and business consulting, the term "agile transformation" is a catchphrase to describe a change in culture. The aim of this transformation is to increase the responsiveness, flexibility and adaptability of, in particular, bureaucratic institutions. Here, innovation policy should engage with societal, technological and ecological changes at an earlier stage and thereby play a proactive role in shaping them.

Agile management – the original definition
The concept has its origins in the IT sector. The manifesto for agile software development sets out the principles of a management culture and practice that focuses on customer satisfaction.[9] Rigid project plans are dispensed with in agile management. Instead, experts from different areas collaborate in small development teams that work independently to develop innovations in a relatively short period of time. In the process, they engage continuously with the user/customer in order to define functions and develop prototypes. These are then tested and evaluated in a process that yields insights that are subsequently incorporated in further development. As a rule, agile management applies a blend of methods (e.g., design thinking, scrum, business model canvas and lean management).

In the sphere of politics and public administration, the application of the principles of agile management increasingly means that interdepartmental teams with decision-making powers are deployed to deliver a quick and targeted response to new trends.[9] Business, science and civil society should all play a role in shaping and developing innovation policy. Here, the focus is on innovators, recipients of funding and users of public services.

Germany has some experience in the use of agile working methods in public administration, although principally, development in this area is still in the early stages (see annex for examples of use).[10] Worldwide, agile management methods have so far been employed predominantly in four areas of public administration:[11, 12]

- Software development and IT projects
- Administrative services and e-government
- Procurement
- Research funding

Unlike agile management, the concept and principles of an agile state or an agile public administration are yet to be clearly defined. The research conducted for this paper and background discussions on this topic have shown that considerable research is still required in order to improve our understanding of agile administration, its implementation and its impact.

Agility and good governance: Discussions at the High-Tech Forum have also shown that agility is not something that can or should be introduced into all areas of state activity. Compliance with the principles of good governance is a must when designing an open and agile research and innovation policy. This stipulates, for instance, the drawing up of multiannual budgets so as to allow the efficient planning and transparent use of funds. By contrast, agile management opposes long-term planning.[13]

Good governance
"Governance describes how a state makes decisions; and how policy is formulated and implemented. Good governance is transparent, effective and accountable. It involves the whole population and considers the opinions and needs of minorities and disadvantaged groups. All decisions must factor in sustainability principles."[14]

* Innovation is defined as a new or significantly enhanced product, service, process, organizational structure or mode of communication.[7]

Factors in the shift toward greater agility (see graphic below): It will take more than just an introduction of agile methods or instruments to initiate a sweeping change toward greater agility on the part of the state. Research in organizational theory and public administration indicates the need for a change in organizational culture, management style, structures and processes, and employee skills.[15, 16] On the actual working level, this culture change will occur gradually. To ensure success, it is essential that management sets a good example and offers strategic support. Initial experience with the use of agile projects and agile working methods provide the basis for further agile projects or incubators for the development of agile practices in public administration.

