



Measuring What Matters

**Introducing the National Security &
Resilience Index (NSRI)**



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Foreword (DGAP)

It is time for something new.

The international security landscape is changing rapidly. Great power politics and the unabashed pursuit of spheres of influence return, while technological innovation, a wave of illiberalism and open as well as hybrid warfare disrupt assumptions of stability and attainable democratic peace.

For Germany, in particular, this requires a new approach to security, a new seriousness. After three unique decades – unified, at peace with its neighbors, in an ever-deeper integrated European Union, benefitting from a globalised system of increasingly free trade and international rule of law – Germany is going through a sea-change. From a consumer to a provider of existential security, for herself and the continent.

The key task is creating a credible deterrence against all threats, and fast. It requires a revised allocation of resources – in money, manpower, political weight, and strategic brainpower. The re-building of the armed forces is at premium, but so is the industrial ramp-up and the resilience of critical infrastructure and society as a whole.

Security, it turns out, is a complex matter. Especially if a nation has not expended thought and energy on it for a long time. In the urgency of now, decision-makers need to assess how well current efforts succeed and where they are lacking.

This is the driving motivation behind PwC's and DGAP's development of the National Security & Resiliency Index (NSRI). It is a fresh answer to an old, almost forgotten concern: How do the military, the economic, and the societal strength of a state combine to ensure its security? By finding ways to measure – to actually quantify, aggregate, and compare – various aspects of national security and resilience, it is a unique undertaking, without precedence anywhere.

At this early stage already, it provides a number of insights. Key among them is that the three major elements – military capability, industrial capacity, societal readiness – are so closely interlinked that each will fail without the success of the other. That is, while military power is essential, a focus on the Bundeswehr alone will not suffice. It is crucial to strengthen the interplay between all three major elements.

To be clear, the NSRI project is still in its infancy. Not all data is yet available, not all kinks of our model are ironed out. But we are proud of what can already be demonstrated: That it is possible to measure resilience. And as we believe: It is necessary to do so to reliably increase resilience.

Thus, we understand today's NSRI as a conversation starter. We invite you to work on it with us, as we are further developing the model under the guidance of DGAP's Academic Advisory Board, led by Prof. Dr. Thomas Risse. Our goal is to determine robust figures that can be compared over time and across national boundaries.

Then, the NSRI will help decision-makers to determine what works and what does not. Thus it is a promising new tool for better understanding our national performance in a new age.

Thomas Kleine-Brockhoff

Otto Wolff-Director
German Council on Foreign Relations
(DGAP)

Dr Patrick Keller

Deputy Research Director &
Head of the Center for Security & Defense
German Council on Foreign Relations (DGAP)

Foreword (PwC/Strategy&)

In a world increasingly defined by uncertainty and risk, the challenge of becoming resilient is critical. The National Security & Resilience Index (NSRI), a new initiative and instrument launched in collaboration with the German Council on Foreign Relations (DGAP), tackles this important issue.

Our mission is to delve into the complexities of resilience, understand its mechanisms, and assess the current state of our capabilities to withstand external and internal shocks. We aim to play a pivotal role at the intersection of research, industry, the military, politics, and civil society, contributing significantly to taking on these pressing challenges.

This project lays the groundwork not only for a comprehensive understanding of resilience but also for providing a fact-based foundation for targeted cross-sector solutions. Our goal is to foster a future where resilience is a shared endeavor, benefiting not just individual stakeholders but society as a whole.

Resilience is a measurable capability that requires a nuanced and ambitious approach. By closely examining the different facets of national resilience that have yet to receive sufficient research attention, we can enhance our overall understanding of and derive strategies for this critical capability.

To address the challenges of our time, PwC and Strategy& have established the Defence & Security Institute (DSI). With academic precision and a forward-looking perspective, the DSI tackles urgent security issues. It advances security policy research in Germany and Europe with scientific rigor, collaboration, and a focus on practical impact.

The NSRI marks the beginning of a multi-year index project and the exploration of a crucial field of research. Together with our partners, particularly the German Council on Foreign Relations (DGAP), we seek to develop insights that will support key defence and security policy actors with their decision-making.

As resilience is fundamentally a whole-of-society challenge, we are convinced that the way towards becoming more resilient is an inherently integrative project. Let's join forces and become resilient – together.

Prof Dr Rainer Bernnat
Government & Public Services Leader,
PwC Strategy& Germany

Dr Wolfgang Zink
Public Sector Defence & Security,
PwC Germany

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Executive Summary

How can we become more resilient? – A strategic challenge

Resilience begins with confidence in our own transformative power. It manifests itself where systems remain functional under stress, where responsibilities are clear, where resources are deployed effectively, and where we ensure continuity beyond short-term reactions. Resilience is built holistically across societies – it is the foundation of “Total Defence”.

We understand total defence as a comprehensive security strategy that integrates military, civil, economic, industrial and further components of a system to prepare for multifaceted threats. Deriving from that, resilience is the ability of state and societal systems to absorb shocks, maintain functionality, and adapt.

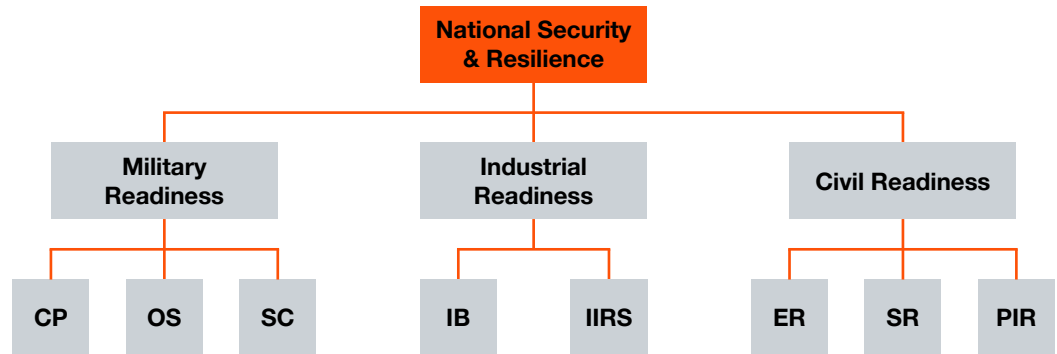
In times of geopolitical unrest, there is a growing debate about how resilient countries truly are. Russia’s war of aggression against Ukraine, the economic power struggle with China, growing uncertainties about the partnership with the United States, and the strain on the national and international liberal order are making European countries realise that military, industrial, and civil resilience are essential for creating and maintaining a secure future.

Holistic data for informed decision-making

Most national security metrics are lagging behind strategic realities. By individually focusing on the military or other sectors, they fail to capture the complex interplay necessary to assess how resilient states are against conventional and hybrid attacks. Central to this question is not only how many resources a state possesses, but how well it performs under stress both within and across sectors. This is why the National Security and Resilience Index (NSRI), a pioneer in its field, seeks to better understand the complex dynamics between the military, industrial, and civil pillars of a state as equally important determinants of national security and resilience. With that, the NSRI project seeks to collect current and reliable data along key indicators in order to determine the expected system performance of different states under stress. These key indicators resemble necessary elements of a resilient total defence system. Due to long periods of peace and stability, many of these key elements have been neglected in European states. Today, we observe a general endeavour to rebuild and develop these resources mirroring a growing sense of uncertainty.



Resilience is not a narrative. It is not a budget line. It is a measurable capability.

Fig. 1 Schematic representation of core index structure

Key Insights

Resources ≠ Resilience

A strong base can coexist with critical vulnerabilities. The efficient and effective allocation of resources requires strategic planning, a culture of willingness, and structural openness.

Single points of failure matter

National security and resilience is a complex yet fragile construct. The collapse of one critical aspect can result in significant vulnerabilities. For example, military power alone cannot compensate for insufficient civil preparedness and vice versa.

Societal factors are decisive

Organisational density alone does not ensure mobilisation potential. Trust, communication, and clarity shape defence culture and thus crisis performance.

Governance is a resilience multiplier

Resilience is as much a governance challenge as it is a resource problem. Binding frameworks and coherent collaboration need to be implemented in peace time in order to avoid ad hoc coordination in times of crisis.

National security and resilience can have many forms

National security and resilience are country-specific. Each country designs its own structures based on location, size, culture, and many other factors. Without a one-size-fits-all concept, we can still identify different resilience profiles based on the distribution of indicator values.

No resilience without data

Throughout our research we identified significant data gaps for German and European national security and resilience. According to consulted experts from various institutions and backgrounds, this lack of information leads to ineffective planning, weak political messaging and – even more critical – to gaps in our national security and resilience infrastructure to be overlooked. Becoming resilient means knowing resilience. Because what is not known cannot be governed. What is not governed becomes a security risk. To this end, the NSRI project will make an effort to identify and fill existing data gaps.

Introduction

How can we become more resilient? The question is as simple as it is challenging. It shifts the focus away from the threat itself and toward our ability to adapt and act – in crises as well as in conflicts. Resilience is not a defensive stance, but an active agenda for change: it thrives when all parts of society work together – the government, the economy, the industrial base, science, civil society, and each individual household. We are strong now, but geopolitical tensions and growing hybrid threats signal that we must become even stronger: faster, more coordinated, more consistent.

Resilience begins with confidence in our own transformative power. It manifests itself where systems function under stress, where responsibilities are clear, where resources are deployed effectively, and where we ensure continuity beyond short-term reactions. In this sense, resilience is not a secondary issue in security policy, but a fundamental framework: it combines military capability, economic and industrial support, the robustness of critical infrastructure, social mobilisation, and our countries' capacity for innovation into a shared commitment to enhance performance.

Only in the second step do we address current risks – not just to sound the alarm, but to set appropriate priorities. Geopolitical tensions, the erosion of the international rules-based order, hybrid threats, and economic vulnerabilities are testing our systems across all sectors. This challenging reality requires us to think holistically about defence capabilities and openness: militarily, industrially, and societally. However, it does not alter our baseline: we can build on resilience. The crucial question is not whether we possess the necessary resources to enhance our resilience, but rather how we can translate them more quickly and effectively in order to maximise operational impact.



Resilience as ‘Total Defence’ – a task that demands a whole-of-society approach.

Security-related resilience is holistic. It follows a concept of Total Defence: a networked approach that combines all pillars of a state and focuses on the interaction between their capabilities, resources, and processes. What is established in psychological, economic, and ecological discourses requires precise, measurable language in interdisciplinary security discourses – resilience indicators that visualise progress, reveal correlations between sectors, and identify concrete levers for action. This is where our project begins.

The NSRI is a joint project of the German Council on Foreign Relations (DGAP) and the Defence & Security Institute (DSI) of PricewaterhouseCoopers (PwC Germany) and PwC Strategy& (Germany) GmbH. The index represents pioneering work in the field of security and resilience research, using a novel set of cross-sector indicators to map the overall national security and resilience of states.

This makes the NSRI one of the first comprehensive, scientifically based overall indices that holistically measures the security and defence-related performance of modern states. It combines military capability, economic and industrial support, and civil resilience in a single, clearly structured analytical framework. The NSRI thus offers a novel, realistic view of national security in the 21st century – beyond traditional military metrics.

The NSRI is both a tool and an invitation for:

- **Governments and parliaments** to prioritise investments and identify structural reform needs,
- **Industry and supply sectors** to identify dependencies and systemic vulnerabilities,
- **Think tanks and academia** to analyse risks and strategic options,
- **The EU, NATO, and international organisations** to compare resilience and capability profiles,
- **The media and the public** to classify security and crisis preparedness based on facts,
- and for **all members of society** to join an integrative effort to become more resilient and secure.

In this conference paper, we present our project, share our initial research findings, and invite everyone to contribute to a project that affects us all – across countries, sectors, and communities. Our project is based on the fundamental belief that national security and resilience are future-oriented issues that must be addressed jointly. This, in our opinion, is the only way to effectively strengthen resilience across sectoral and societal boundaries. With this in mind, we call on all relevant stakeholders and decision-makers to think about resilience and security together, to network across sectors, and to work together to create a basis for improving the stability and security of our countries.

The NSRI Project at a Glance

What?

With the NSRI, we are launching a project that provides a holistic assessment of the question: “How resilient are we against security threats?”.

Why now?

Current security threats have rendered resilience a critical determinant for a secure future. Building a reliable database is today more important than ever.

How?

The NSRI is planned as a multi-year project with annual updates of the index. Through this strategic trend analysis, it will become a pioneering database for national security and resilience.

The NSRI: A strategic driver for effective decision-making

Launched in mid-2025, the pilot phase of the NSRI project was initiated to establish a multi-country framework for assessing national security and resilience. An interdisciplinary team came together to establish the theoretical and methodological framework, defining the initial indicator set and country sample. The decision to prioritise Germany during this phase was strategic, providing a high-data-availability environment to test accuracy, robustness, and completeness, thereby laying a firm foundation for future iterations.

This foundational work involved a rigorous selection process to curate the initial indicators (see Annex) and to identify a representative sample of European countries used for comparison: Germany, France, Finland, Poland, Italy, Lithuania, Norway, and the United Kingdom. Selection was based on standardised criteria, including the geographic location (Europe) and NATO membership, ensuring high comparability and – an important criterion for a pilot study – reliable data access. The current country sample serves as a proof of concept. It will be further refined through a structured review process for the NSRI 2027.

The pilot study demonstrated that the NSRI is not only meaningful but also a feasible project. To this end, we want to create a space for discourse. As previously stated, we are convinced that national security and resilience are fundamental tasks for society as a whole and that an index project, therefore, requires a multi-perspective discussion process. Hence, we wish to call on stakeholders from all areas to participate critically in the development of the final set of indicators, their weighting, and aggregation in order to advance our common interest in determining:



How strong is our resilience when security risks become reality?

