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Strategy paper to establish and further develop the German Poisoning Registry (DVR), with a future outlook towards 2035

Executive summary

Based on the Fourth Amendment of the Chemicals Act, the German Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung, BfR) wasmandated to establish the German Poisoning Registry (Deutsches Vergiftungsregister - DVR) by 1 January 2026. The DVR centralises and harmonises the collection, storage, and analysis of poisoning data across Germany.

This legal mandate addresses long-standing fragmention of data sources and strengthens the effective management of poisoning incidents, national toxicovigilance, and public health protection. Historically, poisoning data in Germany have been dispersed across seven Poison Centres (PCs), statutory accident insurers (Berufsgenossenschaften, BGs), and medical institutions, with heterogenous levels of digitalisation, notification and documentation practices. The DVR facilitates the integration of these data into a single national system. Herewith it provides timely insights to support health risk assessment, day-to-day risk risk management and communication of chemicals and products, policy development, and crisis management requiring rapid action. It also enables signal and trend assessment, and strengthens coordinated collaboration within Germany across the 16 Federal States and with EU Member States.

The scope of the DVR includes both human and animal poisonings, supporting a One Health approach and contributes to national and European regulatory reporting obligations. Given Germany's unique position within the EU in establishing such a registry, this strategy outlines the development, implementation, and further evolution of the DVR, based on defined operational processes (described in supplementary material (Bundesinstitut für Risikobewertung (BfR), 2025b)). It further presents a forward-looking perspective on the potential evolution of the DVR into a National Expertise Centre on Toxicovigilance (NET) with national and European relevance, contributing to the protection of public health.

Successful implementation relies on collaboration among PCs, regulators at Federal (Bund) and Federal State (Länder) levels, and health institutions. This collaboration ensures efficient data exchange and system integration while fully complying with data-protection and security requirements. The DVR is designed to support existing regulatory and medical responsibilities by consolidating routine data analysis at national level, while decision-making and operational processes remain within established institutional competences.

The direct value propositions are:

- **For policy-makers**: earlier national situational awareness; robust evidence to support proportionate and targeted regulatory or preventive measures; and support for EU/WHO reporting, preparedness and response obligations.
- **For health professionals**: faster access to national product- and exposure-specific information; harmonised national case data; evidence-based clinical guidance; and structured national feedback loops to support efficient patient management.
- **For the public**: timely advisories, risk communication, and prevention campaigns based on national data trends and emerging events, contributing to the reduction of avoidable harm.

Contents

List of abbreviations

BAuA	Bundesanstalt für Arbeitsschutz und Arbeitsmedizin – Federal Institute for Occupational Safety and Health
BBK	Bundesamt für Bevölkerungsschutz und Katastrophenhilfe – Federal Office of Civil Protection and Disaster Assistance
Beirat	Advisory Board
BfC	Bundesstelle für Chemikalien – Federal Office for Chemicals
BfR	Bundesinstitut für Risikobewertung – German Federal Institute for Risk Assessment
BfS	Bundesamt für Strahlenschutz – Federal Office for Radiation Protection
BG	Berufsgenossenschaften – Gesetzliche Unfallversicherungen – Statutory Accident Insurances in Germany
BKA	Bundeskriminalamt – Federal Criminal Police Office
BLAC	Bund/Ländern Arbeitsgemeinschaft Chemikaliensicherheit – Federal-State Working Group on Chemical Safety
BMAS	Bundesministerium für Arbeit und Soziales – Federal Ministry of Labour and Social Affairs
BMDS	Bundesministerium für Digitales und Staatsmodernisierung – Federal Ministry for Digital Transformation and Government Modernisation
BMBFSFJ	Bundesministerium für Bildung, Familie, Senioren, Frauen und Jugend – Federal Ministry for Education, Family Affairs, Senior Citizens, Women and Youth
BMFTR	Bundesministerium für Forschung, Technologie und Raumfahrt – Federal Ministry of Research, Technology and Space
BMG	Bundesministerium für Gesundheit – Federal Ministry of Health
BMI	Bundesministerium des Innern – Federal Ministry of the Interior
BMLEH	Bundesministerium für Landwirtschaft, Ernährung und Heimat – Federal Ministry of Agriculture, Food and Regional Identity
BMUKN	Bundesministerium für Umwelt, Klimaschutz, Naturschutz und nukleare Sicherheit – Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety
BMV	Bundesministerium für Verkehr – Federal Ministry of Transport
BMVg	Bundesministerium der Verteidigung – Federal Ministry of Defence
BMWE	Bundesministerium für Wirtschaft und Energie – Federal Ministry for Economic Affairs and Energy
BMWSB	Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen – Federal Ministry for Housing, Urban Development and Building
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung – Federal Ministry for Economic Cooperation and Development
CBRN	Chemical, Biological, Radiological, and Nuclear
Cefic	European Chemical Industry Council
ChemG	Fourth Amendment of the Chemicals Act of 23.11.2024
DG DEFIS	Directorate-General for Defence Industry and Space