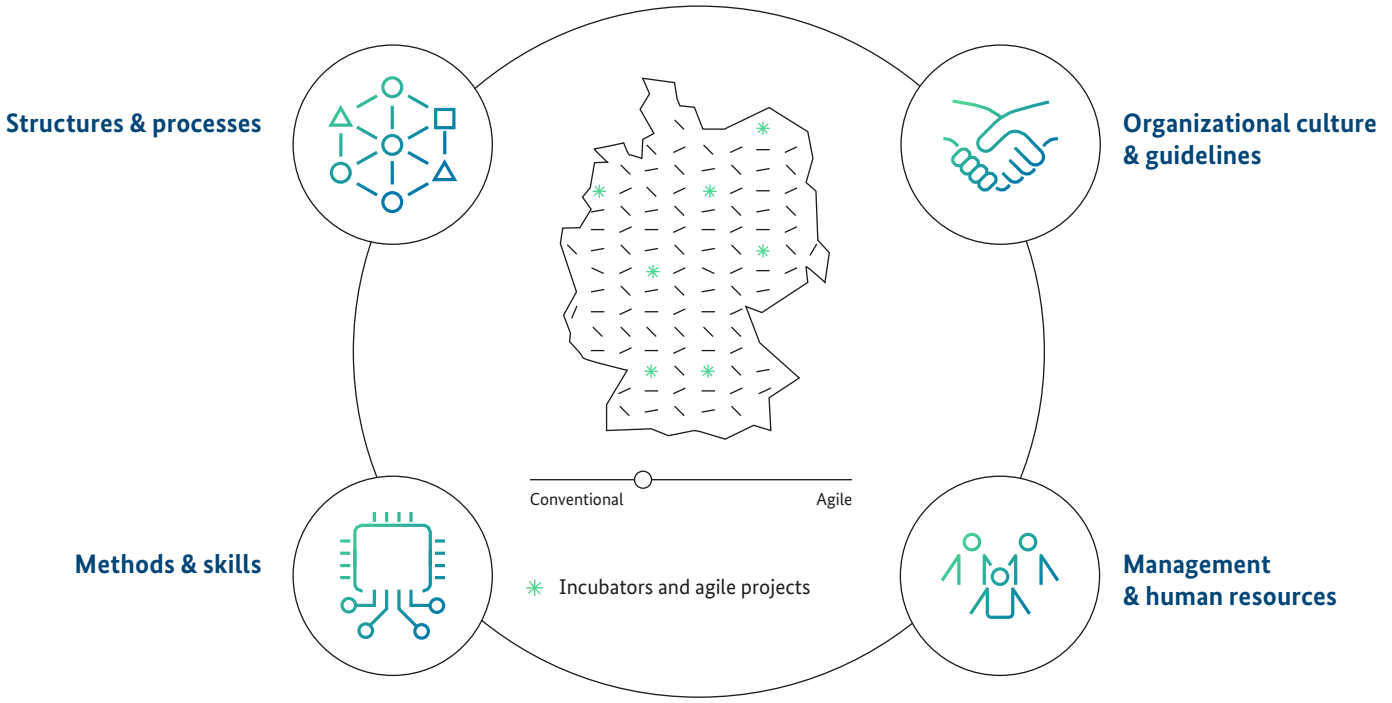

Fig. 1: Factors in the shift toward greater agility in public administration and innovation policy.

In **Section 2** of this discussion paper, the High-Tech Forum examines key domains and application examples for achieving greater agility in public administration and the federal government's innovation policy; **Section 3** offers policy recommendations.

2 Key domains for greater agility in public administration

There are already several successful applications of agile methods in public administration and innovation policy in Germany. However, there is still little or no use made of central levers. The key domains for the implementation of agile methods in administration and innovation policy are described below by means of application examples.

Agile organizational culture and management: Given its responsibilities – notably, the provision of public services, the administration of law and order, and the collection of taxes and other duties – public administration is essentially a rule-bound and risk-averse field of activity. Its responsibilities are clearly defined; it must comply with all regulations and errors are to be avoided. Any decisions that stray beyond the norm require the approval of superiors – often the uppermost level of management. This well-established organizational culture and management style ensure a certain control and discipline, yet they also hinder the implementation of agile and innovative approaches.[17]

One solution proposed in concrete management practice is organizational ambidexterity: on the one hand, organizational units and staff are required to process routine tasks efficiently and accurately; on the other, incubators and agile project teams can be established in order to work on inno-

vations designed to meet specific needs.[18] A lot of legislation therefore contains so-called experimentation clauses that provide leeway for such activity.[19] At the same time, management also has a great influence on how much responsibility and control is delegated to employees and to project teams. In the annex below, we provide examples of how public administrations employ this organizational ambidexterity in the form of innovation labs, fellowship programs and think tanks in order to strengthen their agility and innovation.

Agile procurement and support for innovative companies: With an estimated annual volume of up to 350 billion euros, public procurement offers considerable leverage for the innovation system. In other countries, agile methods have become established both in the private sector and in public administration, especially with regard to the procurement of services such as software development and IT outsourcing.[4, 9] The use of agile methods encourages collaboration with start-ups and small companies, thus furthering the strategic goal of leveraging procurement in order to promote new technologies and innovative SMEs. Further key objectives of an agile approach to procurement include closer involvement of users in the planning process and delivery of the service, and better access to expertise and the latest technologies. The annex provides an example of agile procurement of new technology and collaboration with start-ups on the part of the German armed forces.