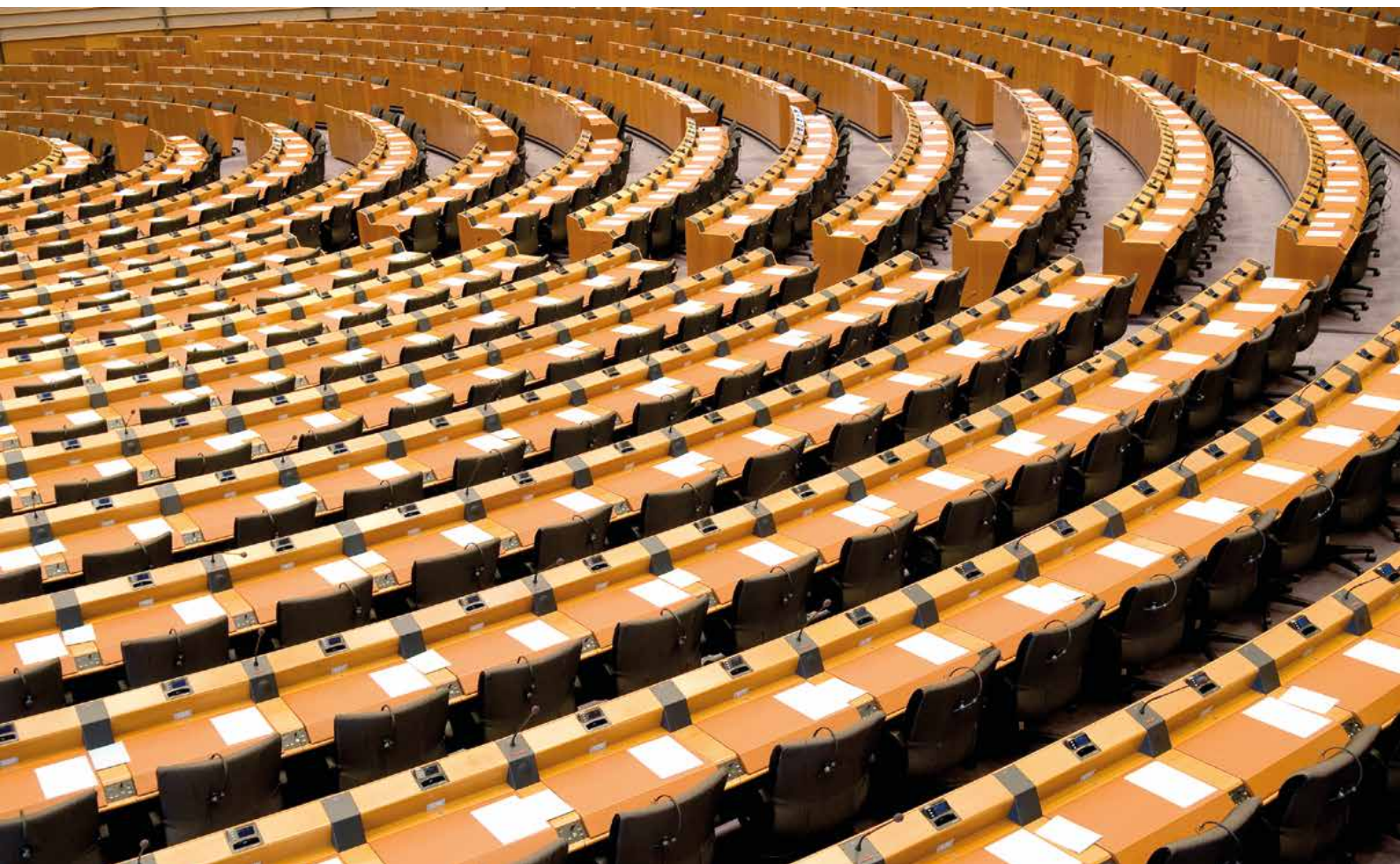
The data collected for the NSRI pilot study offers unique opportunities to advance the strategic and academic discourse surrounding national security and resilience. By consolidating previously fragmented data points into a coherent analytical framework, the project allows decision-makers to translate complex findings into concrete, cross-sectoral resilience measures. This methodology enables the identification of overarching correlations and allows for both theoretical and empirical scrutiny of national performance under stress.

At the national level, longitudinal data collection – utilising a standardised framework – enables the identification of emerging trends and the elucidation of the causal mechanisms through which security and resilience evolve in response to specific actions or events. While national security profiles are inherently unique to each country, shaped by geography, resource endowment, and political culture, they can show the same level of resilience and, simultaneously, be shaped fundamentally different. The NSRI's comparative analysis seeks to isolate these structural differences among states with similar systemic foundations. Ultimately, this approach seeks to analyse the transferability of policy interventions and institutional frameworks, identifying which successful measures could be adapted to other contexts and produce similar effects.

The strength of this index lies in its continuity. As a multi-year project, with every iteration of the index, it will become stronger as a tool to measure resilience as a capability.

Our initial findings from the NSRI pilot study regarding Germany already underscore the transformative potential of this comprehensive data analysis. While the pilot study is mainly driven by primary data, the initial findings reveal new cross-indicator correlations and promising results that inform the development process of the index aggregation. Building upon this initial analysis and the integration of critical stakeholder inputs from a variety of sectors, we will finalise the index aggregation structure to ensure the NSRI 2027 stands as a representative, robust, and reliable foundation for European national security and resilience.

In the following section, we present a selection of initial results from the pilot study highlighting first thought-provoking findings, followed by a detailed description of our index development process.



Snapshot – Germany reflected in the NSRI: Consolidating strengths, decisively overcoming bottlenecks



Economic resilience is a solid anchor – infrastructure is a critical multiplier of impact.

Germany's economic resilience rests on its robust macroeconomic and fiscal foundations. Good economic performance, a disciplined debt-to-GDP ratio, and superior credit ratings provide significant fiscal space, evidenced by the strategic use of special funds during crises (Destatis, 2026; BMF, 2025; S&P Global, 2025). These assets constitute a vital stabilising anchor within the broader architecture of national security and resilience.

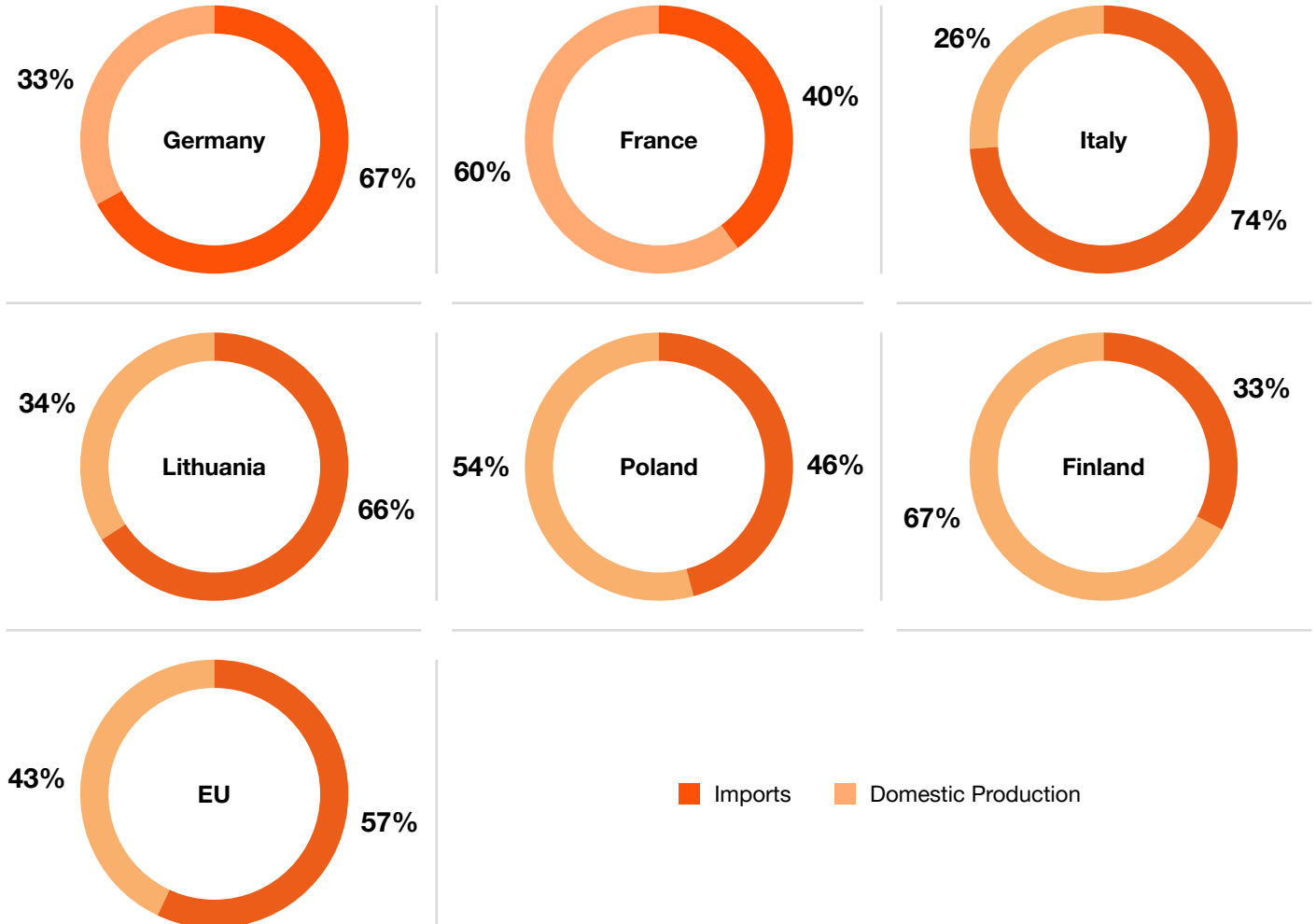
However, economic strength is not an end in itself; its effectiveness is mediated by the condition and performance of key infrastructure, which serves as the transmission mechanism between economic capacity and state resilience. Our research identifies critical vulnerabilities in energy infrastructure, particularly regarding energy import dependency and transport routes (Response of the Federal Ministry of Transport to a minor interpellation by The Left via: Tagesschau, 2025.; European Commission, 2025a; Kardaś et al., 2024, see Figure 2). These represent systemic risks that could constrain economic resilience, especially in a conflict scenario.

From a resilience perspective, critical infrastructure acts as a strategic force multiplier. It is the essential conduit for translating economic capacity into operational effect. Conversely, it represents a primary constraint if critical infrastructure, such as energy supply, fails to remain functional in contested environments.

Implication: Targeted, resilience-oriented investment in critical infrastructure augments Germany's economic resilience, ensuring its effectiveness – particularly in crisis situations.

Indicators: Economic Stability & Agility, Critical Infrastructure Resilience

Fig. 2 Energy Import Reliance within the Pilot Sample (Indicator CIR1: “Energy Independence”; data not collected for Norway and the United Kingdom)



Source: European Commission (Eurostat). (2025, December 16). Energy imports dependency. Nrg_ind_id. https://ec.europa.eu/eurostat/databrowser/view/nrg_ind_id/bookmark/table?lang=en&bookmarkId=a1dea342-4f5a-4276-8298-2bde31802d41&c=1714858380193 (15.01.2026).



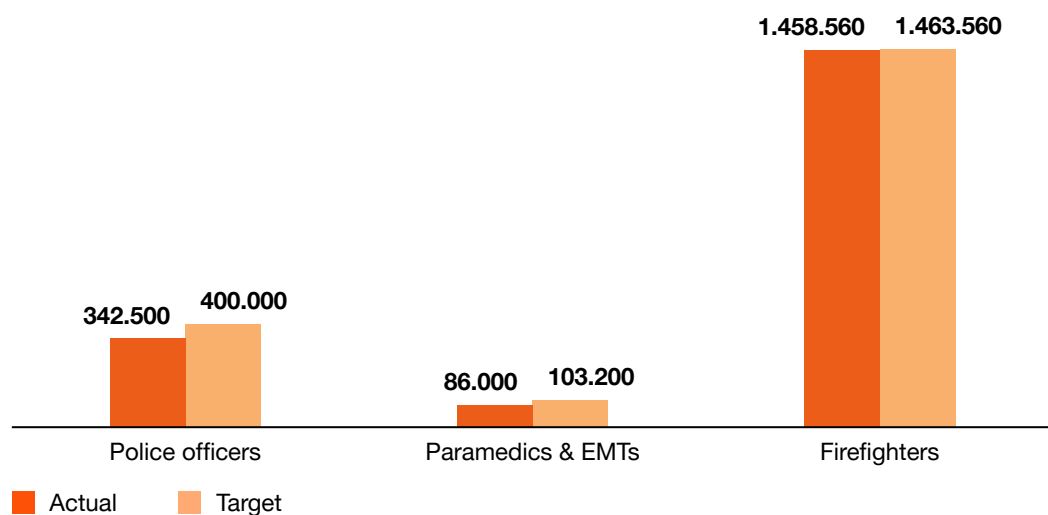
Effective information dissemination, mobilisation, and mindset are pivotal enablers of societal readiness.

Societal readiness is a critical pillar of national security and resilience, as it reflects society’s ability to withstand systemic shocks, maintain essential functions, and support governmental measures during crises. Germany leverages well-established crisis prevention, civil protection, and disaster relief architectures, including highly trained professional emergency services and an extensive network of aid organisations underpinned by more than 1.7 million volunteers (Destatis, 2025; Feuerwehrverband, 2025; European Commission, 2025; Destatis, 2025a; Bartel/Schubert, 2025; BBK, 2025). These institutional frameworks form a robust foundation for societal resilience.



Nevertheless, Germany’s first responder organisations, particularly the police and emergency medical services, face persistent personnel deficits (Krastev/Leonard, 2025; see Figure 3). The high number of volunteers who support first responder organisations may, in the event of a crisis, not remain a stable resource. In the police force, it is primarily administrative personnel who are insufficiently staffed. While these shortages do not currently impede routine operations, they prefigure strategic bottlenecks that could arise during an acute crisis.

Fig. 3 Personnel levels and requirements for first-responder organisations in Germany (Indicator CDE: “Civil Defence Engagement”)



Significant deficits persist in individual preparedness. The data collected indicates that a substantial proportion of Germans do not feel sufficiently prepared for a crisis scenario (European Commission, 2024; see Figure 5), lagging behind their northern and eastern European peers who demonstrate higher levels of civil defence literacy (ibid.; see Figure 6). These populations also exhibit a higher threat perception regarding potential military aggression or a major European war beyond Ukraine (Krastev/Leonard, 2025). This observation has been further underpinned by PwC’s regular population surveys on Germans’ opinions about internal and external security (cf. PwC, 2025). Consequently, the NSRI will systematically examine the causal link between perceived risk and proactive preparedness in future iterations of the project.

Public sentiment further defines Germany’s resilience profile. Trust in core security institutions – specifically the police and the military – is high, providing a solid mandate for these entities (European Commission, 2024a). At the same time, support for defence-related measures, such as increasing defence spending or mandatory military service, remains comparatively low (Krastev/Leonard, 2025; see Figure 4 and 7). Moreover, according to a recent survey, 60% of Germans would not or probably would not be willing to defend Germany the force of arms (Forsa, 2025; cf. PwC, 2025). This disparity between institutional trust and active engagement and support for defence-related measures suggests a latent deficit in mobilisation capacity and a fragmented perception of the current threat landscape.

From a resilience perspective, societal readiness is predicated not only on formal architectures and professional first responders but also on the willingness and capability of the general population to respond effectively to emergencies. This synergy fosters societal resilience, encapsulating both individual precautionary measures and collective mobilisation potential.

Implication: While volunteer engagement is high, this social capital should be further leveraged through targeted activation and strategic communication. Expanding access to crisis-response information and deploying innovative outreach strategies will empower individuals to transition from passive awareness to proactive personal preparedness.