DG ECHO	Directorate-General for European Civil Protection and Humanitarian Aid Operations
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion
DG ENV	Directorate-General for Environment
DG GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
DG SANTE	Directorate-General for Health and Food Safety
DVR	German Poisoning Registry - Deutsches Vergiftungsregister
EAPCCT	European Association of Poisons Centres and Clinical Toxicologists
ECHA	European Chemicals Agency
ECIS	European Cancer Information System
EFSA	European Food Safety Authority
EMA	European Medicines Agency
EU	European Union
EU CoE on CBRN	EU Chemical, Biological, Radiological, and Nuclear Risk Mitigation Centres of Excellence Initiative
EU-OSHA	European Agency for Safety and Health at Work
Fig.	Figure
GDPR	General Data Protection Regulation
GfKT	Gesellschaft für Klinische Toxikologie – Society for Clinical Toxicology
GiKo	Deutschsprachige Kommission für die Bewertung von Vergiftungen – German-speaking Commission for the Assessment of Intoxications
GMLZ	Gemeinsames Melde- und Lagezentrum – Joint Information and Situation Centre of the Federal Government and the Federal States
HaDEA	European Health and Digital Executive Agency
HERA	Health Emergency Preparedness and Response Authority
IPChem	Information Portal on Chemicals
IPCR	Integrated Political Crisis Response (arrangement of the Council of the EU)
NET	Network of Expertise on Toxicovigilance
PC	Poison Centre
RKI	Robert Koch Institute
SO	Strategic Objective
UBA	Umweltbundesamt – Federal Environment Agency
UCPM	Union Civil Protection Mechanism
UN	United Nations
WHO	World Health Organisation

1 Introduction

Key message: BfR was mandated to establish the DVR by 1 January 2026. Following its implementation, the DVR operates through close collaboration with its primary data suppliers—PCs, BGs, and medical practitioners—forming the foundation for continuous improvement and future expansion.

Current poisoning surveillance in Germany is highly decentralised. Nationwide, seven PCs operate independently, using heterogeneous systems for communication, case registration, and intervention (Desel et al., 2019; Desel et al., 2017). This fragmentation, combined with a lack of standardised data collection, hinders rapid detection and assessment of national trends, delays interventions, and limits effective resource allocation (Begemann et al., 2019; Begemann K., 2019; Feistkorn et al., 2019; Kosnik et al., 2022; McFarland, 2017; Stürer et al., 2007). With the DVR in place, case data from all PCs and other notifying parties are integrated, supporting coordinated risk assessment and management, as well as targeted prevention and evidence-based risk communication (Desel et al., 2022; Hahn, 2014).

The Fourth Amendment of the Chemicals Act (ChemG, 2023) mandated BfR to establish the DVR by 2026. This strategy outlines the DVR's development and further evolution, its regulatory implementation, and its long-term vision. The DVR functions as both a database and an integrated information system, offering assessment and reporting capabilities. The initial scope includes hazardous substances and mixtures in products, installations, and consumer goods—including poisonous plants and animals—while excluding human and veterinary medicines, narcotics, and alcoholic beverages, which fall outside the present regulatory scope of ChemG. In practice, incoming notifications may include cases beyond the current legal scope; these are labelled and managed accordingly. The system is designed to facilitate gradual expansion of scope and integration with relevantnational, European and international data systems, thereby strengthening toxicovigilance.

1.1 Advisory Board, Stakeholder, and Context Analysis

Under ChemG (ChemG, 2023), an Advisory Board (Beirat) is to be established to guide DVR processes and operations. The Board – comprising up to 15 members appointed by BMLEH and BMUKN on BfR's recommendation—is planned to become operational in 2026 and ensures diverse technical and scientific expertise, including at least one representative from each PC. BfR manages the Board's Secretariat and prepares the rules of procedure (Geschäftsordnung), subject to approval by the Ministries and the Board. Beyond governance, the DVR integrates a broad stakeholder network spanning health, regulatory, scientific, and social domains (Figure 1).

- Medical sector – medical facilities, university hospitals, emergency units, and ambulance services serve as first points of care and primary data providers in both routine and acute incidents.
- Academic partners – universities (e.g., Charité), the Bundeswehr Medical Academy, and the German-speaking BfR Commission for Assessment of Intoxications (GiKo) contribute research expertise, specialist training, and professional guidance.
- Federal government – ministries with specific interests in the DVR include BMUKN, BMLEH, BMG, BMI, BMDS, BMAS, BMV, BMVg, BMWE, BMBFSFJ, BMFTR, BMWSB, BMZ, Federal State Ministries.
- European level – DG SANTE, DG DEFIS, DG ENV, DG EMPL, DG GROW, DG ECHO; EU agencies such as ECHA, EFSA, EU-OSHA, EMA, HaDEA, HERA; and initiatives including the EU CBRN CoE, UCPM, EU Health Security Framework, and IPCR.
- International cooperation – WHO, UN bodies, EAPCCT, the German-speaking Society for Clinical Toxicology (GfKT), and partner poison centres in other EU countries and globally (e.g., France, US).
- Industry and professional bodies – VCI, Cefic, IKW, statutory accident insurers (BGs), occupational health providers, medical chambers, and scientific societies.
- National institutes, authorities and committee – BAuA/BfC, RKI, UBA, BKA, BfS, Bundeswehr, BBK/GMLZ, BLAC.

