



Federal Ministry
of Education
and Research

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Research for civil security – working together for a safe life within a resilient society

Framework programme of the Federal Government 2024–2029



Foreword

Living in security and freedom is a basic human need. Social change processes, growing security policy and global challenges, as well as social and technological innovations, have a direct impact on the security of the state, economy and society within a networked world; ultimately, it also has an impact on the security of each individual.

The fact that crises and disasters transcend national borders and can affect all areas of life and infrastructures has been clearly demonstrated to us in recent years. Pandemics, the increasing number of extreme weather events caused by climate change and the far-reaching consequences of crises, wars and conflicts throughout the world show how vulnerable modern, open and pluralistic societies are in democratically organised states. One of the lessons that has been learned from current and past crises is to think about the unthinkable in order to develop a better understanding of risks and to be prepared for events that are difficult to predict.

For this reason, prevention becomes more important than ever on several levels. Supported by a large number of stakeholders, civil security research is already helping to provide people with the best possible protection for everyday life, as well as in the event of a disaster. This is illustrated, for example, in the concept that has been developed and implemented within the security research programme to create self-sufficient contact points for the population that have emergency back-ups. So-called disaster protection lighthouses were set up in central municipal buildings, such as fire stations and hospitals, to coordinate assistance requirements and ensure communication both between crisis teams and with the people who have been impacted on the ground. The concept of lighthouses is being implemented by many cities, districts and municipalities throughout Germany. Innovative solutions drawn from research conducted by and with users also ensure that robot-assisted systems, for example, not only support rescue teams in dealing with disasters but are increasingly being integrated into everyday operations.

However, what is also clear is that the world is rapidly and profoundly changing: black swan events and crises are increasingly overlapping with each other and security requirements are becoming more complex as a result. Attacks on critical infrastructure as well as on fundamental democratic values and institutions are steadily rising, often combining to form hybrid threat scenarios against which we need to be more vigilant. Promoting civil security is therefore more critical than ever: it is a basic prerequisite for freedom, quality of life and prosperity for everyone.

Research and innovation make a significant contribution to strengthening civil security in Germany and thus the ability of all stakeholders to act. It is crucial that science, industry and users work closely together to ensure that the best ideas from research quickly find their way into practice.

The new 'Research for Civil Security' framework programme is a central pillar in paving the way for excellent research and development for civil security in Germany and Europe. Building on the experience and successes of previous security research programmes, the overriding objective must be to increase security, well-being and social resilience through the targeted transfer of innovative solutions so that people in Germany become even more prepared for future crises.

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Objectives of research and innovation for civil security

The world is changing ever more rapidly: social and technological developments offer great potential for tackling urgent challenges, but also present the state, economy and society with new and constantly changing challenges. For example, the global networking of economic, social and technical systems increases the risk of issues overlapping with each other and the cascading of crises and disasters. Another complicating factor is that although the probability of potential risks can be estimated, it is often uncertain at what point and to what extent a risk scenario will actually turn into a specific danger.

Our objective

For this reason, prevention is more important than ever. Research and innovation can make a significant contribution to strengthening civil security and therefore also the ability of the state and society to take action. As the Federal Government, we understand this to mean the aspiration and ability of the state and administration, the economy and the population to prepare themselves with confidence and in the best possible way in respect of risks, dangers, crisis and disaster situations, to prevent them in the best possible way and to reduce any consequences. This also includes rapid recoveries from any damage that has occurred and incorporating the experience gained into preparedness and prevention. In this sense, adaptability and the willingness and ability to change lie at the heart of a resilient, capable society.

Our aim is to increase the safety and resilience of the population through research and development. For this to succeed, processes to promote security and security solutions must be continuously developed. We are pursuing an all-hazards approach here. This means that the effects of all types of hazard (e.g. natural hazards, human and/or technical failure, criminal acts) and their interactions are considered.

With the new framework programme, we as the Federal Government will pave the way for excellent research and development into civil security for 2024 to 2029.

We are pursuing six central objectives that serve to strengthen Germany's civil security. These represent the thematic priorities for the promotion of research and development:

- We use innovative security solutions to strengthen those involved in **civil protection** so that they can provide people with rapid and comprehensive support in the event of a crisis or disaster.
- By promoting research and development, we help to ensure that **hybrid threats** are identified in good time, actors are supported in overcoming them and the impact of hybrid threats is minimised.



- We promote the development of new concepts and solutions to optimise the **supply of basic goods to the population** in the event of a crisis or disaster.
- Based on current research findings, we support the sustainable strengthening of the **population's own personal provision**. In particular, we want to systematically utilise and promote the creative potential of the population for crisis prevention and management in order to strengthen people's resilience.
- By promoting new concepts and innovative resources, we will help to ensure that various **phenomena linked to crime and radicalisation** are better recognised, understood and combatted. The aim is to increase people's everyday safety.
- By creating an **innovation laboratory for security research**, we will recognise the potential of new solutions at an early stage and support their implementation.