Indicators: Institutional Trust, Societal Mobilisation Capacity, Civil Defence Engagement, Defence Narrative & Resilience Perception

Fig. 4 Public approval of conscription (Indicator DNR1: “Support for defence-related government measures”; data not collected for Finland)

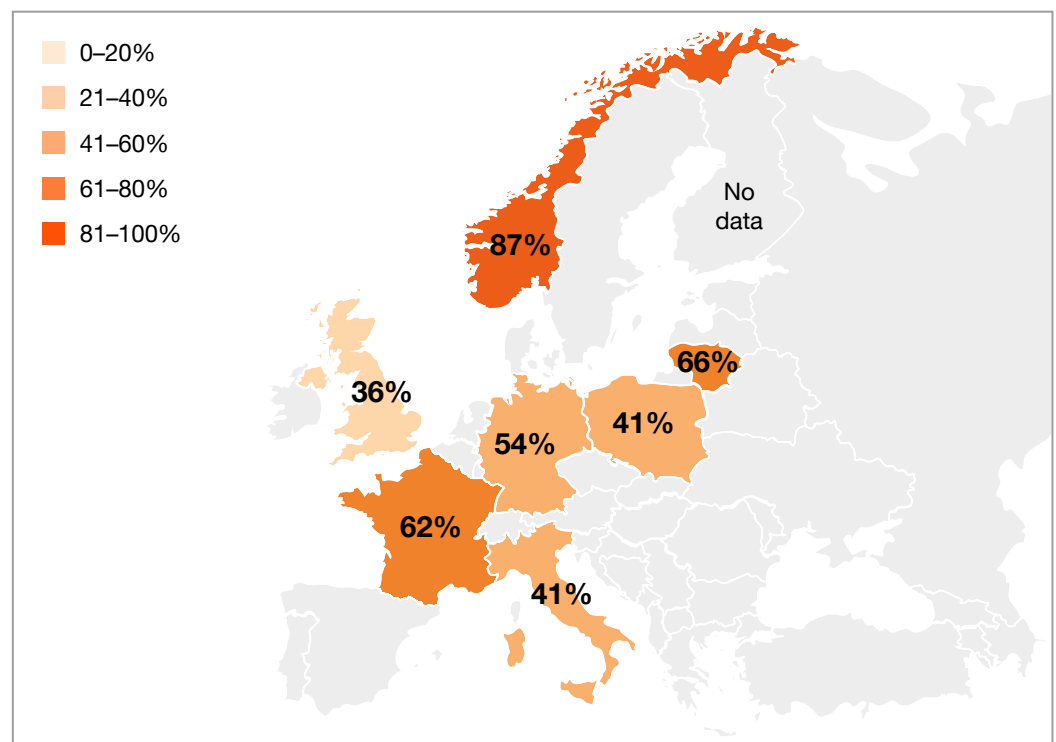


Fig. 5 Perceived preparedness for crisis scenarios (Indicator DNR2: “Perceived resilience & preparedness”; data not collected for Norway)

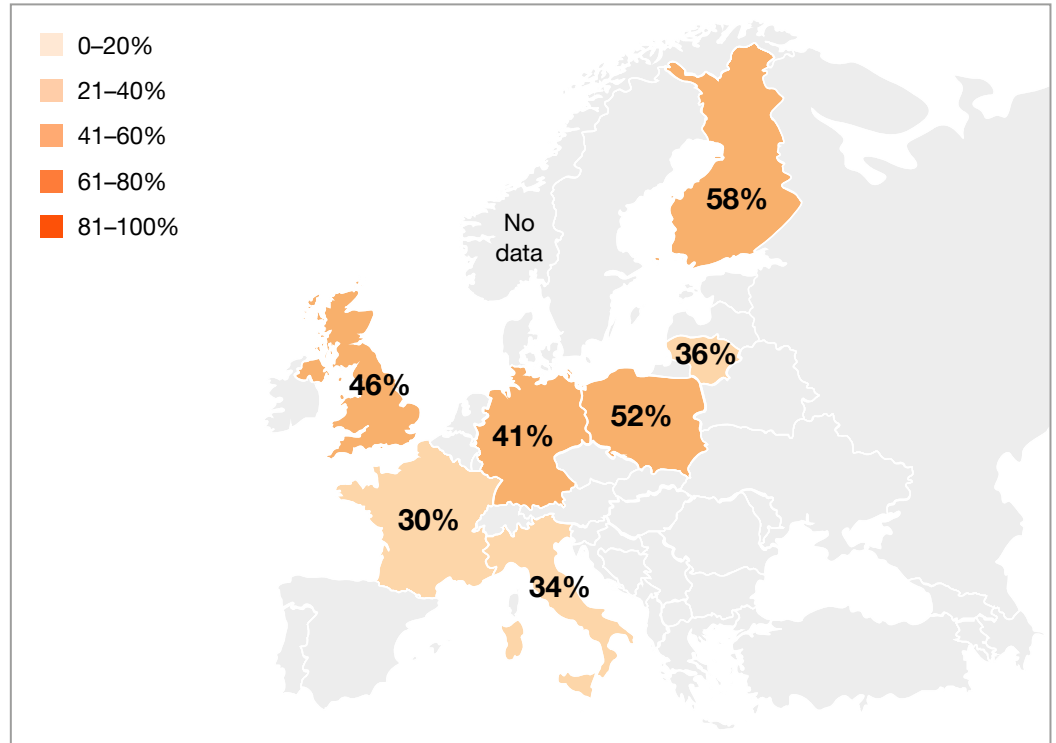
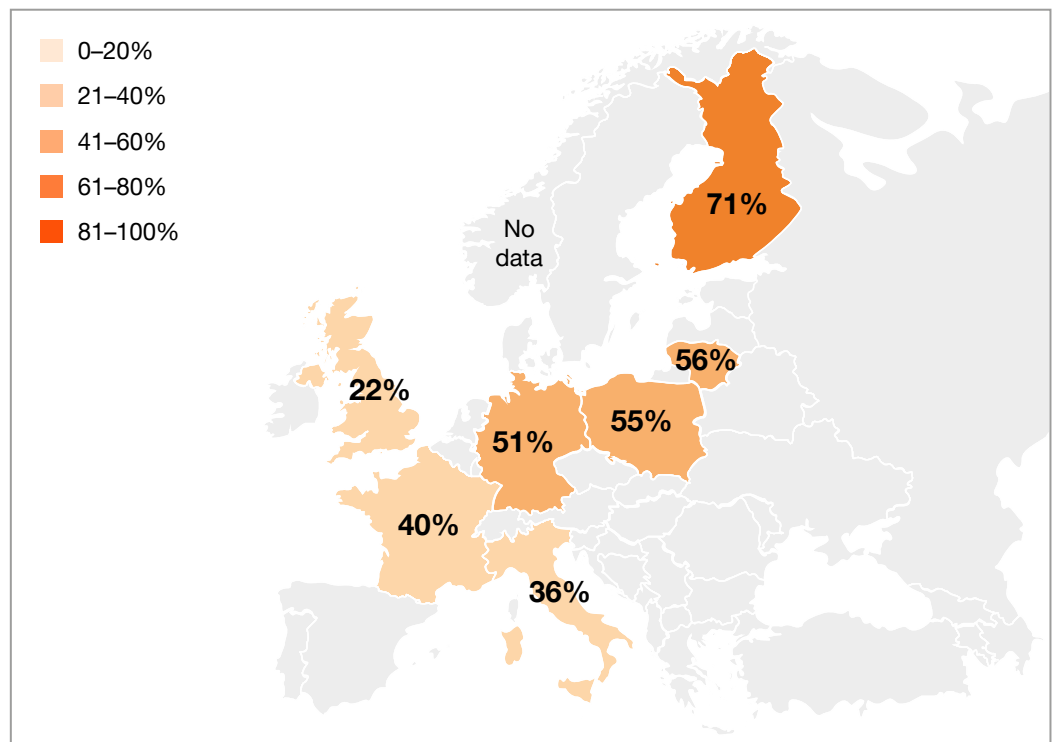


Fig. 6 Public emergency and disaster response literacy (Indicator DNR2: “Perceived resilience & preparedness”; data not collected for Norway)





Germany is proud of its sophisticated innovation architecture – accelerating implementation remains the decisive challenge.

Germany has a well-developed, multi-tier defence innovation ecosystem. This architecture incorporates dedicated digital and innovation units within the armed forces and public administration, academic knowledge-transfer frameworks – particularly at the universities of the Bundeswehr – and a network of evaluation and competence centres. Together with substantial public and private research and robust R&D resources, these structures provide a strong basis for technological innovation in national security and defence (OECD, 2023).

A key challenge in Germany remains the innovation-to-use pipeline. Structural bottlenecks persist in the intersections of research, development, and procurement, as well as in operational deployment. The chasm between development and prototyping versus large scale production, sales, and marketing appears to be deep.

Fragmented processes, regulatory complexity, protracted procurement cycles, and diffuse responsibilities hamper the conversion of technological potential into operational capabilities. As a result, innovation outputs are sometimes decoupled from operational requirements, limiting their practical contribution to national security and resilience.¹ This complexity slows down processes. As a result, the implementation gap is particularly relevant regarding emerging security threats that demand a highly dynamic response.

From a resilience perspective, a high-performing innovation ecosystem serves as a critical catalyst for industrial readiness and directly bolsters military readiness to effectively address emerging security challenges.

Implication: While Germany maintains high absolute levels of high-tech Business Enterprise R&D (BERD), it exhibits lower levels of specialisation compared to smaller, highly focused economies. Sectoral breadth is a structural advantage, but a shift towards mission-oriented prioritisation could significantly enhance strategic impact.

Indicators: Defence R&D Expenditure, R&D Workforce Density, High-tech BERD Specialisation

¹ Cf. Bundestag, 2024; Bundesrechnungshof 2025; Bundeswehr, 2024; Bitkom, 2025; Bundestag, 2025; Bundeswehr/BAAINBw, 2025; Defense News, 2025.

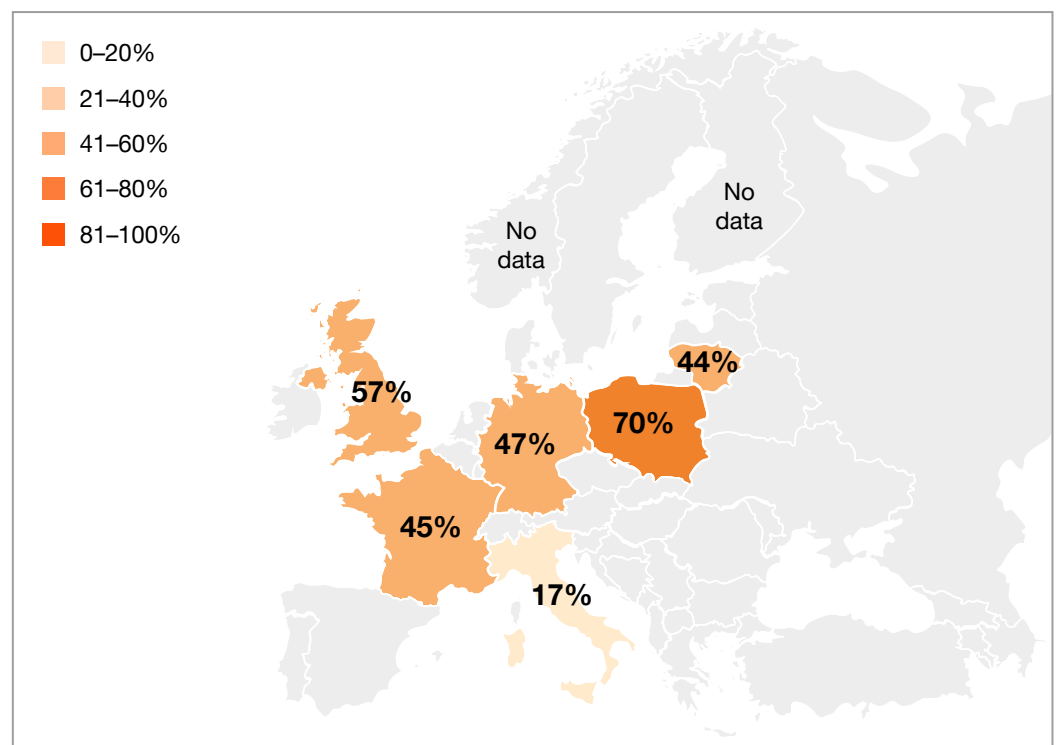


Military potential is significant – strategic enhancement of equipment availability, operational experience and filling capability gaps is essential.

Germany has substantial military personnel potential, reflecting its demographic capacity (United Nations, 2024; see Figure 8). Within the NSRI framework, this potential serves as a fundamental pillar of national military readiness while at the same time other regulatory, societal and institutional factors are hindering the exploitation of this potential.

This foundation is currently constrained by two military and one societal dimension: limited overall operational experience and below-average equipment availability hinder the conversion of latent military strength into effective readiness (IISS, 2025). In addition, the willingness of the population to support defence-related measures remains a critical factor, which, as previously noted, is relatively low in Germany (see Figures 4 and 7). In the NSRI 2027, additional indicators will shed light on capability gaps such as counter-drone, space or infrastructural capacities.

Fig. 7 Public approval of increased defence spending (Indicator DNR1: “Support for defence-related government measures; data not collected for Norway and Finland”)

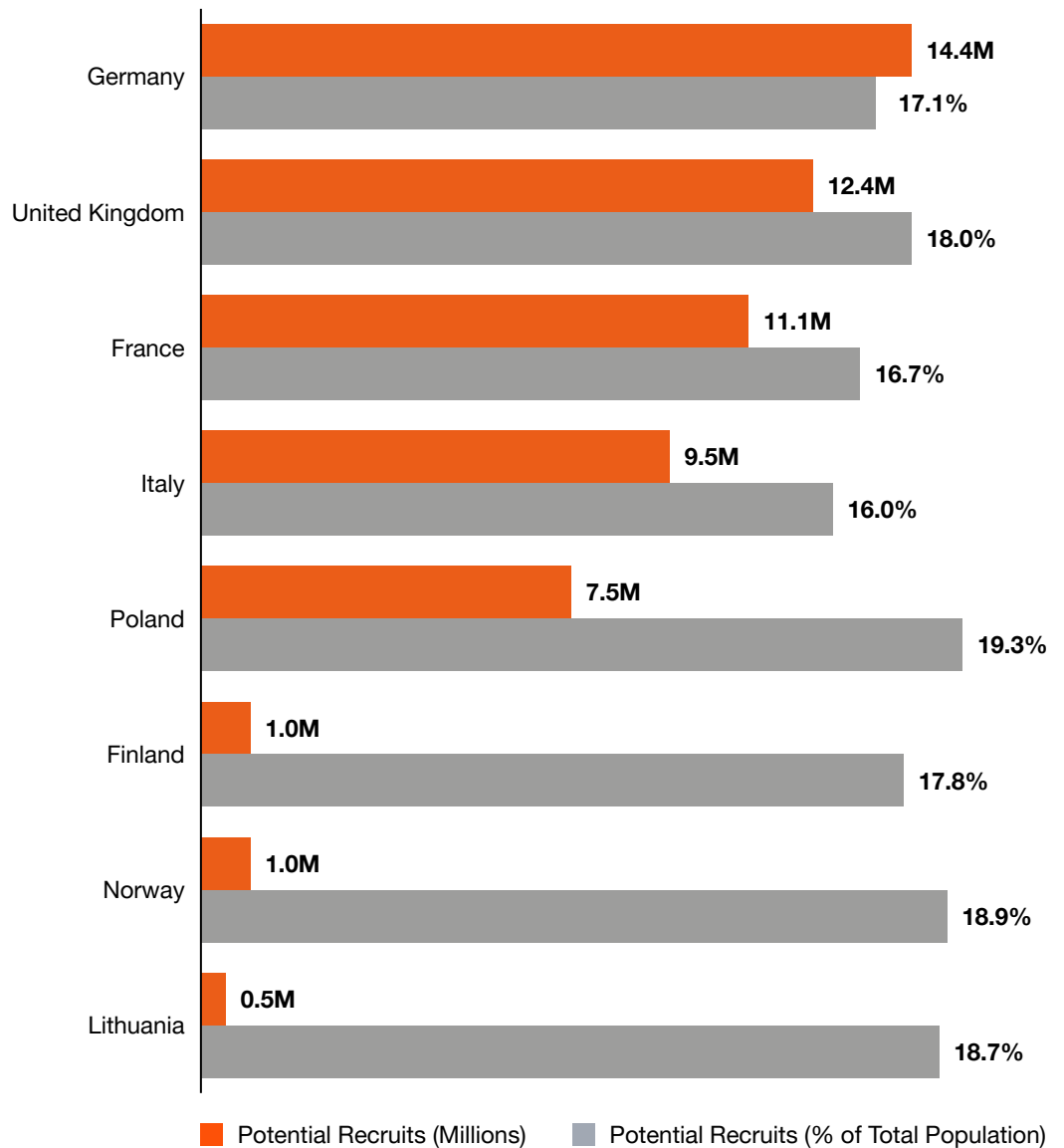


From a resilience perspective, the primary challenge lies not merely in force generation, but in operational readiness and force deployability. Consequently, the index evaluates parameters such as training and exercises, and command capabilities to provide a comprehensive assessment of military readiness.