Figure 1: Stakeholder Landscape for the DVR – presence and perspective.

1.2 Overcoming fragmentation and ensuring value

Fragmentation of poisoning data—driven by diverse organisational structures across PCs and BGs—has long hindered harmonised collection, storage and reporting (Desel et al., 2019). Practices range from paper-based documentation to fully digital systems, creating incompatibilities that delay comprehensive assessments and limit comparability across Federal States (Desel et al., 2019, 2022; Institute of Medicine (US), 2004).

Overcoming barriers through harmonisation

The DVR builds on standardised data-entry protocols, tailored reporting templates (e. g. for specific noxious substances and vulnerable groups), and consistent terminology/coding aligned with BfR quality and documentation requirements. Continuous data flows are safeguarded by robust cyber- and physical-security, includingencryption, authentication, and controlled access. The DVR is a secure, interoperable platform that ensures integrity and confidentiality while enabling controlled information sharing at regional, national, and international levels.

Day-to-day and crisis value

Centralised and harmonised national poisoning data deliver day-to-day value and support acute incident response. In routine operations in which the DVR received poison data from its data suppliers, the DVR supports streamlined reporting and analysis nationwide, enabling monthly surveillance of chemical exposures. This allows the detection of clusters, (seasonal) patterns, and emerging hazards, thereby supporting timely interventions. For example, non-compliant product batches linked to household exposures can be identified more rapidly, triggering targeted recalls or public advisories within weeks rather than months. Product developers also benefit from timely information that contributes to improved product safety and quality control. In crisis situations, real-time data submission supports continuous monitoring and provides up-to-date situation overviews for crisis actors at Federal and Federal State levels. These applications are illustrated in Figure 2 and further described in Figure 3.

Linking to broader frameworks

The development and further evolution of the DVR enables integration with additional frameworks, including One Health security (Kennedy et al., 2022), sustainability (Persson et al., 2022), and socio-economic analysis (Brouwer et al., 2014; Bruinen de Bruin et al., 2015; Hu et al., 2023; H. Wu et al., 2024), and scientific approaches (Attal-Juncqua et al., 2024). Integration with animal and environmental health surveillance supports identification of cross-species pathways and early intervention. Socio-economic analysis can reveal patterns linked to inequalities or consumer behaviour, such as the "Hot Chip Challenge" (Glaser et al., 2025) or nitrous oxide misuse ((laughing gas), informing targeted prevention strategies (see(Figure 2 and Figure 3).

National and international value

Centrally stored and curated data enables timely comparative analyses at Federal, Federal State, EU, and international levels. The inclusion of animal poisoning data strengthens animal welfare, food and feed safety, and related surveillance activities. Harmonised data underpins preparedness, prevention, and rapid response capacities. The DVR supports national and EU obligations, including those related to cross-border health threats and

official controls, as well as the WHO International Health Regulations (European Union, 2012, 2017; World Health Organization (WHO), 2018). By ensuring national harmonisation, centrally stored data strenghtens preparedness, prevention, and response across regions (Manley et al., 2011; Manley et al., 2012).

The role of poison data in supporting public health across regulatory and scientific domains of safety, security, sustainability, and social responsibility is summarised in Figure 2, with four scenarios further explained in Figure 3.

Figure 2: Poisoning data support detection, identification, prevention, intervention, recovery and long-term risk management across multiple health-related domains comprising safety, security, sustainability and social responsibility. Four corresponding use-case scenarios are further exemplified in Figure 3.

Building on past chemical poisoning incidents and international toxicovigilance practice (Woolf, 2021), four illustrative scenarios show how **centrally and harmonised** stored poison data can strengthen preparedness, response, and public communication. The scenarios are based on expert judgment, legal requirements, EU ambitions and foresight methods. Scenario 2 specifically illustrates the potential added value in coordinated public health emergencies, in alignment with authorities such as the Federal Office of Civil Protection and Disaster Assistance (BBK) and relevant Federal State institutions.

Scenario 1. Liquid Laundry Capsules – Safety: German poison centres recorded hundreds of exposures to liquid laundry capsules, mainly in children under five, with symptoms including vomiting, diarrhoea and respiratory distress.

DVR data captures these cases in a harmonised format, allowing timely national trend analysis and evaluation of packaging measures under the EU-CLP regulation such as child-resistant closures and bittering agents.

DVR data allows public prevention campaigns and supports enforcement of packaging rules. When compared with international data it also offers early insight into the effectiveness of EU-wide risk management measures addressing potential gaps (European Commission, 2017).

Scenario 2. Potential Deliberate Explosion – Security: An explosion at a chemical facility under suspicious circumstances near the border of two German Federal States releases a dense toxic plume on a winter day with poor atmospheric mixing. Residents report acute symptoms such as nausea, dizziness, and eye irritation to the PCs.