Our guidelines

Promote networking

Security is not only a task for the state as a whole, but also for society as a whole. The functioning of society can only be guaranteed in everyday life and especially before, during and after crises and disasters if the various areas of society work together. For this reason, the programme aims to network organisations and actors from government and administration, business, academia, organised civil society and the general public.

Support users

The programme particularly focuses on users of security solutions who are entrusted with engendering and guaranteeing civil security. This includes authorities and organisations with security tasks, for example, fire brigades, federal and state police forces, the Federal Agency for Technical Relief, the Federal Office of Civil Protection and Disaster Assistance as well as aid organisations such as the German Red Cross, Johanniter-Unfall-Hilfe, Malteser Hilfsdienst, Arbeiter-Samariter-Bund and Deutsche Lebens-Rettungs-Gesellschaft.

Users also include local authorities such as municipalities, relevant federal and state ministries and their impacted authorities, the operators of critical infrastructures and other systemically relevant players, such as agricultural producer organisations, as well as companies in the private security sector. Other civil society organisations such as the German Maritime Search and Rescue Association, International Search and Rescue Germany (I.S.A.R.) and the White Ring are also users of the programme.

Users are particularly important in terms of successful innovation and knowledge transfer. By articulating the need for new security solutions and being involved in the corresponding research and development process, they ensure that the results or security solutions developed on the basis of this will improve their ability to act in a targeted manner. However, users can also access research and development results and implement them as new solutions in their organisations or working environments.





Favouring the transfer of practical experience

The aim of the framework programme is to put good ideas into practice in a timely manner. The framework programme is based on a special understanding of transfer, in which the focus is not only on commercial exploitation but, above all, on the successful testing of technical and non-technical solutions by users. Within the framework programme we will support a broad, scaled application of socio-technical solutions. We will also take into account the fact that many users are public sector users, for whom the procurement of new security instruments is subject to special rules.

Research and development with and for society

Civil security touches all areas of people's lives and affects the everyday lives of each and every individual. Given that only innovations that prove themselves within society will ultimately result in greater security, we will involve the public in the research process from the outset under the framework programme. Topics and issues that engage people should be incorporated into the formulation of research and development questions. By involving the population with their diverse knowledge and new perspectives, the quality, relevance, suitability for everyday use and usefulness of research results can be increased. As the likelihood of

actual application and thus the successful transfer of security solutions into practice always depends on individual and collective acceptance, the values, perceptions, social prerequisites and consequences of innovative security solutions are also taken into account in research and development work.

Ensuring the ability to act through technological sovereignty

As a result of geopolitical changes, the debate about technological sovereignty is becoming increasingly important both nationally and in Europe. This is understood to include the aspiration and ability to help shape and commercially use key technologies internationally on an equal footing and in line with our values. Technological sovereignty also means formulating requirements in respect of technologies, products and services in line with our values, developing key technologies in line with these requirements, and helping to define norms and standards on the global markets. Technological sovereignty is also key in the area of civil security: in order to guarantee Germany's unrestricted ability to act in the civil security domain, technologies must be identified from the applications of civil security for which sovereign control is indispensable in the context of the state's security tasks. This applies to the



entire spectrum of applications, from civil protection to security of supply and hybrid threats, to fighting crime. Critical dependencies must be recognised and avoided in good time in order to prevent restrictions regarding civil security and to effectively counter new threats. To this end, we will analyse which technologies are indispensable for ensuring civil security in the future and thus develop an important prerequisite for shaping technological sovereignty in a targeted and needs-based manner.

Making use of European and international cooperation

Crises and disasters do not stop at national borders. Cross-border issues are therefore handled through cross-border research. Against this backdrop, international cooperations are included in order to bundle forces and optimally utilise available resources. The knowledge of players within the European Research Area must additionally be used to benefit civil security in Germany. To this end, we are actively seeking synergies and links with the European security research programme.

Our approach

The framework programme contributes in particular to the objectives of the Federal Government's Future Research and Innovation Strategy. It specifically makes a significant contribution to the two missions 'Strengthening social resilience, diversity and cohesion' and 'Securing Germany's and Europe's digital and technological sovereignty and harnessing the potential of digitalisation'. It also contributes to the implementation of the National Security Strategy and the German Strategy for Strengthening Resilience to Disasters and will be taken into account in the implementation of the Civil Defence Concept. Due to common objective of reducing vulnerability and strengthening resilience, the framework programme also contributes to the United Nations' 2030 Agenda for Sustainable Development; these objective form the basis for the German government's Sustainable Development Strategy.

The new framework programme builds on the experience and success of previous programmes. It is designed as a learning programme so that the social orientation of research funding can be guaranteed throughout the entire duration of the programme. We maintain an ongoing dialogue with representatives from academia, politics, administration, practice and civil society in order to review and, if necessary, adapt the topics, instruments and expected outcomes of the funding measures. The findings from a broad-based agenda process were used to develop the new programme. Stakeholders in civil security used various formats to compile and prioritise research needs and challenges for the coming years.