Implication: One central strategic challenge for Germany is not a lack of personnel potential, but rather the conversion of that capacity into high force numbers and sustained operational readiness.

Indicators: Troop Availability, Equipment Availability, Command and Mobility Readiness, Training and Exercise, Support for Defence-related Government Measures

Fig. 8 Military manpower potential (males aged 18 to 45) (Indicator CP1: “Troop Availability”)





Germany has a robust industrial base and ramp-up capabilities – formalised contingency frameworks are essential for industrial readiness.

Germany maintains a broad and technologically sophisticated defence industrial base, characterised by a high concentration of system integrators, established national integration programmes, and strong capacity for system engineering (SIPRI, 2025; see Figure 9). A high degree of dual-use convertibility further enhances industrial flexibility, allowing civilian production lines to be reconfigured for defence purposes (Galindo-Rueda/Verger, 2016). Within the NSRI, this constitutes a good foundation for industrial readiness.

This structural strength is tempered by dependence on non-European (sub-)systems and raw materials, particularly from the US and China (SIPRI, 2025, see Figure 10). These dependencies constitute strategic vulnerabilities; while they do not negate Germany's industrial power, they dictate the conditions under which it can be activated and sustained during a conflict.

The data on the ramp-up capacity indicator show high activation potential for Germany (Destatis, 2026; Trading Economics, 2026; Moody's Analytics, 2025; see Figure 11). However, this potential is currently not underpinned by formalised national contingency frameworks. In contrast to European peers with established industrial response strategies – such as Finland, Poland, or Lithuania – Germany has yet to codify clear emergency protocols (Finnish Government, 2025; Republic of Poland, 2020; Republic of Lithuania, 2016).

In recent years, the defence industry has experienced significant growth in light of spending policies, while the dominance of individual players has increased. Though these firms remain relatively small on a global scale, the current momentum provides an opportunity for rapid scaling that could lead to additional growth through exports. This requires regulatory adjustments and swift solutions for scaling up, transitioning from manufacturing to rapid mass production. Additionally, there is the critical challenge of digitalisation, focusing beyond just physical production capabilities.

Germany's role within the EU is pivotal, particularly in the context of initiatives like ReArm Europe and supranational programmes, which offer considerable potential for synergies in procurement and market opportunities. However, adjustments in regulatory frameworks are necessary to enhance the attractiveness of German firms as cooperation partners in these endeavours.

From a resilience perspective, the synergy between industrial capacity and potential crisis planning is the primary determinant for translating industrial potential into readiness.

Implication: Developing formalised contingency frameworks and codifying industrial obligations are critical for ensuring crisis-ready production. Enhanced alignment between policymakers and industrial stakeholders is essential to foster mutual understanding and to effectively operationalise latent industrial capacity.

Indicators: Defence Industrial Scale, Production Portfolio, System Integration and Engineering Coherence

Fig. 9 Defence Industrial Scale (Indicator MC1 “Defence industrial scale”)

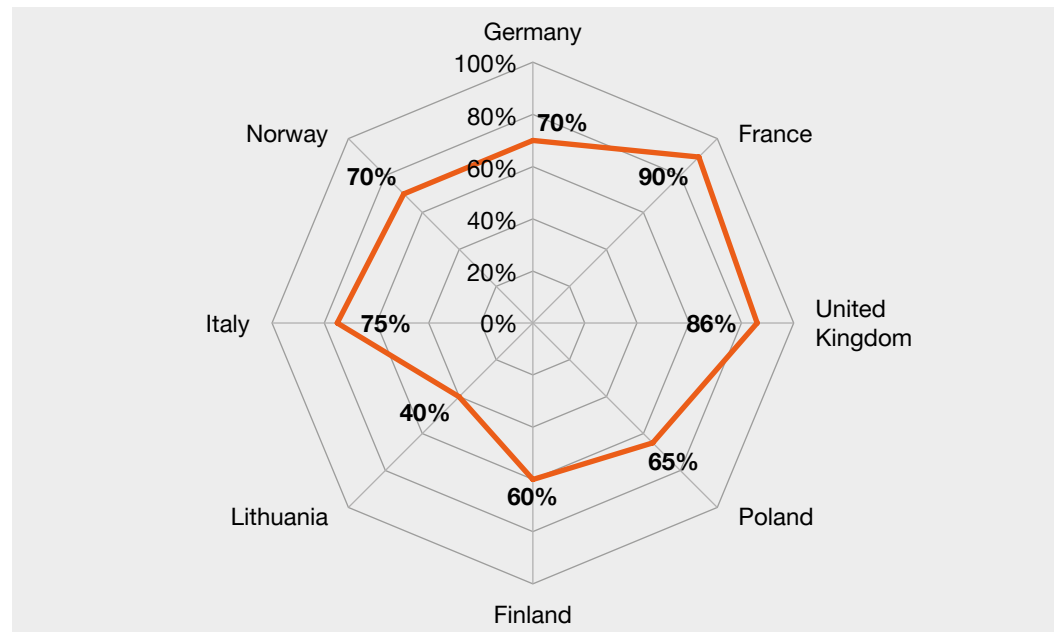
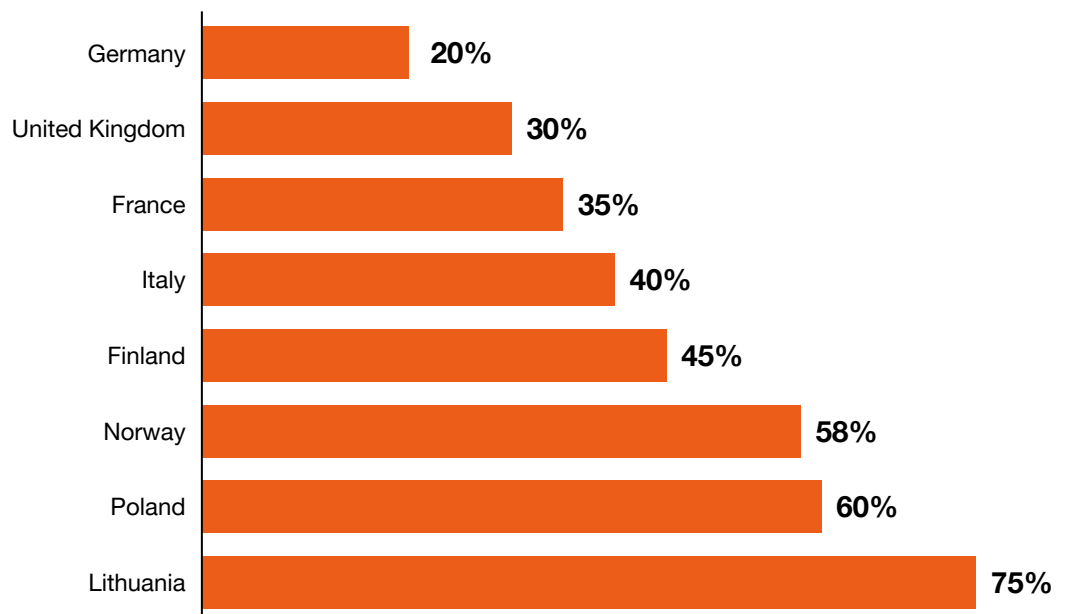
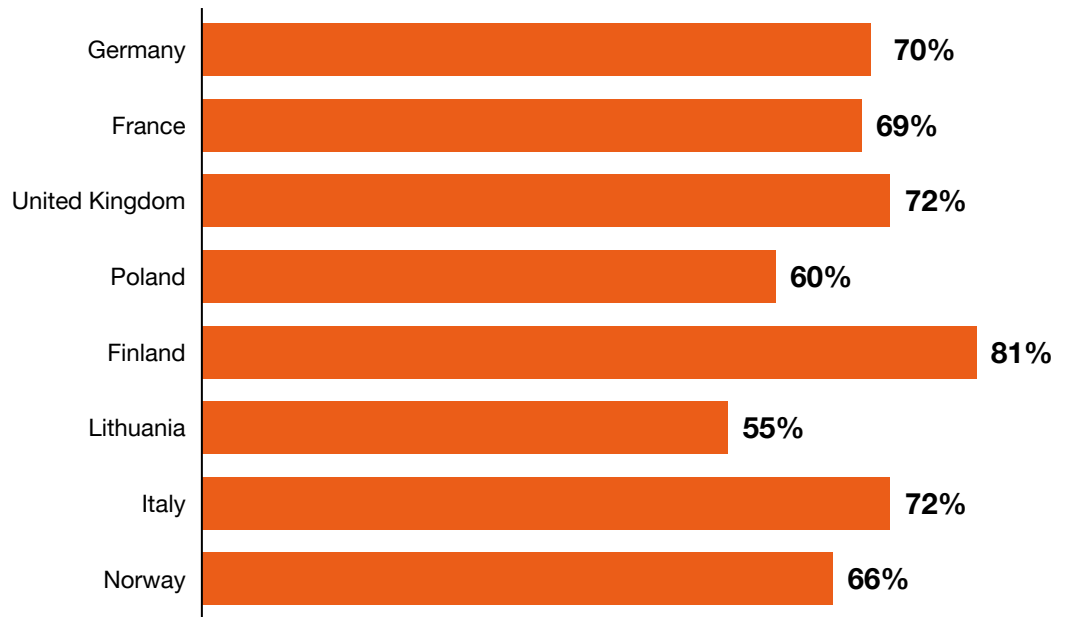


Fig. 10 Import dependence for defence-related goods by import ratio (Indicator SCR1 “Import dependence for defence-related goods”)



Capacity Utilisation & Elasticity measures how fully utilised a country’s relevant industries currently are – and how flexibly or quickly they can activate additional production capacity in a crisis. The higher the percentage value is, the better a country can react in a crisis.

Fig. 11 Capacity utilisation and elasticity (Indicator RC1 “Capacity utilisation & elasticity”)





Germany's challenges in national security and resilience do not stem from a lack of resources – they are a matter of implementation, culture, and mobilisation.

Across all indicators, our analysis reveals a consistent pattern: Germany has a robust, and in some sectors exceptional, resource base. However, this latent potential is not being fully leveraged. Recurring impediments include protracted bureaucratic processes, restrictive legal frameworks, and a deficit in clear strategic protocols for conflict situations. This creates a structural gap between strategic planning and the actual operationalisation of existing assets. Currently, there is no clear playbook for collaboration between the general business sector and defence industries, making the development of such a framework urgently necessary.

Furthermore, we observe a climate of distrust towards politics among the German population, alongside first signs of a declining willingness for active political participation. Combined with the simultaneous rise of extremist ideologies, these factors weaken the democratic system and can fuel a culture of political uncertainty. This pattern identifies a clear imperative for reform strengthening German national security and resilience.

Germany must transition from holding resources to actively deploying them through strategic coherence, administrative pragmatism, and societal motivation.

Developing the NSRI

Modern states are increasingly confronted with security challenges that cannot be explained solely in military, economic, or social terms. For many years, international and supranational organisations such as NATO, the European Union, and the United Nations have emphasised that contemporary threats are multidimensional, highly interconnected, and systemic (NATO, 2024; European Commission, 2023; United Nations, 2022). The impact of hybrid attacks, cyber operations, strategic infrastructure vulnerability, energy dependence, political polarisation, and industrial bottlenecks demonstrates that national security can no longer be viewed in isolation as a purely military domain. Instead, security is increasingly understood as a holistic system that integrates military, economic, political, and societal capacities (Rid, 2020).

Furthermore, academic thinking recognises a growing demand for the holistic assessment of security and resilience capabilities. Research in security, organisational, and resilience studies indicates that states maintain stability under systemic stress specifically when multiple subsystems are concurrently robust (Comfort, Boin & Demchak, 2010; Börzel & Risse, 2018). These dimensions include:

- **Military capabilities,**
- **Economic and industrial capacity,**
- **Institutional efficacy and governance,**
- **Social cohesion and resilience.**

Despite these findings, a comprehensive index that synthesises these dimensions into a coherent, data-driven framework is currently lacking. Existing security policy assessments either focus on sectors (e.g., military strength, economic robustness, governance quality) or provide qualitative assessments without standardised measurement logic (e.g., Kaldor & Rangelov, 2020). Quantitatively oriented indices, such as the Global Firepower Index or the Composite Index of National Capability, prioritise military mass metrics while overlooking critical civil and economic determinants of national security (Tellis et al., 2000). Conversely, resilience indices – such as the INFORM Risk Index Framework or the OECD Resilience Metrics – primarily evaluate disaster risks and humanitarian factors rather than civil-military systemic capacity.

The **NSRI** aims to bridge this gap by developing an integrated model that captures three analytically distinct yet functionally integrated dimensions: **Military Readiness, Industrial Readiness, and Civil Readiness**. This architecture is predicated on the theoretical premise that security in modern states does not emerge from isolated sectors, but from the synergy of interdependent systems. Research on “whole-of-government” security and “societal resilience” emphasises that states maintain efficacy primarily when military, economic, infrastructural, and administrative systems are concurrently robust. In this context, NATO defines resilience as a fundamental prerequisite for collective defence (NATO, 2024).