PCs are prepared and act as immediate public health information hubs supported by experience and established protocols related to chemical contaminations (Hryhorczuk, 2024), while harmonised DVR data entry gives authorities a live overview of symptom patterns and affected areas.

Cross-federal state data exchange facilitates coordination between regional and national authorities, ensuring consistent public messaging and preventing duplicated efforts. Post-incident, the DVR supports regulatory action and risk reduction strategies for chemical security.

Scenario 3. Toxic Smoke and Dust Poisonings – Sustainability: After a rainy winter and rapid vegetation growth, extreme heat triggers wildfires that destroy 500 homes.

The DVR records acute smoke-related health effects and supports targeting of long-term monitoring of exposure to heavy metals and complex chemical mixtures from burnt building materials and used indoor appliances.

This evidence guides safe clean-up operations, encourages substitution of hazardous construction materials, and informs climate-proof urban construction and planning. Data feed into promoting safer, more sustainable building materials reducing toxic releases during potential future disasters (Cornwall, 2025; Hussam, 2024).

Scenario 4. "Hot Chip Challenge" – Social Responsibility: PCs receive multiple reports of gastrointestinal irritation, throat swelling, and severe discomfort following a viral "Hot Chip Challenge" promoted on social media (Glaser et al., 2025).

DVR data enables tracking of case numbers and geographic spread, triggering rapid public advisories and (social) media and school-based prevention campaigns. The data also inform ongoing risk communication strategies and provide evidence for consumer safety act.

Figure 3: Illustrative Scenarios: Added value of the centralised and harmonised poisoning data in day-to-day, crises and emergency situations across the domains of safety, security, sustainability and social responsibility.

1.3 A Collaborative Approach and Knowledge Integration

The DVR serves as a foundational platform for toxicovigilance, promoting knowledge- and tool-sharing across scientific and regulatory domains. It strengthens toxicovigilance by integrating expertise from PCs, BfR, and scientific societies in assessment, risk management, and prevention. The DVR has the potential to bridge multiple EU regulatory frameworks that use chemical exposure data (Bruinen de Bruin et al., 2022), including:

- Chemical classification and safety
- Product and consumer protection
- Food and feed safety
- Medical and veterinary products
- Pesticides and biocides
- Environmental protection (water, air, waste, pollution prevention)
- Occupational safety and health
- Hazardous substances management
- Crises Preparedness

Through collaborative efforts, the DVR can evolve into a knowledge hub that enhances Germany's capacity to assess, respond to, and prevent poisoning incidents. Its success depends on a collaborative, participatory approach built on trust, transparency, and shared objectives. Effective stakeholder communication is therefore essential to ensure data collection, analysis, and dissemination serve common goals (Bruinen de Bruin et al., 2020).

The DVR serves as a centralised platform for the systematic collection and analysis of poisoning data (Kosnik et al., 2022). Its development and operation actively involve PCs, BGs, and medical staff. Together, these actors establish a robust scientific framework, operational processes, and a network for identifying, assessing, managing, and communicating poisoning risks. The BfR ensures that assessments are evidence-based and grounded in sound-scientific methodology.

Despite these advances, however, critical gaps remain in the rapid identification and response to emerging risks. A notable challenge is misinformation and dangerous behaviour spreading via social media, which can outpace established assessment and intervention mechanisms (Davies, 2020; Deming, 2005; Jasanoff, 2004; Lewandowsky et al., 2017; C. Wu et al., 2024). Examples include the "Hot Chip Challenge" (Glaser et al., 2025) and nitrous oxide misuse as discussed previously (Figure 2 and Figure 3). In both cases, national case aggregation required considerable time. This issue underlines the social responsibility potential of the DVR.

With the DVR in place, early warning signals and targeted policy actions, such as restrictions or bans at Federal State level, can be identified and implemented more rapidly. These processes continue to be streamlined as routine operation matures.

Effective collaboration benefits from open, inclusive, evidence-based, and solution-oriented principles. A multidisciplinary approach combining clinical toxicology, epidemiology, social science, risk assessment, -management, and - communication, strengthens both the processes and operation of the DVR (di Nucci et al., 2017; Hahn, 2014; International Risk Governance Center (IRGC), 2018; Kuhlicke et al., 2012; Paton, 2007; Wachinger et al., 2013). To remain relevant, the DVR is built to adapt to evolving needs and to develop operational

guidelines for data exchange, analysis, prevention, intervention, risk and threat assessment, as well as education and training (Ponzio et al., 2024).

2 Method

***Key message*:** BfR has developed the DVR through an iterative, stakeholder-informed process that addresses both regulatory and operational requirements, combining strategic planning, needs assessment, and phased implementation.

The approach underpinning the development of the DVR combines regulatory analysis, stakeholder engagement, and iterative project management. This approach is designed to meet the requirements of the Fourth Amendment of the Chemical Act (ChemG, 2023) while ensuring practical feasibility for PCs and other data suppliers.