Agile promotion of research and innovation: In Germany, annual R&D expenditure amounts to around 100 billion euros. The public sector accounts for around one-third of this investment and is therefore an important actor in this field.[20] In the wake of a dynamic growth in knowledge, greater complexity in R&D projects and greater diversity in the actors involved in innovation in business, science and civil society, new approaches to the funding of research and innovation are becoming increasingly necessary. Traditional project funding tends to focus on risk mitigation and long-term planning rather than on agile, iterative ways of working. Many of the innovators in business and civil society already work in an agile way yet encounter major hurdles when dealing with application procedures for public funds and the project-management methods of the public sector. Agile forms of funding and unbureaucratic procedures do already exist, but they are still very much in the minority. A number of examples are listed in the annex.

Agile services and e-government: Increasing digitalization in business and civil society and the development of the platform economy have significantly expanded the potential for e-government in recent times.[21] As yet, there is no standard solution for developing platform and e-government services. This requires state-led innovation. Agile projects and dedicated organizational units such as digitalization labs or innovation hubs can work with users to help progressively develop and implement complex, cross-adminstrative projects (see annex).

3 Recommendations for greater agility and innovation on the part of the state

A sucessful innovation hub needs public institutions that nurture and support research and innovation in a bold, open, pluralistic and unbureaucratic manner. Agility can play an important role here – provided there is a culture change in public administration. This means not only a change in working methods and organizational culture, but also that management and human resources lead the way. The High-Tech Forum sees the use of agile projects and working methods as a promising measure to further innovation policy in areas ranging from agenda-building and policymaking to implementation and evaluation.

Culture change and agile leadership: Greater agility in public administration requires a modernization of organizational culture and human resources management as well as a breakup of rigid structures. Leadership is central to any attempt to strengthen an agile culture. In accordance with the principles of good governance, management must encourage and enable employees to be more innovative. Furthermore, management must provide time and financial resources for agile ways of working and also create scope for more innovation. Several successful examples of this are presented in the annex.

The High-Tech Forum recommends a greater use of projects and coaching on agile leadership in public administration. Agile leadership should be experienced and learned as part of everyday work. This requires management to communicate with employees in an open and honest way. Management must also uphold and embody a no-blame culture. For example, if an innovative idea for a process redesign should prove ineffective or impracticable, this should not be considered a failure. Rather, in the spirit of trial and error, it should be regarded as a gain in knowledge.

In public administration, there is still a widespread tendency to think in terms of interdepartmental rivalries. This hampers agility and impedes a fast and efficient search for a solution that is tailored to the problem at hand. Management should not merely encourage but also insist upon interdepartmental cooperation and upon the involvement of key external actors in innovation strategy and innovation management.

Modernization of human resource management: In Germany, the public sector is facing a growing shortfall in skilled and junior staff. By 2030, one-third of the workforce is scheduled to retire. Although a more agile and digital way of working means that not all of these public administration positions will have to be filled in the future, human resources policy will need to change. As an employer, the public sector has an image problem and only meets modern demands to a partial degree. To ensure that the state remains innovative, the public sector has to become more flexible.[22] This includes not only introducing flexible working methods and working hours but also opening up the public sector and traditional career paths to new professional groups. For this purpose, the experience gained from flagship projects (see annex) should be evaluated and then used to achieve greater flexibility.

Similarly, public service employees should be given incentives to gather experience working in other departments and on interdepartmental projects. This should include the development of open career paths with opportunities for transfer between science, business and public administration. Those fellowship and rotational programs already in operation should be evaluated, developed and established on a permanent basis. To help the workforce become more innovative, employees should also receive practical training in the use of agile and creative methods – ideally, by being involved in agile projects. At the same time, the teaching of such skills should be firmly anchored in the curricula of universities and other establishments of higher education. It is also important that the acquisition of such skills be recognized as public service employees move up the career ladder. Similarly, the recruitment process should give greater consideration to skills in agile and creative methods, even if these have been acquired in other areas, including experience in a start-up environment.