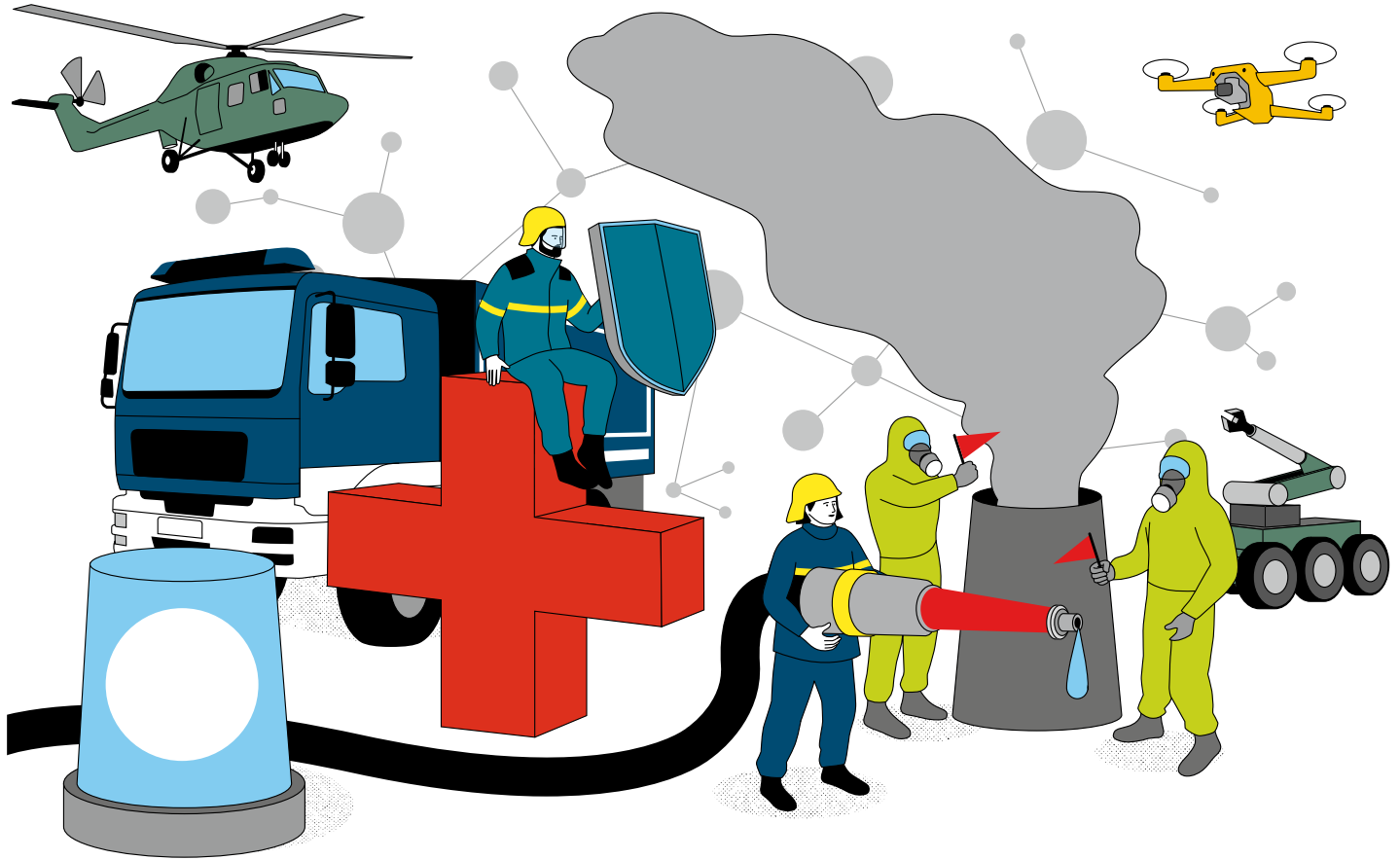
Research funding is exclusively focussed on civil scenarios involving science, industry, users and the population. Possible interfaces between military and civilian security research are explored in order to meet new security policy challenges and to be able to make use of the respective findings of each other.

From the six central objectives that serve to strengthen Germany's civil security, it is possible to derive six action areas that represent the focal points of our future funding activities. These are achieved through promotional measures. Funding instruments that cover the entire research and innovation process are used. Both technological and social innovations are also covered.





Action areas of the framework programme



Strengthening civil protection

Comprehensive civil protection that supports people in all dangerous situations remains a central task of the state and requires there to be efficient structures and good equipment for the emergency services. It encompasses prevention, including by analysing and managing risks, preparing for crises and disasters and overcoming them through effective cooperation between all relevant public and private stakeholders.

The extent to which a population is protected is decided long before a crisis and/or disaster event occurs. If risks are increasingly understood more accurately, targeted preventive activities can cushion their potential impact or, ideally, even prevent them completely. If the risk itself cannot be influenced, then research must find approaches that will reduce vulnerabilities.

These can take the form of both strengthening a resilient society as well as adapting the natural and man-made environment. However, it is impossible to achieve absolute security even with good risk management.