2.1 The process cycle for building the DVR

The iterative process (Figure 4) draws on established decision-making models (Lasswell, 1957) and exposure-science frameworks (Fantke et al., 2022; Fantke et al., 2020). It begins with the assessment of regulatory and scientific requirements, the identification of PC-specific needs, and the mapping of existing and future opportunities. This phase recognises that data provision to the DVR constitutes an additional task alongside the PCs' 24/7 clinical responsibilities (Bundesinstitut für Risikobewertung (BfR), 2023, 2025a; Bundesinstitute für Risikobewertung (BfR), 2024).

To capture these requirements, BfR conducted a structured needs assessment process, including questionnaires, consultations, and site visits, to identify operational, legal, and technological constraints as well as shared challenges and commonalities across data suppliers. Based on this input and the legal framework set out in the Chemicals Act (ChemG, 2023), the DVR's vision, mission, and goals were defined and translated into six thematic building blocks further described in Chapter 3.

Implementation started in late 2024 and continued through 2025, with the objective of establishing automated monthly data transfer into the DVR by 2026. Quality management and control aligned with ISO 9001 and BfR in-house quality standards, are embedded across both development and operation to ensure quality, consistency, and reliability.

The final stages of the cycle comprise the development of operational guidelines for data exchange, analysis, prevention, intervention, risk and threat assessment, as well as education and training (2025–2026). A renewed need assessment from 2027 onwards will initiate the next iteration of the process cycle, ensuring continuous improvement and long-term adaptability of the DVR.

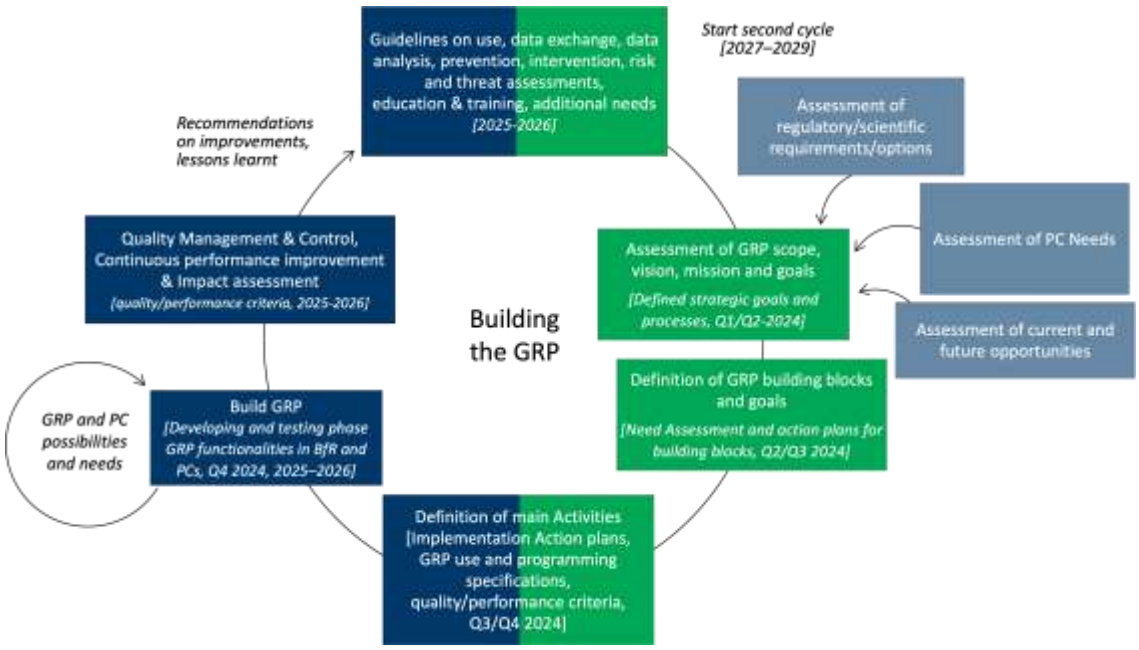

Figure 4: Process cycle for building the DVR (iterative stages from needs assessment to scaling (adapted from (Fantke et al., 2020))).

The process aligns with national health and safety frameworks, EU obligations, and WHO's International Health Regulations (World Health Organization (WHO), 2018). Key strategic priorities of the DVR include: (i) engaging PCs as critical infrastructure, (ii) enhancing efficiency via standardisation and digitalisation, and (iii) sustaining structured stakeholder dialogue to identify and address resource gaps.

3 Results

***Key message*:** The DVR constitutes a centralised and harmonised national resource for poisoning data, supporting toxicovigilance, public health, and crisis management through contributions from PCs, BGs, and medical staff and collaboration with relevant stakeholders.

The DVR strengthens national monitoring, analysis, and prevention of poisoning incidents by serving as a central platform that enables faster risk identification and supporting risk assessment, - management and communication. The initial implementation focussed on establishing the core infrastructure and data flows. Building on this foundation, the DVR is progressively expanding its analytical capabilities, data integration and national and European linkages.

3.1 Vision, Mission, Scope and Goals

Historically, Germany lacked a unified system. PCs and the BfR collected data independently using heterogenous formats and levels of digitalisation. The Fourth Amendment of the Chemicals Act (ChemG, 2023) provides the legal basis for harmonised data collection across PCs, BGs, and other reporting bodies.