Legislative framework and scope for greater agility: Discussions at the High-Tech Forum clearly show that there are many areas of public administration and state activity in which greater agility could be achieved. Legislative scope (e.g., in the form of so-called experimentation clauses) and opportunities to redesign processes in public administration currently exist and should be better utilized.[19]

At the same time, however, it is also necessary to identify and, if appropriate, remove any regulatory barriers that hinder the use of agile methods in specific situations and projects. The principles of agile management stipulate that suggestions for improvement should always be developed and tested in conjunction with all parties involved (e.g., in regulatory living labs). Work in innovation labs and agile projects should always take account of, and deal with, regulatory aspects. For this reason, accompanying research and evaluation should be made an integral part of any project. This could also offer a pragmatic means of promoting the transfer of such knowledge and thereby reducing bureaucracy.[23]

State innovation and digitalization: On a European level, Germany is at the lower end of the midrange in terms of eGovernment and the digitalization of the public sector.[6] The Online Access Act (OZG) obligates German federal and state governments to ensure that their administrative services are also available digitally and provided online by the end of 2022 at the latest.

In view of this forthcoming digitalization of public administration, the High-Tech Forum would like to emphasize the significance of public platforms and digital infrastructures in ensuring that the transfer, usage and storage of data is secure and legally compliant. Key initiatives in this field (e.g., GAIA-X, the European Industrial Data Spaces and the Bundescloud) should therefore be developed using effective and appropriate agile methods and should involve the participation of all relevant innovators (e.g., open-source software providers) and user groups.

Agile promotion of research and innovation: Greater agility requires funding bodies to make tendering processes more interactive, to break with traditional procedures, and to assume greater responsibility and become involved more frequently throughout the course of a project. By shifting the focus from project control to active coaching, innovative project teams can have a big impact – see, for example, the description of DARPA and Vinnova in the annex.[24]

The High-Tech Forum has identified two key drivers of greater agility in the promotion and funding of research and innovation:

1. In line with the priority for mission-based programs in the German federal government's High-Tech Strategy 2025 and in the EU's ninth Framework Programme for Research and Innovation, innovations should be developed on an interdisciplinary, intersectoral basis. This will involve bringing together a large number of actors from business, science and civil society in order to find solutions to current societal challenges. Germany already has valuable experience in the use of complex tendering and funding procedures tailored to specific purposes. Examples of this include the funding provided by the Federal Ministry of Education and Research (BMBF) for leading-edge clusters.[25] This experience should be analyzed and documented as soon as possible and the insights from it incorporated in future tendering procedures for mission-oriented projects. Funding measures of this kind should also take into account the needs of innovators with limited resources (i.e., start-ups, microenterprises, associations, etc.) and provide low-threshold access. These new actors will generate increased competition and thereby lead to greater dynamism within the innovation system.

2. A rapid growth in knowledge and a shortening of innovation cycles have exposed the limits of conventional forms of project funding. Complex project applications, multiyear project plans, fixed staff planning, predefined milestones and performance categories often are not in line with today's dynamic innovation system. The High-Tech Forum recommends minimizing the red tape involved in applications for funding and also enabling the online submission of digital applications. Agile forms of funding favor an experimental or step-by-step approach. For example, initial approval may be granted on the strength of a prototype or design drawing – see examples in the annex. Here, the focus should be on the underlying innovative idea and the achievement of targets and key results, rather than on narrowly defined budgets for material and working hours, output indicators or implementation paths. In order to mobilize small enterprises and social innovators, low-threshold forms of funding such as prototype funds and innovation competitions should also be tested (see annex).[26]

Participation and social discourse: The High-Tech Forum believes that public participation should play a key role in innovation policy. For this purpose, public administration must seek to strengthen its dialog with business, science and civil society. The establishment of agile projects and working methods help promote this dialog and secure participation across different spheres. First, however, there is a need to clearly communicate which areas are open to participation, which groups should be included, and what the nature of their mandate is (e.g., contributing expertise, helping to design processes, assisting with decision-making).

Such instruments should be regarded as long-term measures that will evolve to include new responsibilities. Ideally, the experience accumulated in this way will lead to ongoing improvements and adjustments to the procedure, including the involvement of new user groups and the training of staff.