From a practical perspective, the necessity for such an index arises from three critical developments:

1 Increasing Complexity of Security Risks

Hybrid threats, energy and supply chain disruptions, information operations, and attacks on critical infrastructure demonstrate that vulnerabilities in one domain – such as industrial dependency or institutional fragility – can significantly compromise the national security posture.

2 Absence of Integrated Benchmarks

While states and international organisations possess numerous sectoral metrics (e.g., defence spending, economic indicators, governance scores), they lack **systemic tools** to comprehensively evaluate security capabilities. Consequently, there is no robust basis for prioritisation, capability development, and strategic reform (RAND, 2022; Chatham House, 2021).

3 Demand for Transparent, Data-Driven Communication

Security policy is increasingly subject to public and democratic scrutiny. An index that quantifies complex systemic relationships provides a foundation for evidence-based discourse, decisions, and international comparability.

Ultimately, the NSRI addresses both a scientific deficit and a practical governance challenge: it offers a methodologically rigorous and empirically sound as well as theoretically grounded framework for measuring national security as a systemic performance. This facilitates not only the assessment of individual states, but also the identification of structural vulnerabilities, the prioritisation of policy measures, and the formulation of long-term security and resilience strategies.

Theory & Logic

The conceptual framework of the NSRI is based on the assumption that national security is a multidimensional, functionally integrated system comprising military, industrial-economic, and civil-state capacities. Security and social science research increasingly emphasise that the resilience of modern states is not derived solely from military strength, economic performance, or political stability, but rather from the synergy between these domains (Comfort, Boin & Demchak, 2010). Security is thus conceptualised not as a discrete sectoral capability, but as a systemic performance emerging from the interactions of various societal subsystems.

Three Analytically Distinct, yet Functionally Interdependent Dimensions

The NSRI currently distinguishes between three dimensions of national security and resilience:

1 Military Readiness

The structural capacity of a state to generate and deploy military power rapidly, sustain operations over time, and scale armed forces in response to evolving threats.

2 Industrial Readiness

The industrial and infrastructural underpinnings required to sustain, support, and stabilise security measures during protracted crises.

3 Civil Readiness

The political, economic, social, and institutional resilience that ensures state capacity to act, societal adaption, and cohesion under systemic pressure.

These three dimensions, while conceptually distinct, form a symbiotic nexus. Military capability is contingent upon industrial supply and institutional functionality. Conversely, economic or industrial stability relies on the provision of fundamental security and social cohesion. State institutions can only effectively mitigate crises if both economic resources and operational security capacities are seamlessly integrated.

Resilience as a Unifying Analytical Concept

The NSRI adopts resilience as its overarching concept, defined as the ability of state and societal systems to **absorb shocks, maintain functionality, and adapt** (Norris et al., 2008). This perspective bridges the various security dimensions without homogenising them. Within the contemporary European security discourse, resilience is increasingly viewed as an integrative framework that synchronises security, economic, and social policy (Tocci, 2020, European Commission, 2023).

In this context, resilience within the NSRI is not a normative ideal, but a descriptive analytical framework that explains how national security manifests in the instruments to mitigate systemic pressures – be they military, economic, technological, or societal. Consequently, resilience can have various forms and compositions as it is intrinsically linked to a country's geographic location, demographic scale, culture, historical trajectory and other factors.

The reduction of national security and resilience capabilities to three primary dimensions follows three scientific criteria:

1 Analytical Distinctiveness

Each dimension represents a separate mechanism of security and resilience production: operational military capability, industrial-economic support, and socio-institutional stability.

2 Functional Non-Fungibility

Literature on security, governance, and operations research indicates that deficits in one domain – such as military endurance – cannot be offset by strengths in another, such as industrial redundancy (Kress, 2016).

3 Practical Operationalisation

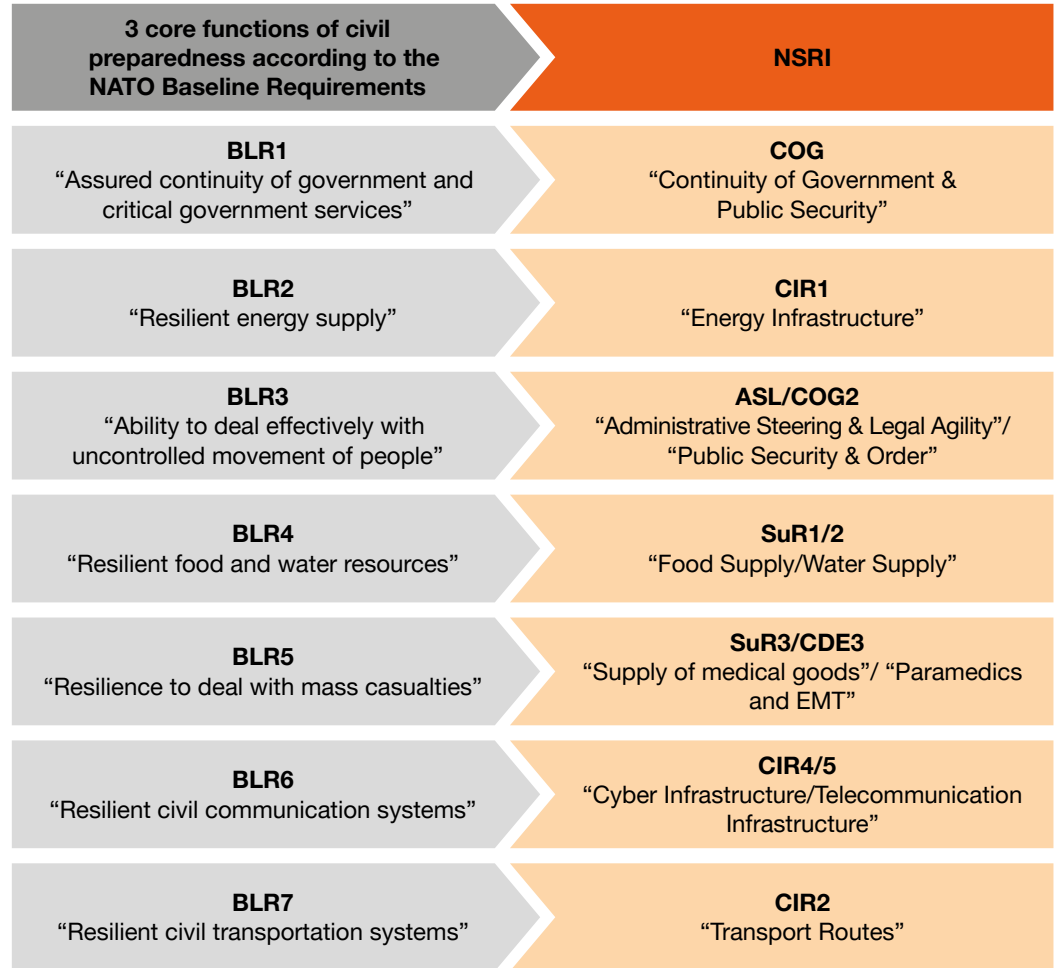
Dimensions are based on empirically accessible data or structured qualitative evidence that is internationally comparable. The index deliberately excludes variables that are difficult to measure, strategic, or highly political (such as geopolitical intentions or qualitative doctrines) to ensure methodological robustness and reproducibility.

Integration into Strategic Paradigms

The NSRI architecture is designed for compatibility with established international frameworks, including:

- NATO Baseline Requirements for civil-military resilience,
- EU debates on social and economic security resilience,
- Institutional stability research focused on democratic resilience (Risse, 2011; Börzel & Risse, 2018; Wunsch & Chiru, 2025).

Fig. 12 Alignment of NATO Baseline Requirements with the NSRI framework (NATO, 2024)



This strategic alignment is crucial, as national security capability is not only an internal category, but increasingly also a European and an international imperative. Consequently, the NSRI purposefully incorporates those systemic dimensions that underpin supranational resilience and security strategies, yet have hitherto not been synthesised into an integrated framework.

Methodology

The methodological architecture of the NSRI is designed to translate the complex, multidimensional nature of national security and resilience capabilities into a transparent, reproducible, and scientifically robust measurement tool. It synthesises established principles of indicator research with contemporary findings from resilience, security, and governance literature (Nardo et al., 2008; Norris et al., 2008; Munda, 2008; Sharifi, 2016). The framework is governed by four guiding principles: conceptual fidelity, data realism, transparency, and robustness.

The NSRI employs a mixed-methods design that systematically combines quantitative and qualitative evidence. Resilience and governance research consistently demonstrates that purely quantitative metrics fail to capture critical dimensions of resilience and security capacity, such as leadership quality, institutional coordination efficacy, or the social acceptance of government measures (Comfort et al., 2010; Risse, 2011; Sharifi & Yamagata, 2016). Consequently, qualitative information is not treated as a supplementary narrative but as an essential data source for dimensions lacking standardised, coherent, and comparable figures.

In the pilot study, qualitative indicators were primarily assessed through secondary literature and targeted expert interviews, then mapped onto a 1–5 ordinal scale. This exploratory phase established the groundwork for the NSRI 2027, which will further refine latent variables such as institutional responsiveness and training programme quality. Using structured expert judgments is scientifically established for measuring complex systems, especially when it comes to procedural, institutional, and difficult-to-observe characteristics not covered by quantitative indicators (cf. Cooke, 1991; Khodyakov et al., 2023).

To ensure high validity, the NSRI project is planning to establish expert panels based on the Delphi method. This iterative, consensus-driven process generates reliable data on institutional and procedural characteristics that escape quantitative detection (Khodyakov et al., 2023). Through rigorous evaluation criteria, triangulation with secondary data, and transparent documentation, these expert panels ensure the reliability and comparability of qualitative indicators. They thus enable the methodologically robust recording of important aspects of national security and resilience that would be inconsistent to evaluate without this structured process.

Building on a multi-source data architecture, the NSRI translates diverse inputs into a structured index. All data points undergo a rigorous verification process before being calibrated through quantitative normalisation and defined qualitative evaluation scales. All underlying calculations and processes – including aggregation weights, model cards, and theoretical assumptions – are disclosed in the comprehensive NSRI Index Handbook, which will be published within the first project cycle and updated regularly.

Indicator Selection & Structure

The NSRI employs a hierarchical architecture. At the first level, it encompasses three pillars resembling the defined domains: Military, Industrial, and Civil Readiness. These foundational pillars are further divided into indicators describing the essence of each sector. These indicators are either subdivided into sub-indicators or defined by specific items, which constitute the final level of the index hierarchy. Items can be defined by distinct quantitative or qualitative values and form the data basis of the index.

The selection of indicators in the NSRI is governed by established quality criteria in empirical social research: construct validity, content validity, reliability, and operational feasibility (Adcock & Collier, 2001; Goertz, 2006).

Construct validity ensures that an indicator actually reflects the intended concept. For example, “Economic Stability & Agility” is not operationalised through generic economic metrics, but through variables identified in literature and practice as critical to crisis susceptibility and adaptability – such as GDP, debt-to-GDP-ratio, inflation, and creditworthiness (cf. Trebesch, 2018). Content validity ensures that the indicator set adequately covers all dimensions of a concept. In Civil Readiness, this includes institutional trust, societal mobilisation capacity, civic engagement, and narrative resilience, reflecting research on social capital and social resilience (Putnam, 2000; Norris et al., 2008; Morsut et al., 2021).

Another key aspect is practical operability. While many concepts are theoretically interesting, they often lack cross-national empirical accessibility. The NSRI architecture therefore deliberately avoids inaccessible or highly classified variables – such as highly specific leadership or cyber capabilities) – prioritising indicators derivable from public statistics, official reports, or structured expert assessments (Gerst et al., 2024; Ostadtaghizadeh et al., 2015). This approach reconciles analytical rigor with data realism.

The indicators are designed to function across various measurement levels – nominal, ordinal, and interval – while remaining amenable to integration within a unified framework. The primary methodological challenge lies not in the availability of discrete data, but in the systematic synthesis of heterogeneous information into a coherent evaluation model (Nardo et al., 2008; Saltelli et al., 2008).

Military Readiness (MR)

The military defence capabilities of modern states result from a complex interplay between organisational, logistical, personnel, and material structures. While outward-facing metrics – such as troop strength, platforms, or international alliance commitments – are visible indicators, actual effectiveness stems from a multi-layered capability stack. This stack includes rapid deployment, operational endurance, and medium-term regeneration capacity. Within the NSRI, this systemic foundation is summarised under the overarching dimension of Military Readiness.

Indicators and Sub-Indicators:

Combat Power (CP)

Definition:

CP describes the available military capability that a state can mobilise at short notice.

Sub-indicators:

- Troop Availability (CP1)
- Equipment Availability (CP2)
- Command & Mobility Readiness (CP3)
- Training & Exercise Readiness (CP4)

Operational Sustainability (OS)

Definition:

OS measures the ability of the armed forces to maintain military operations over extended periods of time.

Sub-indicators:

- Material & Supply Resilience (OS1)
- Maintenance & Repair Readiness (OS2)
- Personnel & Organisational Resilience (OS3)

Surge Capacity (SC)

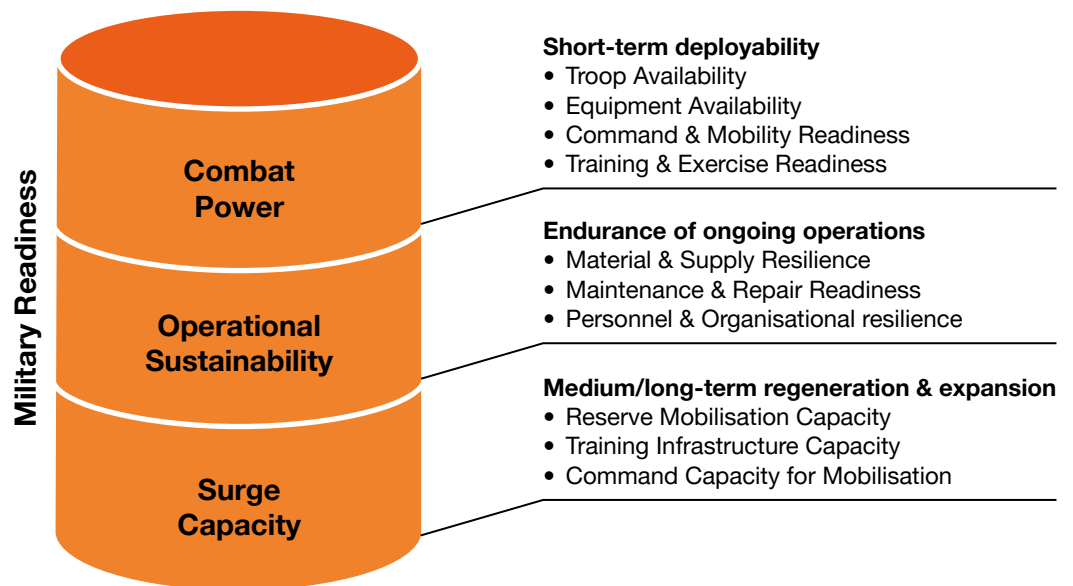
Definition:

SC refers to the ability to scale armed forces in the short to medium term beyond peacetime levels, train additional forces, and integrate expanded command and control structures.