Scope: The DVR serves as a centralised national platform integrating data from PCs, BGs, and medical practitioners across all 16 Federal States. The scope includes hazardous substances and mixtures in products, installations, and consumer goods, as well as poisonous plants and animals. Human and veterinary medicines, narcotics, and alcoholic beverages are excluded under ChemG. The system is, however, technically prepared to accommodate future extension of scope and to support integration with European and international relevant data systems.

Vision: To protect public health by enabling rapid responses to poisoning threats and providing a robust evidence base for policy and risk assessment, risk management and risk communication actions.

Mission: To continuously monitor poisoning cases, identify emerging trends, support decision-makers, and inform the public about risks and prevention.

Goals: The goals of the DVR are to:

- centralise and harmonise poisoning data in a national registry;
- ensure complete and consistent recording from all relevant sources;
- produce high-quality analyses for prevention and response;
- reduce incidence and impact of poisonings through targeted risk-reduction measures;
- strengthen national and international information exchange.

Beyond acute incidents, DVR data also informs the assessment of chronic exposures and cumulative risks enabling links with other exposure data sources. In doing so, the DVR supports multiple relevant EU regulatory frameworks, including REACH, Seveso III, and the framework on serious cross-border health threats.

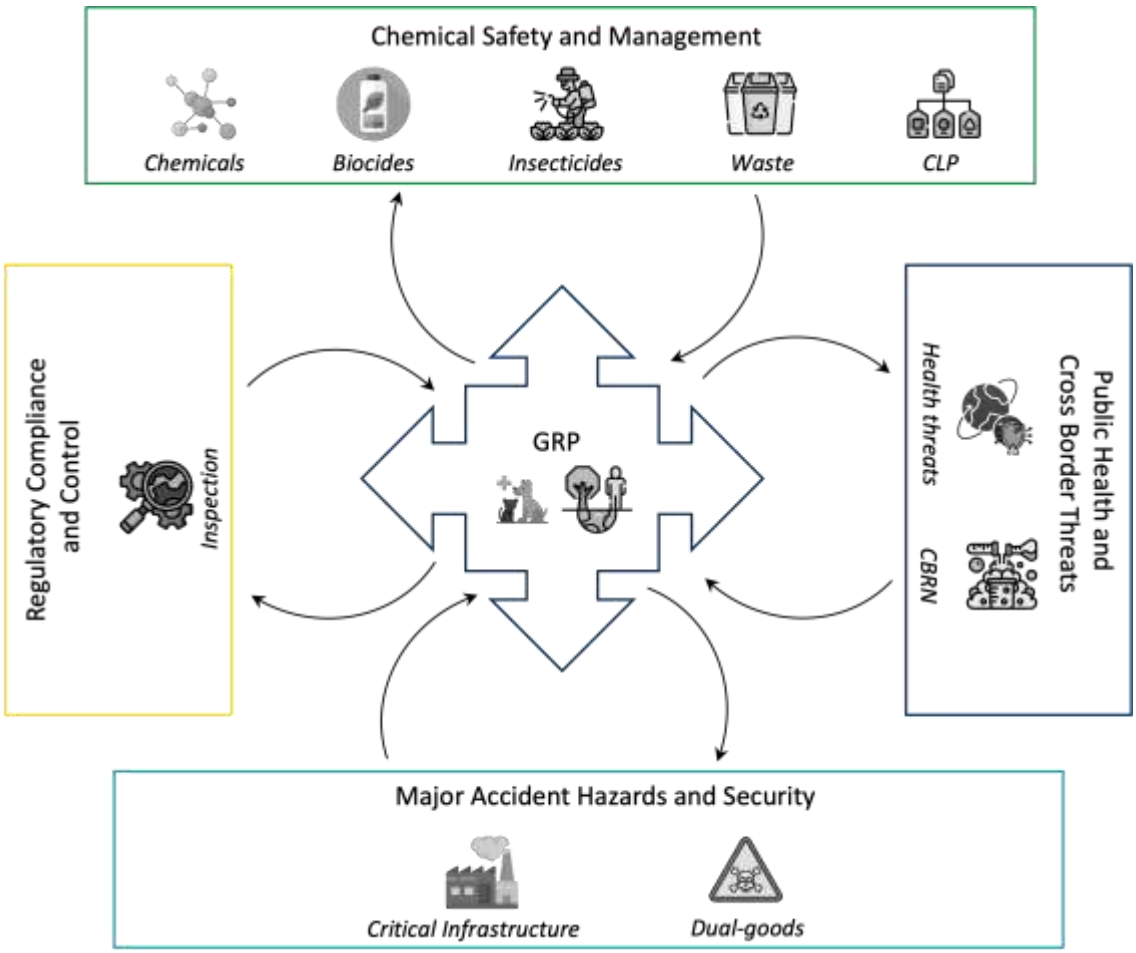

Figure 5: Regulatory landscape relevant to the DVR. The icons used are made by Freepik from www.flaticon.com.