Civil protection therefore also includes the provision of immediate assistance, for example in the wake of extreme weather events that occur at short notice or following the immediate release of chemical and biological hazardous substances. Solutions must also be found for long-lasting and simultaneously occurring damage events that lead to diverse and far-reaching disruptions and system failures, such as the failure of the power supply or means of communication. In the context of the changed security situation, it will also in the future be necessary to actively address aspects of civil defence (non-military measures in the

context of overall defence that relate to Article 73(1) (1) of the Basic Law). Research can help to generate innovative solutions that contribute, most importantly, to maintaining state and government functions, protecting the population in the case of civil defence, and providing the population and armed forces with the necessary goods and services.

A holistic approach to civil protection relies on a close cooperation between state institutions, aid organisations, the population, the economy, organised civil society and the media. Only by acting together can there be a successful move from risk perception to precautionary action. Within the scope of their responsibilities, state institutions create the basis for risk management and manage the state capacities available for preparedness and the joint preparation for, and management of, crises and disasters. It is particularly necessary to jointly develop solutions for effective forms of cooperation and innovative support systems for the respective situation management, not only to put in place sufficient crisis management capacities and emergency stockpiling, but also for the creation of structures that ensure cooperation between all stakeholders. The interfaces between civilian and military actors must also be taken into account. Research helps to enable innovative approaches that bring about efficient cooperation at all levels, as well as risk management across levels and responsibilities. The prominent role played by the population as active helpers in the event of a crisis or disaster and the interdependencies between all actors, social structures and infrastructures relevant to civil protection must also be included within the remit of research and development projects.

Complex crisis situations, as well as long-term social changes, have a direct impact on the operational capability of those working on civil protection. Sustainable concepts and structures must be created in this respect so that authorities and organisations responsible for security tasks remain capable of acting, even when faced with critical operational conditions. Research into civil security helps to ensure that all players, including emergency services on the ground (who are predominantly volunteers), are equipped and supported in the best possible way through the development of innovative resources.

The aim of the 'Strengthening civil protection' action area is therefore to develop approaches that focus on the prevention and management of crisis and disaster situations. Strong interactions between the technical and social structures of our society necessitate a holistic, cross-sector and cross-level view of future socio-technical systems within civil protection.





Better management of hybrid threats

Hybrid threats are one of the central security and socio-political challenges for the state, economy, science and populations within liberal democracies worldwide. They refer to various forms of an illegitimate exertion of influence on states by foreign states. Through the targeted and coordinated use of various methods, these states attempt to enforce their objective against German and European interests and values, both openly and covertly; non-state actors may also be used in the process. Hybrid players can make use of a wide range of instruments, for example: cyber attacks on government agencies and companies, espionage and industrial espionage, theft of intellectual property, exploitation of economic dependencies or economic influence, sabotage of critical infrastructure, influence on free elections and manipulation and influence in the information space, including disinformation. Ensuring

an influence in the information space in the sense of hybrid threats aims to destabilise democracies by influencing public opinion and decision-making. The aim is to undermine trust in government agencies and influence social discourse in order to spark or deepen conflicts.

A key challenge in preventing and overcoming hybrid threats is recognising them at an early stage. It is important to establish links between individual activities and to understand the intended impact of attackers as well as anticipating the effects of new technological developments. As exerting an influence over the information space, including disinformation, is a possible form of attack – especially in open, pluralistic societies of democratically constituted states – it is important to research solutions for quickly identifying and combating coordinated disinformation campaigns. Given these are spread via social media, for example, or are



based on a distortion of facts and scientific findings, there is a specific need for approaches that focus on particularly vulnerable social groups and target the expertise of all stakeholders and the population in handling such manipulation of the information space. However, other forms of hybrid threats, such as the targeted sabotage of critical infrastructures, also require intelligent solutions based on the high innovative power of research and development to analyse and assess the threat situation and detect any specific attacks at an early stage.

Against the backdrop of the challenges described above, preventive and reactive approaches are to be considered in a practical and solution-orientated manner in the 'Better management of hybrid threats' action area. These should not be limited to individual phenomena, but should specifically look at their interaction in hybrid strategies. Forward-looking measures need to be researched in order to minimise vulnerability to hybrid threat situations and to make the situations and interrelationships of individual events comprehensively recognisable at an early stage. Concepts that will help to limit and effectively counteract the effects of hybrid threats on public safety and order or security

of supply in the case of damage must be researched as well. In addition to recognised forms of hybrid threats, a forward-looking analysis of possible attack motivations and targets in connection with geopolitical changes must also focus on new methods of exerting influence and how they interact within the framework of hybrid campaigns. The aim must be to use suitable methods to ensure the state's ability to act, maintain social cohesion, maintain supplies and strengthen the population's trust in state structures to handle crises and emergencies.