Sub-indicators:

- Reserve Mobilisation Potential (SC1)
- Training Infrastructure Capacity (SC2)
- Command Capacity for Mobilisation (SC3)

Fig. 13 Military Readiness (Capability Stack)



Industrial Readiness (IR)

Definition:

The defence capabilities of modern states are increasingly contingent upon the performance of their industrial and innovation policy foundations. While military capabilities are visible in operational terms – in the form of armed forces, defence platforms, and logistical forces – their ultimate efficacy stems from a largely invisible but structurally crucial foundation: a country's ability to reliably produce military goods, stabilise critical supply chains, and maintain a cycle of continuous technological advancement. Within the NSRI, this structural foundation is defined as Industrial Readiness.

Indicators:

Industrial Base (IB)

Definition:

IB refers to the material foundation of military production. It describes a country's ability to manufacture complex weapon systems and intermediate products today and to scale up production at short notice if necessary.

Sub-indicators:

- Manufacturing Capacity (MC)
- Supply Chain Resilience (SCR)
- Ramp-up Capability (RC)
- Skilled Workforce Availability (SWA)

Innovation Input & Readiness System (IIRS)

Definition:

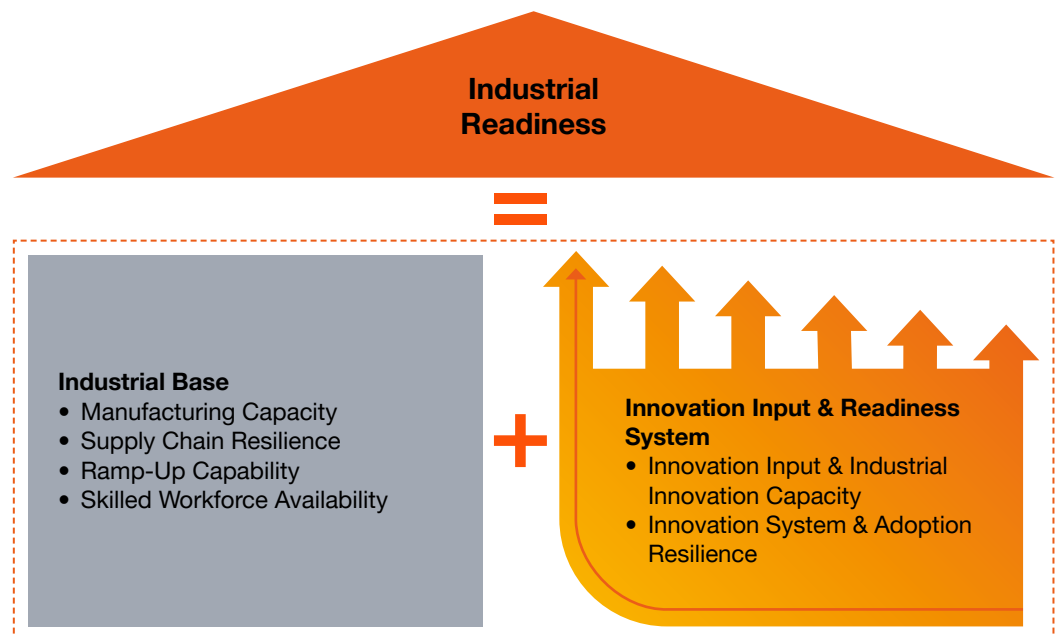
IIRS determines whether a country can develop, adapt, and scale new military technologies, thus helping to explain how quickly and effectively novel threats can be responded to.

Sub-indicators:

- Innovation Input & Industrial Innovation Capacity (IIC)
- Innovation System & Adoption Readiness (ISAR)



Fig. 14 Schematic illustration of the Industrial Readiness pillar



Civil Readiness (CR)

In the NSRI framework, Civil Readiness refers to the capacity of the state and society to sustain essential functions – economic, infrastructural, and societal – during a systemic crisis, thereby enabling and supporting defence capabilities.

The definition aligns with the German Framework Guidelines for Total Defence (RRGV), which characterise civil defence as the planning and implementation of all non-military measures essential to maintain defence posture, protecting and providing for the population, and sustaining the armed forces (BMI, 2024, §§ 18–27). Within the overall index, Civil Readiness is considered an equally important criterion of national security and resilience alongside military and industrial capabilities.

Indicators:

Economic Readiness (ER)

Definition:

ER is the capacity to maintain macro-economic functions and essential, supply-related, and infrastructural functions even in the event of an emergency and to adapt flexibly to changing requirements. In accordance with the German Framework Guidelines for Total Defence (RRGV), this includes, in particular, ensuring the availability of life-sustaining goods and services that are essential for life and defence, as well as the robustness of critical infrastructure.

Sub-indicators:

- Economic Stability & Agility (ESR)
- Supply Resilience (SuR)
- Critical Infrastructure Resilience (CIR)

Societal Readiness (SR)

Definition:

SR describes the ability of a population to act collectively in an external emergency, to support government measures, perform civil defence-related roles, and activate inherent resilience potential during a crisis. In the context of civil defence, it is a key prerequisite for maintaining protection, supply, and assistance structures.

Sub-indicators:

- Institutional Trust (T)
- Societal Mobilisation Capacity (SMC)
- Civil Defence Engagement (CDE)
- Defence Narrative & Resilience Perception (DNR)

Political-Institutional Readiness (PIR)

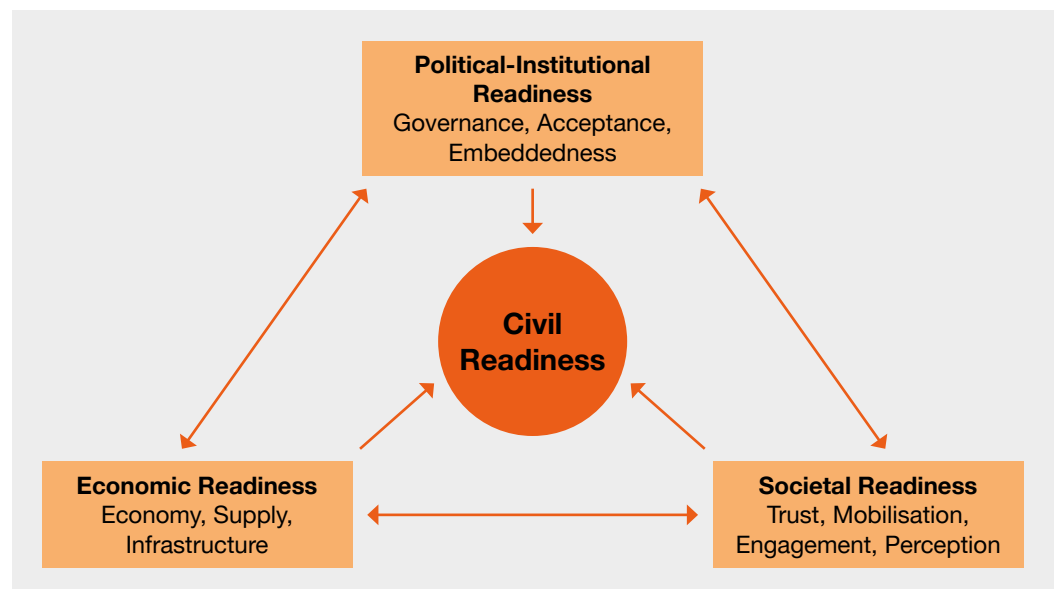
Definition:

PIR describes the ability of state institutions to maintain executive governance, make decisions, and coordinate in the event of an external emergency. In the context of total defence, this includes maintaining state and government functions, activating legal emergency mechanisms, the ability to manage and coordinate between levels and departments, and the ability to cooperate internationally.

Sub-indicators:

- Administrative Steering & Legal Agility (ASL)
- System Acceptance & Stability (SAS)
- International Embeddedness (IE)

Fig. 15 Civil Readiness (Network)

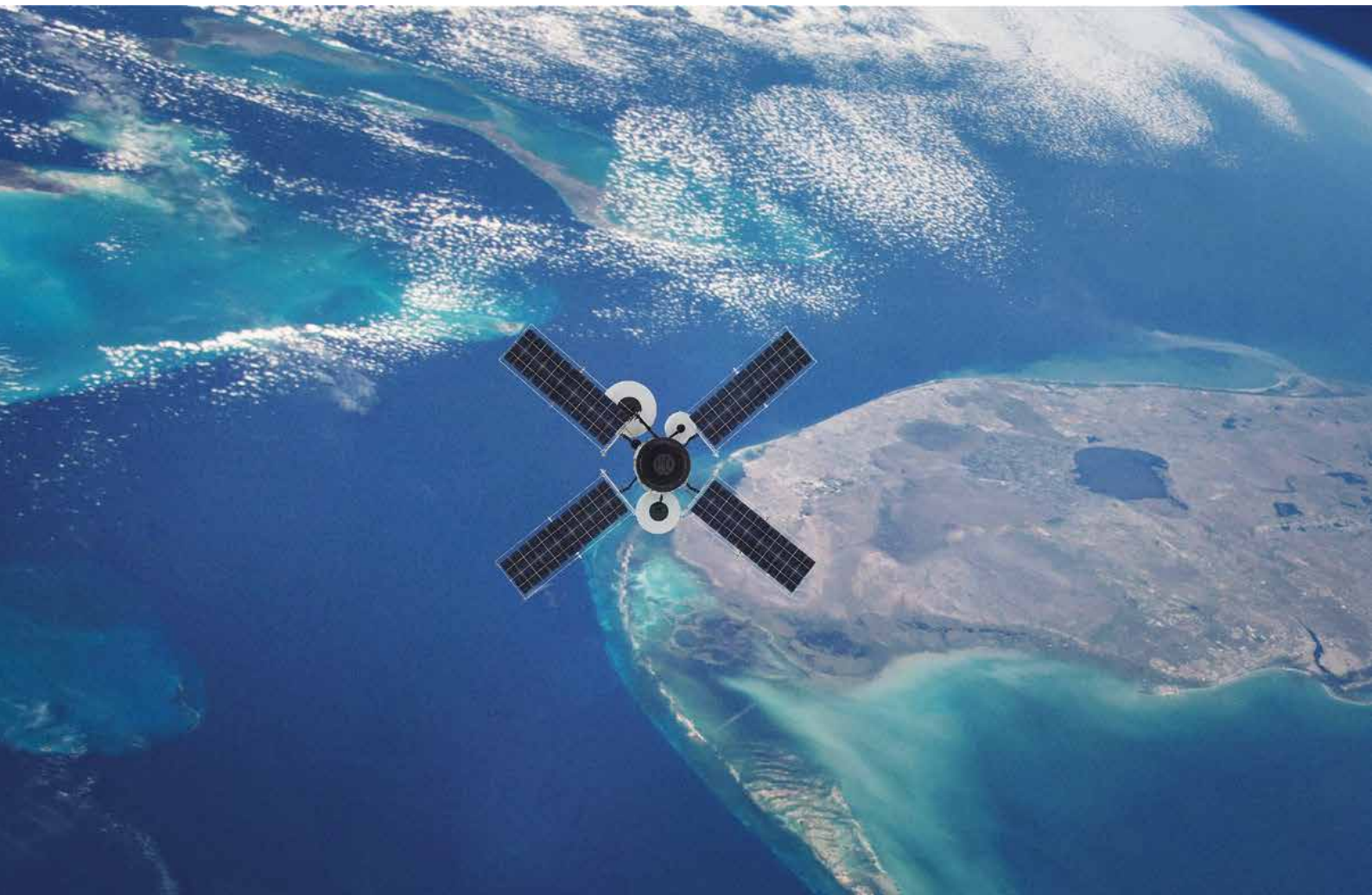


Aggregation

The aggregation of a composite index as heterogeneous as the NSRI presents a significant methodological challenge. Throughout the pilot, various measurement models were tested to map different theories on the interactions between the individual pillars, indicators, and sub-indicators. These calibrations are essential to explore optimal ways of representing the complex data architecture. To this end, we evaluated modular sectoral assessments alongside hierarchical schemes and explored the analytical utility of mid-level aggregation versus high-level composite scores to ensure maximum granularity and information value.

A central insight from this calibration is that each indicator must be calculated according to a specific theoretical and empirical logic to provide an approximate representation of actual national security and resilience. At the same time, the framework avoids excessive complexity to maintain its core function as a transparent, precise, and comprehensible representation of a state's national security and resilience.

Crucially, the NSRI adopts a penalised-mean logic to reflect the interdependency of the individual pillars (cf. Munda, 2008; Saltelli et al., 2008). This approach ensures that significant deficits in one dimension – such as low societal trust – cannot be mathematically masked by high performance in another – such as industrial output. Building on this structured exploratory work, the twelve-month development phase for the NSRI 2027 will involve a rigorous peer-review refinement of these aggregation logics. The final aggregation model of the NSRI will be determined through a structured, interdisciplinary expert consultation to ensure both scientific integrity and policy relevance.



Limitations & Gaps

The construction of a comprehensive security and resilience index inevitably involves data uncertainties. These relate to both measurement errors in the sources and uncertainties in the qualitative assessment. The NSRI addresses these challenges on several levels:

1 Transparent documentation

For each indicator, sources, survey methods, assessment rules, and any assumptions are disclosed in the methodology appendix. Following international recommendations, we do not conceal uncertainties. Instead, we make them explicit (Nardo et al., 2008; Saltelli et al., 2008).

2 Robustness tests and sensitivity analyses

Where data allows, sensitivity analyses (such as varying weights or using alternative standardisation procedures) are carried out in further project phases. The literature recommends tests like Monte Carlo simulations, scenario analyses, and leave-one-out tests to check the stability of the results (Saltelli et al., 2008; Greco et al., 2019).

3 Handling missing data

During the data collection process, we found that key data for Germany – such as figures on first responder organisations (e.g., firefighters, civil defence volunteers, paramedics, and EMTs) – is often missing. This was confirmed by the Deutscher Berufsverband Rettungsdienst e. V. (DBRD), noting that little data on paramedics and EMTs is centrally published. Despite a general consensus that Germany lacks sufficient paramedics and EMTs for a crisis scenario, the lack of data makes it difficult, if not impossible, to accurately assess how many paramedics and EMTs are still required. Missing data is not replaced by subjective estimates; instead, we use transparent imputation rules based on international benchmarks or mark the gaps explicitly in the country profile.

4 Phased implementation

Certain data-intensive sub-indicators (like specific leadership or lead time indicators) are initially described only conceptually and will be quantified in later iterations of the NSRI. This approach is in line with the recommendations from resilience research to build complex indicator systems step by step and improve them continuously (Camacho et al., 2024; Ostadtaghizadeh et al., 2015).