At present, innovation policy often gives too little consideration to input from civil society. Bold attempts should be made to engage critical voices and integrate new and unconventional actors such as bloggers and makerspace communities within the innovation system.

Agile procurement and support for innovative companies: In Germany, far too little attention is paid to the use of public procurement for innovation.[4, 27] In Scandinavian countries, for example, procurement statistics for public administration and surveys on the impact of public procurement on innovation are readily available. This is not yet the case in Germany, although such figures are now being compiled.[7] The strategic use of procurement to promote innovation and sustainability in the economy still ranks low in the list of key objectives for public procurement agencies. Only a minority of procurement bodies regularly use modern procurement methods such as life-cycle costing, pre-commercial procurement or creative techniques to promote innovation.[27, 28]

Greater agility calls for a significant increase in the use of strategic public procurement in Germany. This requires not only data collection but also human resources and the development of requisite skills. The High-Tech Forum emphasizes the need to press ahead with the compilation of statistics for public procurement and surveys on the impact of public procurement on innovation.[29] This information should then be used by the public sector to develop a procurement strategy designed to promote innovation. The use of modern procurement methods and the consideration of strategic objectives, especially the promotion of sustainability and innovative companies in the procurement process must be more strongly enforced and reported on.[27]

Accompanying research and evaluation: The High-Tech Forum sees an urgent need for further education and research in order to facilitate the introduction and evaluation of agile methods in public administration. As yet, there is no clear definition of the concept and the principles of an agile public administration or an agile state. Given the lack of data in this field, a quantitative assessment of the degree of agility in Germany's public sector, or a comparison of this against other countries, is not feasible at present. The High-Tech Forum therefore recommends that Germany's public sector conducts an innovation survey similar to the innovation barometer survey carried out in Scandinavian countries.[7] For the purposes of this survey, specific indicators of agility must first be formulated.

There is also a need for research into the introduction, organization and impact of agile working methods in public administration.[12] For this purpose, greater support for education and research in social and adminstrative sciences on the implementation and evaluation of agile administrations should be provided.

4 Annex

Application examples

An agile culture and organizational ambidexterity in the public sector

Vinnova, a national innovation agency (Sweden)
For the past ten years, Vinnova, Sweden's agency for innovation, has been focusing on the public sector's capacity for innovation.
Vinnova uses so-called policy labs in order to promote cooperation between government ministries and the authorities. It favors a dialog based on user-centric, collaborative and iterative approaches. Participants from government and public administration come together in workshops to identify existing problems in regulatory areas, workflows or cooperation projects. Vinnova also funds a national training program to promote greater innovation in cities and regions. This program includes consulting and coaching provided by mobile innovation guides.
Human resources: The three pillars of the agency's organizational culture are respect, courage and autonomy. All three are firmly anchored within recruitment and HR processes, and they are the starting point for performance reviews and salary negotiations. The agency's management style is employee-centric and empowering. Vinnova program managers are required to make a lot of decisions themselves, including those concerning budgets of funding programs. Employee mobility is high. Following a period at Vinnova, many employees return to work in research or the private sector, or transfer temporarily to another government authority. Special programs and the opportunity to take leave of absence help encourage this mobility.
Program development: In line with the Scandinavian tradition, the Swedish authorities have a lot of autonomy in the design of funding and support programs. Vinnova follows guidelines of a general nature from the government ministry of which it is a part. However, to a large extent, it is responsible for developing innovation policy itself and has full responsibility for its own programs. For this reason, Vinnova regards itself not merely as an administrative agency but also as an expert authority. In an ideal scenario, agency employees are involved to equal degrees in program-related work, dialog with target groups, subsequent bids for proposals, the selection process and the handling of the funded projects. As a result, they are then able to generate ideas for future projects. Further information