Figure 5 illustrates the regulatory landscape most relevant to the DVR, grouped into four thematic categories. Arrows show the bidirectional flow of information: the dark blue arrows represent outgoing information flows (DVR → regulations), supporting compliance monitoring, risk assessments, and regulatory decision-making. The light blue arrows flow represents incoming information flows (regulations → DVR), relating to e.g. data requirements, formats, and use-cases that shape data collection and analysis. Figure 1 further illustrates the EU and national regulatory context.

3.2 Operational Framework: Building Blocks of the DVR

The DVR is structured around six thematic building blocks (Figure 6). Each building block is governed by a dedicated action plan defining objectives, milestones, resources, risks, and budgets extending to and beyond 2026 (Bundesinstitute für Risikobewertung, 2025).

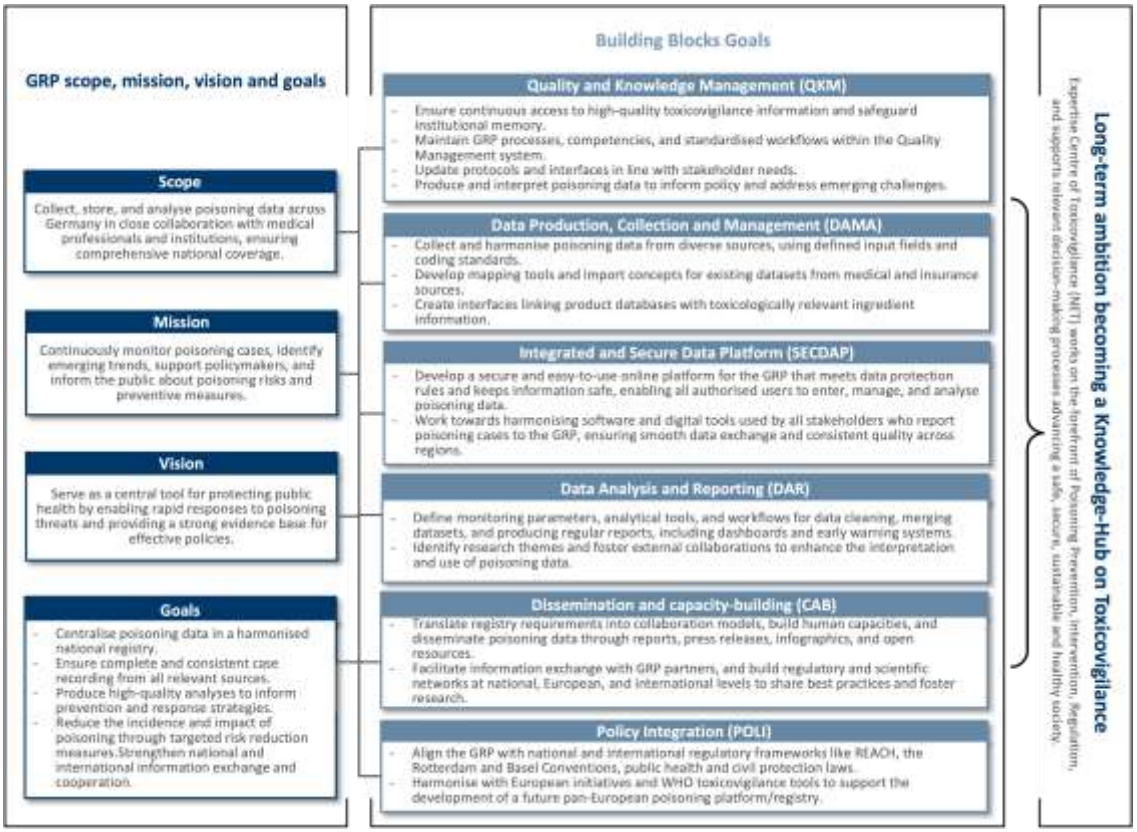

Figure 6: The DVR's scope, mission, vision, and goals linked to the six building blocks that form its operational framework.

Together these six building blocks form the operational framework for implementation. These building blocks are:

1 **Quality & Knowledge Management (QKM)** – embedding ISO-aligned processes, capacity-building, and continuous improvement.

2 **Data Production, Recording, Collection and Management (DAMA)** – standardising, harmonising, and securing poisoning data.

3 **Integrated and Secure Data Platform (SECDAP)** – ensuring robust, secure, and user-oriented data infrastructure.

4 **Data Analysis and Reporting (DAR)** – enabling timely and strategic data use for prevention, intervention, and policy-making.

5 **Dissemination and Capacity-Building (CAB)** – engaging stakeholders, promoting toxicovigilance awareness, and strengthening expertise.

6 **Policy Integration (POLI)** – linking DVR outputs to regulatory and policy frameworks nationally and internationally.

These blocks align strategic objectives with operational tasks of the DVR. Together, they can form the foundation for a national knowledge hub for toxicovigilance (Figure 6) and link directly to the roadmap described in Chapter 4.