Through this combination of clear selection criteria, transparent standardisation, theory-driven aggregation, and a conscious handling of uncertainty, the NSRI pursues the goal of providing a methodologically robust yet pragmatic measurement architecture. It enables further development without compromising its conceptual core – that security is displayed as a systematic performance metric of military, industrial-economic, and civil capacities.

Expected Outcomes – What does it tell us?

The NSRI provides a comprehensive, theory-driven, and empirically verifiable framework for assessing national security and resilience. As a composite index, it is designed to uncover the functional performance of complex security systems encompassing military, economic-industrial, political, and societal mechanisms. Like any composite index, the NSRI has specific analytical strengths and unavoidable limitations. Disclosing these is part of the methodological transparency of a scientifically developed measurement tool.

The NSRI will provide several key findings that are important for academia, politics, industries, and the public:

- 1 Systemic assessment of national security**

The index shows how effectively a state can mitigate security-related stresses, respond to crises, and maintain operational and organisational capacity. It measures not just military strength, but the coherent performance of the entire system, including economic, infrastructural, societal and institutional stability.
- 2 Identification of structural vulnerabilities**

The penalised-mean logic reveals areas where a state is systematically limited due to particularly low values. This helps identify “single points of failure” – such as strong armed forces coupled with weak supply chains or high economic performance with low social cohesion. This function is particularly relevant for political priority setting, risk analysis, and reform processes.
- 3 Comparability between states and over time**

Using standardisation on a uniform scale and consistent aggregation logic allows for horizontal comparisons (between countries) and vertical comparisons (within a country over a period of years). This allows trends, reform effects, and security policy deteriorations or improvements to be systematically tracked over longer periods of time.
- 4 Identification of resilience profiles**

Since resilience has no blueprint, the NSRI derives specific profiles based on a country’s unique composition of factors, describing its individual strategy for resilience.
- 5 Integration of qualitative and quantitative evidence**

The NSRI converts qualitative indicators (e.g., leadership processes, coordination capabilities, social attitudes) into numerical values using clearly defined scales, thereby making them comparable. Research shows that such approaches – when constructed transparently – increase analytical value by capturing complex dimensions of governance or resilience that remain hidden in purely quantitative models (Sharifi, 2016; Greco et al., 2019).
- 6 Evidence-based foundation for decision-making**

The NSRI serves as a tool for prioritisation and strategic planning for policymakers, international organisations, think tanks, and the media. It can be used for prioritisation, monitoring, and communication purposes. By revealing structural performance profiles and weaknesses, the index contributes to the objectification of security policy debates and provides a robust basis for strategic planning and reform processes.

Despite these strengths, the NSRI – like all indicators of complex systems – is subject to certain limitations that are essential for correct interpretation:

1

Limitation to structural capability

The NSRI measures capabilities, not political intentions. It does not predict whether a state is prepared to use force, release resources, or implement social measures in an emergency. It reflects tangible and systemic capacities, not “strategic culture”.

2

Degree of abstraction of complex realities

Security and resilience are multifaceted and context dependent. Any index construction requires abstraction and reduction. Certain aspects, such as operational leadership, civil coordination efficacy, informal social dynamics, or regional differences within states, can only be approximated.

The NSRI reduces this complexity to systematically structured indicators but does not replace in-depth case analyses.

3

Limitations of qualitative assessments

While structured and methodologically controlled, qualitative indicators always retain a residual degree of subjective interpretation. This is consistent with broad index research, in which qualitative components are indispensable but never completely objectifiable.

4

Data availability and asymmetries

Countries differ in transparency, disclosure practices, and statistical capacity. Some indicators can therefore be measured more robustly in certain countries than in others. The NSRI addresses this through transparent documentation and limited imputation, but cannot eliminate data asymmetries entirely.

5

No forecast of future security

The index reflects the current state, not future viability. It shows existing capacities but cannot predict sudden political changes, external shocks, or technological leaps.

The strengths and limitations of the NSRI are similar to those of other established indices from resilience and governance research (e.g., INFORM Risk Index, OECD Resilience Metrics, NIST Community Resilience Framework). Like these instruments, the NSRI does not provide a definitive judgment, but rather a systematic, theory-driven diagnostic tool. Its function is not to directly evaluate security policy alternatives, but to identify the structures, prerequisites, and system characteristics that underlie any form of effective security and resilience policy.

The NSRI Project – Building Resilience on Reliable Data

The NSRI is designed as a multi-year, dynamic, and integrative project. An annual update will be published ahead of the Munich Security Conference (MSC). Starting with the MSC 2027, a growing dataset will be established, increasing in quality and significance with each iteration. To track the index throughout the year, an interactive website is being developed to ensure data transparency, provide background information on the methodology and the Index Handbook, and make the results accessible to a wider audience. The index is intended to evolve dynamically, remaining open to additional indicators, countries, and refined calculation methods.

The NSRI is a joint project of the Defence & Security Institute of PricewaterhouseCoopers (PwC Germany) and the German Council on Foreign Relations (DGAP). In line with an integrative approach, we attach great importance to a society-wide and representative exchange on the development of the index. To this end, expert panels and committees as well as close cooperation with other organisations are sought to ensure make the index is scientifically sound, representative, and practically applicable.



From measuring resilience to governing it.

Debates about national security are often dominated by visible factors: defence budgets, troop strength, and military hardware. However, recent crises have shown that security is determined by the resilience of systemic performance, not merely strength on paper. Energy crises, government failures, and social uncertainty have proven that resilience is not a given; it must be built across all parts of a system.

The NSRI addresses the fundamental question: How resilient are we? This is intended to create a basis for making informed political, economic, military, and social decisions. By moving away from siloed thinking, it offers a data-drive, complex yet accessible data basis for answering the question: How can we become more resilient?



We can already draw three key conclusions:

First, resilience is systemic.

No sector – military, industrial, or civil – can compensate for the failure of another. They are linked by a complex interplay that determines the functionality of the whole.

Second, resilience is measurable – and therefore governable.

Treating resilience as an abstract construct leads to vague measures. Treating it as a measurable capability creates space for effective learning, comparisons, and targeted reforms.

Third, resilience is a collective effort.

Resilience is a fundamentally integrative challenge – as is the research surrounding it. Resilience is only as strong as its weakest link, which is why every aspect of resilience represents a valuable perspective in its analysis.

For decision-makers, the implication is clear: strengthening resilience requires moving beyond sectoral boundaries and symbolic gestures. It requires binding frameworks, cross-sector coordination, and regular evaluation based on equally robust data.

The NSRI project is a starting point, not an end point. Its value lies in the data it collects and in the conversations it provokes – about priorities, interdependencies, trade-offs, and the foundations of systemic resilience in a time of geopolitical unrest.

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List of Abbreviations

BERD	Business Expenditure on Research & Development
BMF	German Federal Ministry of Finance
BMI	Federal Ministry of the Interior of Germany
CDE	Civil Defence Engagement
CP	Combat Power
CR	Civil Readiness
DBRD	Deutscher Berufsverband Rettungsdienst e.V.
DGAP	German Council on Foreign Relations
DNR	Defence Narrative & Resilience Perception
DSI	Defence & Security Institute
EMT	Emergency Medical Technician
ER	Economic Readiness
EU	European Union
IB	Industrial Base
IE	International Embeddedness
IIC	Innovation Input & Industrial Innovation Capacity
IIRS	Innovation Input & Readiness System
IISS	International Institute for Strategic Studies
IR	Industrial Readiness
MR	Military Readiness
MSC	Munich Security Conference
NATO	North Atlantic Treaty Organization
NIST	National Institute of Standards and Technology
NSRI	National Security & Resilience Index
OECD	Organisation for Economic Co-operation and Development
PIR	Political-Institutional Readiness
R&D	Research & Development
RRGV	Framework Guidelines for Total Defence
SAS	System Acceptance & Stability
SC	Surge Capacity
SIPRI	Stockholm International Peace Research Institute
SMC	Societal Mobilisation Capacity
SR	Societal Readiness
T	Institutional Trust
US	United States of America

Annex

Military Readiness (MR)

The military defence capabilities of modern states are the result of a complex interplay of organisational, logistical, personnel, and material structures. While military capabilities are visible to the outside world – in the form of troop strength, weapon systems, or international alliance commitments – their actual effectiveness stems from a multi-layered structure of capabilities that includes short-term deployment, operational endurance, and medium-term regeneration capacity. This systemic basis is summarised in the NSRI under the term Military Readiness.

Indicators:

Combat Power (CP)

Short Definition:

CP describes the immediately available military capability that a state can mobilise at short notice.

Sub-indicators:

- Troop Availability (CP1)
- Equipment Availability (CP2)
- Command & Mobility Readiness (CP3)
- Training & Exercise Readiness (CP4)

Operational Sustainability (OS)

Short Definition:

OS describes the ability of the armed forces to maintain military operations over extended periods of time.

Sub-indicators:

- Material & Supply Resilience (OS1)
- Maintenance & Repair Readiness (OS2)
- Personnel & Organisational Resilience (OS3)

Surge Capacity (SC)

Short Definition:

SC refers to a state's ability to increase its armed forces in the short to medium term beyond existing peacetime levels, train additional forces, and integrate expanded command and control capabilities.

Sub-indicators:

- Reserve Mobilisation Potential (SC1)
- Training Infrastructure Capacity (SC2)
- Command Capacity for Mobilisation (SC3)

Combat Power (CP)

Combat Power describes the immediately available military capability that a state can mobilise at short notice. While military capabilities are shaped in the long term by structure, modernisation, and strategic planning, combat power focuses on actual operational capability in the here and now: the availability of trained personnel, the functionality of key weapon systems, operational command and mobility capabilities, and the level of training that enables tactical coherence and effectiveness.

Sub-indicators:

Troop Availability (CP1)

Short Definition:

CP1 measures the short-term operational readiness of the armed forces. The indicator captures the extent to which a country is able to provide trained and immediately deployable soldiers.

Source: International Institute for Strategic Studies Military Balance

Equipment Availability (CP2)

Short Definition:

CP2 describes the proportion of operational main weapon systems and thus forms the material basis for short-term military capability.

Source: International Institute for Strategic Studies Military Balance

Command & Mobility Readiness (CP3)

Short Definition:

CP3 refers to a state's ability to command, coordinate, and deploy existing forces in a timely manner to relevant areas of operation.

Source: Expert panel

Training & Exercise Readiness (CP4)

Short Definition:

CP4 measures the level of training and exercise activity of armed forces as a key proxy for operational quality.

Sources: Reports from armed forces, expert panel

Operational Sustainability (OS)

Operational Sustainability describes the ability of armed forces to maintain military operations over extended periods of time. While combat power refers to short-term operational capability, operational sustainability focuses on the structural conditions that determine whether armed forces remain functional, coherent, and resilient under sustained stress. Sustainable operational capability arises from the interaction of material supply, technical maintenance, logistical implementation, personnel regeneration processes, and organisational resilience.

Sub-indicators:

Material & Supply Resilience (OS1)

Short Definition:

OS1 describes the ability of the armed forces to ensure a continuous supply of materials, spare parts, ammunition, and consumables over an extended period of time.

Sources: Government reports, expert panel

Maintenance & Repair Readiness (OS2)

Short Definition:

OS2 describes a state's ability to keep major weapon systems and key platforms operational under sustained stress.

Sources: Government reports, expert panel

Personnel & Organisational Resilience (OS3)

Short Definition:

OS3 describes the ability of the armed forces to maintain personnel, leadership processes, and organisational stability under sustained stress.

Sources: Government reports, expert panel

Surge Capacity (SC)

Surge Capacity refers to a state's ability to expand its armed forces in the short to medium term beyond existing peacetime levels, train additional forces, and integrate expanded command and control capabilities. In contrast to combat power, which describes immediate operational readiness, and operational sustainability, which reflects the ability to sustain ongoing operations, surge capacity focuses on the adaptability and expandability of the military organisation in the event of an escalation in the security situation.

Sub-indicators:

Reserve Mobilisation Potential (SC1)

Short Definition:

SC1 measures the extent to which a state can draw on militarily relevant segments of the population at short notice. The indicator covers both quantitative reserves (former active soldiers, existing reservists) and the demographic basis of potential additional forces.

Sources: Government data

Training Infrastructure (SC2)

Short Definition:

SC2 describes a country's ability to train additional forces and prepare them for deployment.

Sources: Expert panel

Command Capacity for Mobilisation (SC3)

Short Definition:

SC3 describes whether armed forces have the organisational and leadership prerequisites to integrate additional forces, structure them, and transform them into commandable units.

Sources: Expert panel

Industrial Readiness (IR)

Definition:

The defence capabilities of modern states increasingly depend on the performance of their industrial and innovation policy foundations. While military capabilities are visible in operational terms – in the form of armed forces, weapon systems, and logistical forces – their actual effectiveness stems from a largely invisible but structurally crucial foundation: a country's ability to reliably produce military goods, stabilise critical supply chains, and continuously generate technological developments. This structural foundation is referred to as Industrial Readiness in the NSRI.

Indicators:

Industrial Base (IB)

Short Definition:

IB refers to the material foundation of military production. It describes a country's ability to manufacture complex weapon systems and intermediate products today and to scale up production at short notice if necessary.

Sub-indicators:

- Manufacturing Capacity (MC)
- Supply Chain Resilience (SCR)
- Ramp-up Capability (RC)
- Skilled Workforce Availability (SWA)

Innovation Input & Readiness System (IIRS)

Short Definition:

IIRS determines whether a country can develop, adapt, and scale new military technologies.

Sub-indicators:

- Innovation Input & Industrial Innovation Capacity (IIC)
- Innovation System & Adoption Readiness (ISAR)

Industrial Base (IB)

Industrial Base refers to the material foundation of military production. It describes a country's ability to manufacture complex weapon systems and intermediate products today and to scale up production at short notice if necessary.

Sub-indicators:

Manufacturing Capacity (MC)

Short Definition:

MC describes the current industrial capability of a country to manufacture defence-related goods and systems.

Items & Sources:

Defence industrial scale (MC1) describes the scale of the national defence industrial base

Source: SIPRI Arms Industry Database

Production portfolio (MC2) measures what types of military products a country can manufacture industrially and qualitatively assesses how technologically sophisticated these products are.

Sources: Government reports, think tank studies, expert panel

System integration and engineering coherence (MC3) describes the ability of a country to integrate complex military systems with a focus on the engineering-related coherence of the defence industry.

Sources: Government reports, expert panel

Supply Chain Resilience (SCR)

Short Definition:

SCR describes a country's ability to continuously ensure its defence industrial production despite external disruptions, geopolitical tensions, and volatile global markets.

Items & Sources:

Import dependence for defence-related goods (SCR1) describes a country's dependence on external sources for military-related goods and components.

Sources: SIPRI Arms Transfers, government reports

Supplier redundancy and allied sourcing (SCR2) describes the redundancy and diversification of the supplier landscape for defence-related goods.

Sources: European Defence Agency Defence Data, data from the national armed forces

Lead-time and buffering capability (SCR3) describes the ability to absorb time delays and shocks.