DARPA – Defense Advanced Research Projects Agency (USA)
Since its establishment in 1958, DARPA has focused on the development and implementation of transformative innovations. It played a pioneering role in the development of the Internet (Arpanet), GPS technology, flat screens and drone technology. DARPA employs around 100 program managers. Between them, they supervise some 250 research and development programs. These program managers are regarded as key to the DARPA success story. They are extremely competent, transferring from a job in science, business or a government agency for a limited period – as a rule, three to five years. This limitation underscores the urgency of the task and the need to achieve success in less time than would be the case with a normal innovation process. The program managers develop ideas for new programs. These ideas are then reworked and refined at DARPA in an iterative process lasting several months. The ultimate decision is always taken by two persons from senior management so as to avoid decision-making processes that rely on achieving a consensus. Program managers define their programs, set milestones and meet regularly with funding recipients and experts from within their own field of innovation. While they faithfully monitor all the latest advances, they are also constantly on the lookout for the next big breakthrough in their own particular field and regularly confer with leading figures from science and technology in order to identify new challenges and potential solutions. In addition, they are also responsible for facilitating transfer of new technology they have developed to its ultimate use in a civil or military application. In practice, this often means direct collaboration with an agency or a company that can transform a hand-built prototype or proof of concept into an actual product.
Further information

Tech4Germany and Work4Germany
Tech4Germany and Work4Germany are annual programs of three and six months, respectively. They take established and emerging tech talent from the worlds of business and science and bring them together with innovators from federal government ministries. These structured programs combine the best brains from the world of start-ups, companies, research and the public sector, setting them to work on specific technologies and overarching projects for the federal administration. Tech4Germany is an independent nonprofit start-up working on behalf of the German federal government. The two programs are state-funded.
Further information on Tech4Germany | Further Information on Work4Germany

Mercator Science Policy Fellowship Programme
The Mercator program provides senior professionals from government ministries and agencies, the EU, international organizations, the media and nonprofit organizations with access to independent scientific expertise. Over a year, program participants attend two sessions lasting two to three days at one of the following institutions: the Goethe University Frankfurt, the Technical University of Darmstadt and the Johannes Gutenberg University Mainz. In the course of these two sessions, participants conduct a total of 16 discussions with researchers from the three Rhine-Main Universities. This dialog provides program participants with new perspectives on areas of specific interest to them. The program is a highly innovative training instrument in the field of human resource development. For participating academics, the program helps strengthen their understanding of policy issues, while the dialog with program participants provides them with new input for their own research. For professionals and academics alike, the time commitment is very modest; yet the benefits for both sides are very high, as program evaluations show. Further information

Policy Lab Digital, Work & Society
The Policy Lab Digital, Work & Society was established in 2018. Its aim is to identify new domains for Germany's Federal Ministry of Labour and Social Affairs that have arisen as a result of digitalization and other trends, to take a closer look at the world of work in terms of its social context, and to develop new approaches for the work-based society of the future. The policy lab provides a key point of reference for researchers, practitioners and social partners. It seeks to investigate specific issues from a range of perspectives that reflect the full range of knowledge, interests and experience. For this purpose, it employs a variety of group-based methods. These range from small discussion groups and workshops to co-creation processes and design-thinking labs held over several days. Further information

Think Tank "Industrielle Ressourcenstrategien"
The state government of Baden-Württemberg has set up a think tank for industrial resource strategy. Funded by the state and industry, it is located at the Karlsruhe Institute of Technology (KIT), where it operates as an independent body. Working in close cooperation with decision-makers from industry and politics, the think tank employs a science-based approach in order to develop practical and innovative solutions, strategies and recommendations for action. The fact that it is equally funded by industry and the state provides it with the freedom to explore new avenues and think outside the box. On this basis, it produces forecasts and proposals that offer valuable input for decision-making, thereby helping both government and industry prepare for future developments in the resources market. The think tank is operating for an initial period of four years, after which the project will be evaluated, and a decision made as to its future existence. Further information

Agile procurement of innovation

Cyber Innovation Hub (German armed forces)
The purpose of the Cyber Innovation Hub is to enable faster and easier procurement of new technologies and to ease cooperation between the German armed forces and innovative suppliers, particularly start-ups. In addition, it seeks to help employees of the armed forces develop and implement their own ideas. This requires scope to act, entrepreneurial skills, budgetary resources and a working culture modeled on the agile methods employed in a start-up ecosystem. The object is to implement in-house ideas quickly, cost-effectively and in an iterative manner. Further information