Supporting security of supply

Securing the supply of basic goods such as food, medicines, medical supplies and services for the population, the economy and state actors, poses an enormous challenge in view of global supply chains and changing security policy conditions. Critical infrastructures, for example, regarding energy, food including agriculture, health and communication sectors, are all of paramount importance here, in the same way as all products, processes and facilities that are relevant to the supply system for specific events. As almost all economic processes are dependent on functioning supply chains, this also includes the private sector with its production capacities, freight transport and logistics as well as – within the remit of public services of general interest – public authorities and organisations tasked with security. Robust, intact transport routes and networks are of central importance to society across all critical infrastructure sectors. The economy and everyday mobility are dependent on the infrastructure safety of the modes of transport, which must be guaranteed.

The establishment of an efficient risk and crisis management system that is also effective in exceptional crisis situations for all players relevant to the security of supply forms a central cornerstone of the security architecture. To master this highly complex task, innovative solutions that enable the predictive and continuous analysis of critical and cascading dependencies within networked infrastructure systems are required. This entails going beyond the level of individual players and sectors and taking a cross-sectoral approach to research and, in addition to critical infrastructures, examining all other facilities and processes that are relevant for a secure supply.

In order to manage identified and recognised risks and ensure security of supply in increasingly complex crisis and disaster situations, any research and development must increasingly focus on aspects such as securing (agricultural) primary production, creating resilient value and supply chains and fall-back options, new modes of transport, innovative cooperation models and new concepts for logistics and stockpiling or emergency



supplies of critical goods. Solutions to be researched for improving the availability of resources may include aspects of the circular economy or, based on identified dependencies, the targeted securing of production capacities through relocation or diversification.

In the ‘Supporting security of supply’ action area, the focus is on research issues that arise from new, complex crisis and disaster situations and increasingly require cross-sectoral solutions. This involves new approaches to analysing risks or critical dependencies that can exist in national, European and globally networked infrastructure systems and that can have a serious impact on the security of supplies in an emergency.

The aim is to comprehensively and sustainably improve the resilience of supply security by recognising new risks at an early stage and developing suitable measures to deal with failure events. Innovative and widely applicable methods and tools will support stakeholders in the implementation of resilient and flexible risk and crisis management and will therefore contribute to security of supply.



Increasing the resilience of the population

Strengthening and increasing the population's own preparedness and self-protection at an individual, neighbourhood and regional level is fundamental for effective disaster management. In an international context, the term 'community resilience' has been developed for this purpose. In terms of sustainable social resilience, it is particularly important to systematically utilise and expand the potential of the population's various adaptive capacities and improvisation skills. This relates both to the ability of private households to prepare and to their involvement in official crisis and disaster management measures and disaster after-care.

The main starting points are to use scientific findings to help raise public awareness of risks, hazards, crises and disasters in the future and to initiate a corresponding social discourse. The topic of 'education in civil protection' and in particular 'civil protection education'

plays a special role here since it is aimed at researching, organising and promoting teaching and learning processes in civil protection. With regard to civil protection issues, the aim must be to involve citizens as actors, to familiarise them with the purpose and tasks of civil protection and disaster control and to strengthen their level of personal responsibility. The aim is to analyse whether private emergency approaches to preparedness are known among the population and to what extent the social, societal and cultural diversity of the population requires extended emergency planning concepts. Building on the analysis of data and experiences of past crises, research can demonstrate how, for example, specific warnings of dangers or successful crisis communication concepts and information campaigns for certain target groups must be designed with a view to appropriate self-preparedness.



Informing the population transparently and at an early stage about hazardous situations and creating improved opportunities for participation in disaster management and after-care is one of the central challenges of sustainable civil protection. Many citizens act as spontaneous helpers in crisis and disaster situations and usually organise themselves using social media. The active participation of victims and helpers and their important role as information providers in crises and disasters lead to a strengthening of civil courage within society, but they also need to experience coordinated and systematic integration into professional help structures. The aim is to facilitate a two-way exchange of information between the full-time and voluntary civil protection services and the general public. In this context successful, proactive risk and crisis communication in both directions not only serves to manage incidents more effectively, but can also have a positive effect on levels of trust and the reputation of organisations and authorities involved in public emergency response.

Diverse research questions centred in the 'Increasing the resilience of the population' action area focus on strengthening self-provision and self-protection within the meaning of a social space-oriented, networked and socially balanced civil protection system with a specific focus on vulnerable groups. Against the backdrop of past crises and disasters, the aim is to particularly focus on solutions that not only contribute to a greater awareness of risks and hazards and improved preparedness skills among the population, but also lead to greater involvement and support for the multifaceted potential of people and their ability to use their own initiative in the event of an incident.



Enabling safe living

Living in safety and security is a basic need and just as fundamental for an open and democratic society as it is for social peace. Dynamic and sometimes unpredictable social and technological developments have made the vulnerability of state and social structures more apparent in recent years. It is also clear that the situation regarding crime is changing. This is linked to new or changing forms of crime and an increase in the number of offences recorded by the authorities in various areas, which require new or adapted measures to combat crime.