Source: Expert panel

Ramp-up Capability (RC)

Short Definition:

RC describes a country's ability to significantly increase its industrial defence production in the short to medium term if the threat level increases or major losses need to be replaced.

Items & Sources:

Capacity utilisation and elasticity (RC1) measures how heavily defence-related industries are currently utilising their capacity and thus how much potential can be mobilised at short notice within the existing system.

Sources: EU Eurostat, Trading Economics Capacity Utilization

Convertible dual-use capacity (RC2) describes the scope and quality of civil-industrial sectors whose production processes can in principle be transferred to military manufacturing.

Source: OECD Taxonomy of Economic Activities Based on R&D Intensity

Ramp-up governance and reconfiguration experience (RC3) focuses on the institutional and organisational mechanisms with which a state controls industrial capacity expansion.

Sources: Government reports, expert panel

Skilled Workforce Availability (SWA)

Short Definition:

SWA measures a country's ability to provide the skilled workforce necessary to operate, scale, and further develop its defence industrial production.

Items & Sources:

Availability of defence-relevant skills (SWA1) measures the quantity and quality of skilled workers directly required for defence industry activities.

Sources: Trading Economics Human Resources in Science and Technology, EU Eurostat

Onboarding time (training and clearance lead times) (SWA2) measures the time required to make new or retrained employees ready for work.

Sources: Government reports

Reskilling and retention capacity (SWA3) measures whether a country is able to retain its skilled workers and, if necessary, retrain them for defence-related activities.

Sources: Government reports, think tank reports (e.g., IW Cologne)

Innovation Input & Readiness System (IIRS)

The Innovation Input & Readiness System (IIRS) dimension describes a country's technological and institutional prerequisites for developing and advancing defence-related capabilities in the future and transferring them into military applications. While the IB reflects current industrial performance, IIRS focuses on those upstream innovation mechanisms that determine whether a country is capable of generating or maintaining technological superiority in the long term.

Sub-indicators:

Innovation Input and Industrial Capacity (IIC)

Short Definition:

IIC captures the quantitative basis of a country's defence-related innovation capacity. It maps the inputs and structural capacities necessary to research and develop new military technologies and translate them into industrial applications.

Items & Sources:

Defence R&D budget (IIC1) measures the proportion of a country's defence spending that actually goes toward research and development.

Sources: OECD MSTI Government Budget Allocation for R&D – Defence, EDA Defence Data, NATO Defence Expenditure

R&D workforce density (IIC2) measures the size of the R&D-related labour force.

Source: OECD Science Technology and Innovation Indicators (STI)

Hightech BERD specialisation (IIC3) measures the absolute technological R&D capability of a country's industry in those sectors that are particularly relevant to military innovation, including electronics, mechanical engineering, IT, optics, sensor technology, and aerospace.

Sources: OECD ANBERD (Analytical Business Enterprises R&D database), OECD STAND industry tables

Innovation System & Adoption Readiness (ISAR)

Short Definition:

ISAR measures how well a country is positioned institutionally, organisationally, and systemically to actually translate new technologies into military capabilities.

Items & Sources:

Dedicated defence innovation entities (ISAR1) shows the existence and qualitatively describes the institutional anchoring, and systemic significance of dedicated defence-related innovation and R&D entities.

Sources: OECD data, market research, expert panel

Participation in international defence R&D networks (ISAR2) assesses the qualitative network position of a country within transnational defence-related innovation networks.

Sources: EU documentation (EDF, PESCO, EDA programmes), NATO STO (research task groups, panels, program of work), expert panel

Publicly observable innovation-to-use friction (ISAR3) captures the publicly observable permeability between defence-related innovation and military use.

Sources: Reports from courts of auditors, think tank reports, government reports, expert panel

Civil Readiness (CR)

In the NSRI, civil readiness refers to the ability of the state and society as a whole to maintain the essential functions of the state, economy, and society in the event of an external emergency, thereby enabling and supporting military defence capabilities. The Framework Guidelines for Total Defence (RRGV) define civil defence as the planning, preparation, and implementation of all non-military measures necessary to maintain defence capabilities, protect and provide for the population, and support the armed forces (BMI, 2024, §§ 18–27). In the overall index, Civil Readiness is considered an equally important criterion for national security and resilience alongside military and industrial capabilities.

Indicators:

Economic Readiness (ER)

Short Definition:

ER refers to a state's ability to maintain its basic economic, supply-related, and infrastructural functions even in the event of an external emergency and to adapt flexibly to changing requirements. In accordance with the RRGV, this includes, in particular, ensuring the availability of goods and services that are essential for life and defence, as well as the functionality of key infrastructure sectors.

Sub-indicators:

- Economic Stability & Agility (ESR)
- Supply Resilience (SuR)
- Critical Infrastructure Resilience (CIR)

Societal Readiness (SR)

Short Definition:

SR describes the ability of a population to act collectively in an external emergency, support government measures, perform civil defence-related roles, and activate its own resilience potential. In the context of civil defence, it is a key prerequisite for maintaining protection, supply, and assistance structures.

Sub-indicators:

- Institutional Trust (T)
- Societal Mobilisation Capacity (SMC)
- Civil Defence Engagement (CDE)
- Defence Narrative & Resilience Perception (DNR)

Political-Institutional Readiness (PIR)

Short Definition:

PIR describes the ability of state institutions to remain capable of acting, making decisions, and coordinating in the event of an external emergency. In the context of total defence, this includes maintaining state and government functions, activating legal emergency mechanisms, the ability to manage and coordinate between levels and departments, and the ability to cooperate internationally.

Sub-indicators:

- Administrative Steering & Legal Agility (ASL)
- System Acceptance & Stability (SAS)
- International Embeddedness (IE)

Economic Readiness (ER)

Economic Readiness (ER) refers to a state's ability to maintain its basic economic, supply-related, and infrastructural functions even in the event of an external emergency and to adapt flexibly to changing requirements. In accordance with the RRGV, this includes ensuring the availability of goods and services that are essential for life and defence, as well as maintaining the functionality of key infrastructure sectors.

Sub-indicators:

Economic Stability & Agility (ESR)

Short Definition:

ESR describes the extent to which a country's economic fundamentals, fiscal flexibility, and financial control mechanisms are adequate to ensure supply in the event of an external emergency and to support necessary defence measures.

Items & Sources:

Overall economic performance (ESR1) describes the economic potential for providing and financing defence-related measures based on the GDP.

Sources: Reports of the ministries of finance

Debt ratio (ESR2) reflects fiscal sustainability and the scope for absorbing additional crisis burdens.

Sources: Reports of the ministries of finance

Inflation rate (ESR3) provides information about macro-economic stability and price level risks that affect procurement capabilities in an emergency.

Source: World Bank Group

Creditworthiness (ESR4) assesses external evaluations of financial stability and financing costs based on the national credit rating.

Source: S&P Global Ratings

Supply Resilience (SuR)

Short Definition:

SuR measures the extent to which supply chains for essential goods are stable, diversified, and institutionally secure in the event of an external emergency.

Items & Sources:

All items are further divided into four qualitative subitems: Legal basis and organisation, warehousing and inventories, use and scope of reserves and private emergency preparedness.

Food supply (SuR1) describes the organisation, level and quality of available food supplies in an emergency scenario.

Sources: Data of government agencies

Water supply (SuR2) describes the organisation, level and quality of available water supplies in an emergency scenario.

Sources: Data of government agencies

Supply of medical goods (SuR3) describes the organisation, level and quality of available supply of medical goods in an emergency scenario.

Sources: Data of government agencies

Critical Infrastructure Resilience (CIR)

Short Definition:

CIR refers to the ability of a country's key infrastructure sectors to remain functional under stress and ensure supply.

Items & Sources:

Energy infrastructure (CIR1) describes the resilience of the energy infrastructure based on its efficiency and independence.

Sources: European Council on Foreign Relations (ECFR) Energy Sovereignty Index, Ember Electricity Data Explorer European Commission Eurostat Energy Import Dependency

Transport routes (CIR2) describes the condition of the transport routes based on ratio of dilapidated streets and tracks.

Sources: Data of government agencies

Logistics infrastructure (CIR3) describes the resilience of the logistics infrastructure.

Sources: World Bank Logistics Performance Index, Factory Mutual Insurance Company FM Resilience Index

Cyber infrastructure (CIR4) describes the resilience of the cyber infrastructure.

Source: International Telecommunication Union ITU Cybersecurity Index

Telecommunication infrastructure (CIR5) describes the scope of the telecommunications infrastructure.

Source: International Telecommunication Union ICT Development Index

Societal Readiness (SR)

SR describes the ability of a population to act collectively in an emergency, support government measures, perform civil defence-related roles, and activate its own resilience potential. In the context of civil defence, it is a key prerequisite for maintaining protection, supply, and assistance structures.

Institutional Trust (T)

Short Definition:

T measures the population's trust in security-related state institutions. Trust is a key indicator of social resilience, as it increases the likelihood that populations will support security-related measures, act cooperatively, and accept state authority in an emergency.

Items & Sources:

Trust in the armed forces (T1) describes the population's trust based on representative surveys.

Source: EU Eurobarometer

Trust in the police (T2) describes the population's trust based on representative surveys.

Source: EU Eurobarometer

Societal Mobilisation Capacity (SMC)

Short Definition:

SMC describes the ability and willingness of the population to take on civil defence-related roles in the event of an emergency.

Items & Sources:

Willingness to participate in Civil Defence (SMC1) based on representative surveys.

Sources: EU Eurobarometer, data from government agencies

Willingness to comply with official emergency measures (SMC2) based on representative surveys

Source: EU Eurobarometer, country specific surveys from various government institutions and think tanks (no standardised survey available)

Civil Defence Engagement (CDE)

Short Definition:

CDE measures the personnel and organisational capabilities of those civil emergency response structures that are responsible for protection, rescue, and basic services in emergencies.

Items & Sources:

All items are assessed based on the current staff number and the organisation's demand.

Police (CDE1) describes the number of police officers relative to the desired target number.

Sources: EU Eurostat, data from the national police and government agencies, interviews and press statements about the target number

Firefighters (CDE2) describes the number of firefighters relative to the desired target number.

Sources: Data from the national fire departments and government agencies, interviews and press statements about the target number

Paramedics and EMTs (CDE3) describes the number of emergency and medical staff relative to the desired target number.

Sources: Data from the national medical services and government agencies, interviews and press statements about the target number.

Defence Narrative & Resilience Perception (DNR)

Short Definition:

DNR captures the security policy attitudes and subjective resilience of the population.

Items & Sources:

Support for defence-related government measures (DNR1) describes qualitative approval ratings, e.g., for increasing defence capabilities, acceptance of emergency measures, or support for European security cooperation.

Sources: Country-specific surveys about current defence-related measures

Perceived resilience and preparedness of the population (DNR2) describes the population's self-perception with regard to its preparedness for emergency scenarios.

Sources: Country-specific surveys about current defence-related measures

Political-Institutional Readiness (PIR)

PIR describes the ability of state institutions to remain capable of acting, making decisions, and coordinating in the event of an emergency. In the context of total defence, this includes maintaining state and government functions, activating legal emergency mechanisms, the ability to manage and coordinate between levels and departments, and the ability to cooperate internationally.

Sub-indicators:

Administrative Steering & Legal Agility (ASL)

Short Definition:

ASL measures a state's ability to make quick political decisions in emergencies, use legal activation mechanisms, and coordinate control processes across departments and levels.

Items & Sources:

All items will be assessed based on expert panels delivering reliable qualitative figures

Decision making and crisis reaction speed (ASL1) qualitatively assesses the speed between the emergence of a crisis and the political response

Source: Expert panel

Parliamentary participation and flexibility mechanisms (ASL2) qualitatively assesses the functionality of emergency procedures

Source: Expert panel

Emergency and medical services (ASL3) qualitatively assesses the clarity, completeness, and practical application of emergency mechanisms

Source: Expert panel

Multi-level coordination (ASL4) qualitatively assesses the functionality of coordination between the federal government, states, municipalities, and the EU

Source: Expert panel

System Acceptance & Stability (SAS)

Short Definition:

SAS measures social support for democratic institutions, the stability of political decision-making processes, and the extent of extremist activities that threaten the system.

Items & Sources:

System support (SAS1) describes the trust in state institutions (courts, parliaments, governments, political parties, municipal institutions)

Sources: Country-specific surveys

System participation (SAS2) describes the population's engagement in democratic participation and civic engagement

Sources: Country-specific surveys

System diffusion (SAS3) describes extent of extremist structures and anti-systemic groups

Sources: Data of government agencies (e.g., Verfassungsschutzbericht)

System resilience instruments (SAS4) describes the existence, application, and effectiveness of formal mechanisms for protecting democracy

Sources: Legal texts, government strategies, expert panel

International Embeddedness (IE)

Short Definition:

IE measures a country's institutional and diplomatic integration into international security, political, and economic structures.

Items & Sources:

Globalisation (IE1) describes the economic, financial, informational, cultural and social globalisation based on various sub-items.

Sources: World Bank Group World Development Indicators, KOF Swiss Economic Institute KOF Globalisation Index

Diplomatic networks (IE2) describes the extent of the diplomatic network based on the number of diplomatic missions

Sources: Lowy Institute Lowy Global Diplomacy Index, data from foreign ministries

Development and stabilisation capacity (IE3) describes engagement in international cooperation and stabilisation measures

Source: OECD Development Co-Operation Profiles

Alliances and multilateral security structures (IE4) describes the extent and quality of a state's military, economic and political alliances

Sources: Government data, expert panel

Continuity of Government & Public Security (COG)

Short Definition:

COG measures the ability of the state to maintain its core legislative, judicial, and executive functions in the event of an emergency.

Items & Sources:

Functionality and protection of state organs (COG1) qualitatively assesses the effectiveness of existing measures to protect central state organs and functions, e.g., parliaments, governments, administration, courts, access to media

Source: Expert panel

Public security and order (COG2) qualitatively assesses the functionality of law

Source: Expert panel

Crisis communication and leadership (COG3) qualitatively assesses the quality of crisis communication, the situation picture, communication infrastructure and emergency leadership mechanisms

Source: Expert panel

Contacts



Prof Dr Rainer Bernnat
Government & Public Services Leader,
PwC Strategy& Germany
Tel: +49 170 2238414
rainer.bernnat@pwc.com



Dr Wolfgang Zink
Public Sector Defence & Security,
PwC Germany
Tel: +49 1511 8964363
wolfgang.zink@pwc.com

Authors



Paul Malte Behne
Head of Research DSI, Strategy&,
PwC Germany
Tel: +49 171 7732875
paul.malte.behne@pwc.com



Dr Florian Andresen
Independent Researcher and
Subject-Matter Expert
(Defense Innovation & Resilience)

Contributors

**Ann-Kathrin Knacke, Jonathan Tappe, Linus Wittenburg, Nicole Butters,
Sarah Gehle, Selina Graf and Thomas Gulden**



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