Agile research funding

Agency for Breakthrough Innovations
The Agency for Breakthrough Innovations (SprinD) was established in December 2019. Its management culture and human resource policy are decidedly lean, entrepreneurial and, to a large extent, politically autonomous. This distinguishes it from existing institutions that provide funding for research and innovation. Its employees – especially its so-called innovation managers – have broad scope to act and exercise a large degree of autonomy in the allocation of funds to projects entailing risk. Here, the priority is on agility rather than perfection. The agency is open to ideas for disruptive innovation from all areas of society. Competitions are a favored means of encouraging and identifying such innovations. The principal means of financing and implementing potential breakthrough innovations are so-called Projekt-GmbHs – small project companies with limited liability. Further information

Knowledge and innovation communities (EU)
The European Institute of Innovation and Technology (EIT) forms an ecosystem of knowledge and innovation communities (KICs) that help tackle concrete challenges facing society (e.g. climate change, digitalization, the transition to a sustainable energy system, resource efficiency, innovative materials, the circular economy, health care, etc.) In turn, these KICs are made up of consortia that comprise research establishments, universities and actors from business. They seek to use funding and support to stimulate innovation and channel such innovation into specific missions. The instruments employed for this purpose range from hackathons and start-up accelerators to doctoral grants and traditional funding of research projects. Further information

Innovation labs
In a new project entitled BioökonomieREVIER Rheinland, the German Federal Ministry of Education and Research is seeking to advance the process of structural change in the former lignite-mining areas of the Rhineland. A total of 15 innovation labs are to be established as of 2020. Three types of innovation labs were designed for this purpose: platforms will seek to provide technology and infrastructure, coupled with corresponding expertise, at the interface between research and busines; concepts will aim to establish fundamental innovations in the region over the medium and long term; and qualification projects will aim to further develop ideas for which basic feasibility has already been demonstrated.
Further information

Prototype Fund
The Prototype Fund helps software developers, hackers and other creative people advance their ideas for public interest technology from the bare concept to the initial prototype. Support is available for innovative open-source projects in the fields of civic tech, data literacy, data security and software infrastructure. Funding is to a maximum of 47,500 euros for an individual team or project. Developers have six months to write code and develop a prototype for an open-source software. Teams also have access to coaching and consulting as well as a network of tech and other experts. The website is designed to address this particular target group. Its layout and language is informal and low on official terminology. Further information

Agile administrative services and e-government

City of Cologne
As a model municipality for open government, the City of Cologne is currently expanding its information system to create a comprehensive service portal as well as working on new forms of civic participation. Using open data generated by the municipal administration, the City of Cologne is seeking to work with start-ups in order to identify innovative solutions. In addition, the municipal authority is collaborating with start-ups on the redesign of an applicant center so as to develop new ideas for the application process. Central to this process was the use of human-centered design methods. Further information

staatslabor (Switzerland)
The staatslabor is an organization that helps public bodies in Switzerland in developing effective solutions to societal challenges using agile and creative methods and technologies. The staatslabor functions as a platform to facilitate communication between various actors within the public sector and with an external network. This network – which staatslabor continuously cultivates and expands – includes specialists from various fields, ranging from data pioneers to participation experts. At the same time, the staatslabor seeks to forge links between those who use public services and those who provide and work to improve them on a daily basis. Further information

hih – the health innovation hub of the German Federal Ministry of Health
The purpose of the health innovation hub (hih) is to accelerate the digital transition in Germany's health system and thereby improve the standard of care of patients. In a process that brings together innovators and stakeholders, the hub aims to identify innovations as they emerge, evaluate their potential and help make them part of standard care. Key topics here include electronic patient files and the ongoing digitalization of care provision. Further information

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About this discussion paper

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The positions presented in this paper do not necessarily reflect the views of the German federal government.

This discussion paper was produced by the High-Tech Forum team appointed to work on the topic of "Agility in the innovation system." Its purpose is to advise the German federal government on the implementation of the High-Tech Strategy 2025. The team comprises the following members: Prof. Holger Hanselka (spokesperson), Prof. Sabina Jeschke, Prof. Wolfgang Lücke, Prof. Manfred Prenzel, Frank Riemensperger, Julia Römer and Prof. Günther Schuh.

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