For example, well-known criminal phenomena such as cyber crime, organised crime and white-collar crime are occurring more frequently and resulting in ever greater damage. More radical forms of protest are also being registered, some of which can adopt violent or extremist proportions. Cross-connections between extremist milieus and organised crime are also be-

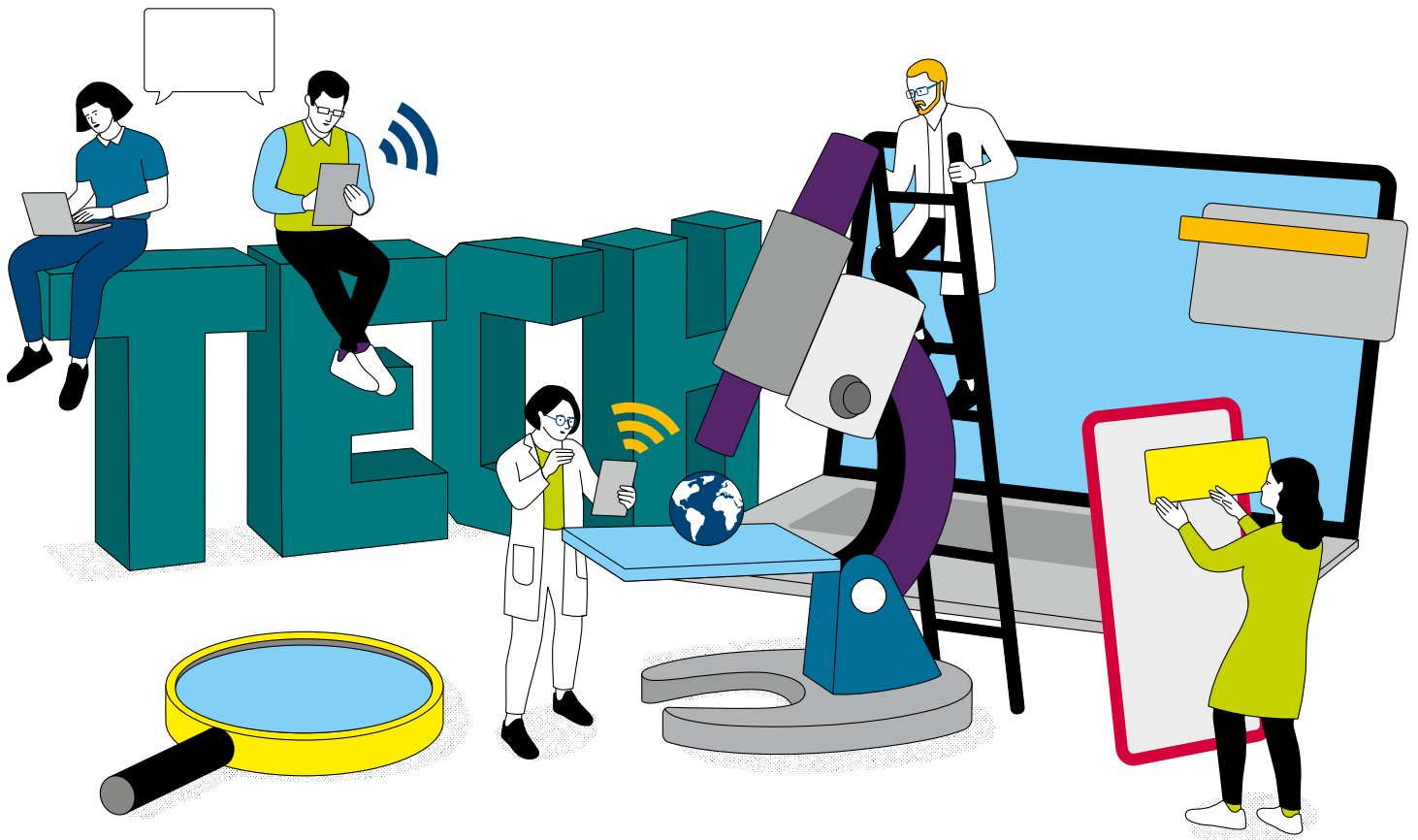
coming increasingly apparent. Research can provide an important basis for developing new methods and techniques for predicting and analysing changing or newly emerging areas and forms of crime.

In addition to these new security-relevant manifestations of crime phenomena and the effects of technological developments, the perception of security and crime has a specific influence on civil security. Among other things, it raises the question of what influence social change and new forms of anti-democratic sentiment have on the work performed by authorities and organisations tasked with security and on the mutual relationship between the population and state actors. The aim here is to contribute to increasing acceptance of our democracy as a form of society through innovative research and development approaches.



The constantly changing format of everyday crime also makes it necessary to focus more comprehensively on the influence of structural and urban change on crime and crime prevention. When developing holistic security solutions, it is necessary to more closely involve actors outside of those authorities and organisations with security tasks as well as civil society groups, especially in view of the existing differences between perceived and officially registered security in urban and rural areas.

Against the backdrop of fundamental change processes, the 'Enabling safe living' action area looks at both the prevention and management of existing and new crime, as well as radicalisation phenomena. The aim will be to support the security authorities across the board by researching and developing new technologies, methods and procedures. Civil security research therefore makes a significant contribution to achieving the objective of increasing the everyday security and safety of people in Germany.



Promotion of knowledge and practice transfer: Innovation Lab for Security Research

The 'Innovation Lab for Security Research' brings various approaches to support the transfer of knowledge and practical experience together.

On the one hand, the potential of the latest scientific developments in the various disciplines in civil security should be recognised at an early stage and combined with knowledge of current and future areas of need and gaps in the capabilities of users. To this end the relevant players from science, industry, user organisations and, where appropriate, the general public are brought together to jointly design, discuss, test, adapt and further develop potential security solutions. The aim is to generate the best possible ideas for new security solutions and use evidence-based knowledge of scientific developments as the foundation for them. Gaps in capabilities must at the same time be identified

with enough foresight in order for appropriate technological and social innovations to be developed in good time. Economic, legal, social, cultural and ethical aspects must thereby be taken into account.

On the other hand, the transfer of research outcomes into practical applications is strongly supported within the innovation lab. To this end, results from security research projects that look at selected thematic areas are systematically analysed. The results are then presented to potential users in the form of a summary as part of high-profile formats. Exchange and networking formats for specific topics are thus established alongside the use of practical test and demonstration environments. Commercial use of project outcomes is also of specific importance for their successful transfer into practice and for scaling security solutions. The innovation lab therefore offers support measures for the initiation and realisation of projects and their outcomes so that the required security solutions will be available on the market in a timely manner.



These activities are complemented by the establishment of a digital information, networking and matching platform for actors, projects and outcomes of civil security research. Cooperation initiatives that involve the relevant procurement offices are promoted so that it is possible to meet the challenges regarding the requirements and specifications of public procurement of innovative solutions at an early stage.

The 'Innovation Lab for Security Research' represents a consistent further development of existing approaches to innovation and practice transfer in the framework programme. The aim of the innovation lab is to actively identify potential solutions, user requirements and gaps in capabilities in selected development and subject areas at an early stage.

The creation of professional exchange and networking formats as well as new platforms for the demonstration and practical testing of innovative solutions only serves to strengthen the successful transfer and broader impact of putting research results into practice.



Efficient funding policy through optimally interlinked funding instruments



In order for the framework programme to achieve the desired effect, a set of instruments is needed that meets the following requirements:

1. The specific needs of the application must be addressed and an effective transfer into practice supported.
2. Targeted impetus must be provided by setting a topic-specific focus. At the same time, flexible options are needed in order to be able to respond to current requirements in an open manner.
3. Interdisciplinary, inter-institutional and, where appropriate, international cooperation must be established and expanded upon.
4. The overarching exchange between the various players in civil security must be promoted in order to bring needs and solutions together.
5. By creating a high level of visibility for the developed solutions, a broad impact is achieved.

Funded projects must not be viewed in isolation, but must be embedded within an overall strategy. The close dovetailing of traditional project funding instruments with accompanying innovation support measures is particularly important in this respect.

Research approaches should be orientated towards the desired effect and should not look at isolated solutions. This forms the basis for a targeted, problem-solving transfer of know-how and the successful implementation of new solutions for civil security.

The projects are characterised by the fact that actors from science, industry, authorities, security organisations and civil society all work together along the entire innovation chain to find solutions for current and future challenges in civil security. With its universities, universities of applied sciences, non-university research institutions, departmental research institutions and research-based companies, Germany can access a broad-based research landscape that is equally represented within the framework programme.

A robust and plausible concept for the practical transfer of the potential solutions is one of the key selection criteria in the competition surrounding project ideas. This means that all stakeholders needed for effective practice transfer must be involved from the outset. It also applies to those who use the new solutions as well as to all those who contribute to their realisation and availability, such as commercial enterprises and local authorities. The projects are specifically characterised by the fact that they ultimately produce tangible results, for example, in the form of demonstrators or practical recommendations and guidelines.

The following instruments in particular are used to achieve the objectives of the security research programme:

- Targeted impetus is provided through the topic-specific funding of joint projects along with partners from industry, science and users.
- The needs of new users are addressed through the use of open-topic funding and regular opportunities to submit project proposals.
- So-called lighthouse projects are intended to pave the way for particularly innovative and practice-relevant research results to be applied through the promotion of further development aligned with practice, thereby helping to achieve a broad impact.
- The promotion of demonstration, test and transfer environments creates visibility for new solutions or new knowledge and gives users the opportunity to determine the added value of the solution for their specific requirements, allowing them to quickly take on board new knowledge.
- The potential for new scientific findings to be used in civil security and the feedback of user needs into science are standardised at an early stage through exchange and validation formats.
- The inclusion of European and international value partners in research projects supports the acquisition of knowledge and the transfer of experience and expertise. Cooperation with security research programmes in European partner countries is also a way to tackle relevant cross-border problems. Research



security aspects are examined before a collaboration of any kind takes place. Care must be taken to ensure that research findings are not passed on to states that could misuse them for their own ends.

- The National Contact Point for Security Research supports German stakeholders in participating in the European Commission's funding activities for European security research. Synergies and links between the European and national funding programmes should be actively shaped and their use supported.
- Research findings that are relevant for drawing up policies are prepared for political decision-makers and made available in specific formats (Science to Policy) for the working level of stakeholders at federal, state and municipal level.
- The dialogue between the stakeholders ensures that the research results have a broad impact and provides an important impetus for the further development of civil security. Formats such as the 'Civil Security' innovation forum or the symposium on European civil security research organised by the Federal Ministry of Education and Research encourage dialogue between politics, science, industry and society. Topic-specific formats support intensive cross-project dialogue and networking.
- The basis for successfully transferring knowledge and research results into practice is communicating in a structured manner that is oriented towards the target groups. The sifo.de internet portal is an established platform where civil security stakeholders can find comprehensive information on all current activities, funding priorities and research results. In addition, competences in the field of research for civil security that are distributed throughout Germany will become easier to discover and networking will be supported. Collaborative projects are encouraged to actively shape science communication.

To implement the framework programme, the instruments that are outlined above are used within the context of various measures. The precise design is based on the ongoing monitoring of demands and the impact that is achieved. The publication of funding guidelines specifies the respective objectives, thematic priorities and funding modalities. Submitted project proposals are then selected by following a standardised, competitive and transparent process.

Funded projects are expected to handle research data appropriately and in line with the subject area. In the interests of traceability and ensuring the quality of results, as well as any possibilities for further research and use thereof, provision for ways of reusing the research data should be put in place insofar as there are no conflicting protection requirements or usage interests.



Progress through networking with other measures and stakeholders

The framework programme is related to the strategies and initiatives of the Federal Government. Of particular note here are the **Future Research and Innovation Strategy**, the **National Security Strategy**, the **German Strategy for Strengthening Resilience to Disasters**, the **German Sustainability Strategy** and the **'Together for Democracy and against Extremism' strategy**. The result are interfaces where we, as the Federal Government, will ensure good coordination and the greatest possible utilisation of synergies, particularly in the implementation of strategies. In the spirit of a learning programme, any strategies that emerge during the term of the programme will be incorporated into the further development of the framework programme.

The cross-departmental approach used within the framework programme serves to dovetail the diverse activities of the federal ministries in the field of research for civil security and in this way, helps to make use of interfaces. On the one hand this does mean that specific funding programmes can be used by funding recipients both upstream and downstream of the framework programme. On the other, the programmes should complement each other in terms of themes. For example, looking at IT security research, which is important for civil security, this is funded within the **Federal Government's research framework programme on digital IT security: 'Digital. Secure. Sovereign.'**, as well as research and development to combat digital disinformation and data protection. In order to ensure resilient and robust communication systems relevant for civil security, their research and development is funded under the **Federal Government's research framework programme on communication systems 'Sovereign. Digital. Networked.'** The **'Humanities and Social Sciences' framework programme** run by the Federal Ministry of Education and Research also funds research into radicalisation, extremism and the threats to democracy that are posed by crises. Looking at the **Interdisciplinary Social Policy Research (FIS) funding network**, the Federal Ministry of Labour and Social Affairs is also playing a role with regard to research into the social impact of crises. Ways in which to improve maritime security are covered by the basic funding of the DLR Institute for the Protection of Maritime Infrastructures and the **Maritime Research Strategy** of the Federal Ministry of Economics and Climate Protection. Research questions on coping with epidemic and pandemic risk situations are looked at within the Federal Government's **'Health Research' framework**

programme. As part of the Federal Ministry of Education and Research's **'Research for Sustainability (FONA)'** research strategy, the impact of climate change on the frequency and intensity of extreme weather events is being analysed, while research and development looking into socio-technical adaptation options are promoted. In its current **strategic framework for departmental research**, the Federal Ministry for Digital and Transport Affairs addresses significant issues for civil security, such as the reliability and resilience of transport infrastructure, strengthening cybersecurity and security in the realm of transport and the protection of critical infrastructures. Among other things, the **mFUND** promotes research into managing emergency situations using new, innovative modes of transport. The Federal Ministry of Defence funds **defence science research with** the aim of securing and improving the Bundeswehr's ability to act and perform by making greater use of the research and ideas and implementing them.

The **federal ministries and their agencies** are particularly important for the framework programme, not just in their role as sponsors of security research, but also as research and transfer partners. In this way, the **departmental research institutions and research institutions with basic funding**, such as the DLR institutes for the protection of land-based infrastructures and AI security, all help to ensure that evidence-based political decisions can be taken. Furthermore, many of the authorities who look into security research are important for the framework programme in two respects. On the one hand they play a role as research partners in collaborative projects and contribute their specific needs to the research process. On the other they also benefit from the results of research and development, implement these in their organisations or working environments, and put them into practice in general in line with procurement processes. In order to favour the practical transfer of innovative security solutions from civil security research, a stronger exchange between the relevant research projects and the procuring agencies is being sought.

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Internet: bmbf.de
or by
Phone: +49 (0)30 18 272 272 1
Fax: +49 (0)30 18 10 272 272 1

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