4 Roadmap towards 2026 and beyond

***Key message*:** The successful implementation and further development of the DVR depend on sustained stakeholder collaboration, data standardisation, and cross-disciplinary communication. The roadmap summarises key actions to 2026 and outlines a pathway towards a recognised national and European knowledge hub for Toxicovigilance.

BfR identified priority actions across the six building blocks using a a systems-thinking approach (Voulvoulis et al., 2022; Wiek et al., 2011). Figure 7Figure 7 maps the key actions of each building block against three Strategic Objectives (SO1–SO3) with indicative timelines, drawing on established exposure-science and governance frameworks (Bruinen de Bruin et al., 2022; Fantke et al., 2022; Fantke et al., 2020; Kosnik et al., 2022; Singh et al., 2023).

Each key action contributes to one or a combination of:

- **SO1** — Engage PCs as critical infrastructure through a participatory approach and position the DVR as a recognised entity at national and international levels.
- **SO2** — Enhance efficiency and effectiveness of data exchange and management through organisation, standardisation, harmonisation, and digitalisation.
- **SO3** — Foster long-term dialogue and communication with stakeholders and disciplines, and identify and address resource gaps through collaborative solutions.

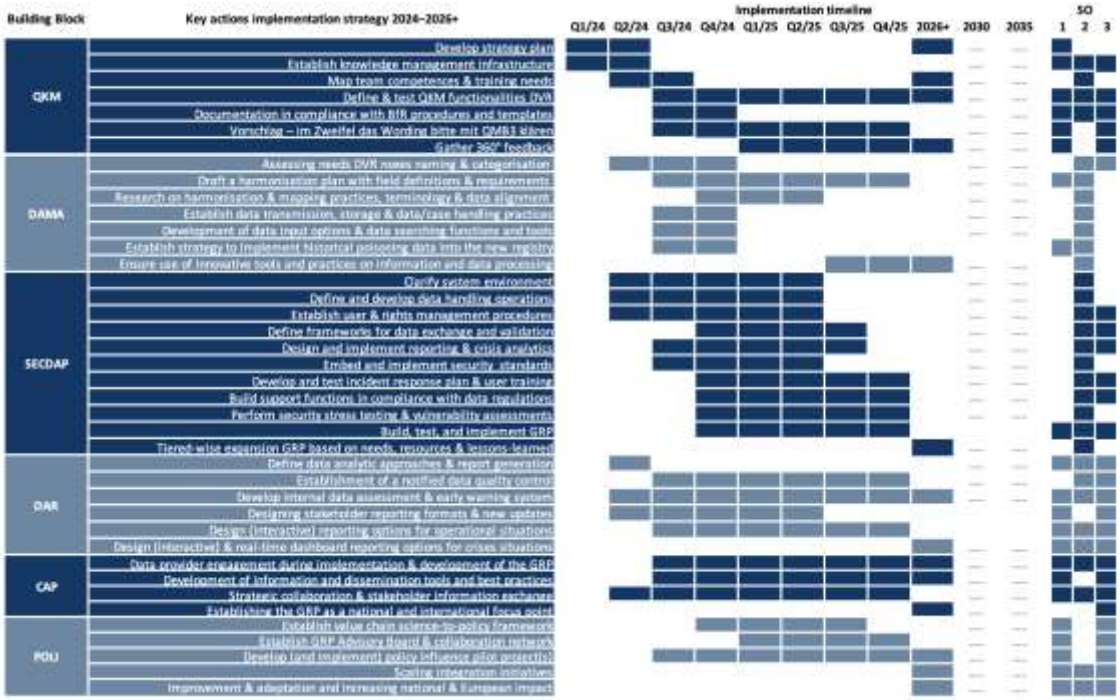

Figure 7: Key actions to 2026, mapped against SO1–SO3 across the six building blocks. (The Figure is adopted and modified from (Fantke et al., 2020).

4.1 Implementation Pathway

The implementation of the roadmap follows a systems-thinking approach (Voulvoulis et al., 2022; Wiek et al., 2011), as illustrated inFigure 4. This system thinking comprises:

- structured needs assessments with all PCs and other data suppliers to identify operational, legal, and technical requirements;
- the design of action plans per building block, detailing objectives, milestones, resources, risks and success criteria;
- the development and testing of secure data exchange and analysis systems;
- pilot phase with selected PCs to validate workflows;
- operationalisation of the DVR in 2026, accompanied by periodic evaluation and adaptation; and
- evaluation of the first three-year cycle (2024-2026) and start of second cycle in 2027.

4.2 Ambition towards 2035

Looking ahead to 2035, the DVR is envisioned to evolve into Germany's primary poisoning-surveillance resource and a recognised international knowledge hub for Toxicovigilance. This ambition is reflected in the concept of a National Expertise Centre on Toxicovigilance (NET) (Figure 8).

The NET concepts integrates future developments extending the current legal mandate, including green chemistry, occupational health and safety, environmental/public-health preparedness, and innovative risk assessment across the domains of Health, Safety, Security, Sustainability, and Social Responsibility (Attal-Juncqua et al., 2024). Potential integration domains include food/feed safety, environmental protection, product safety, chemical security, and sustainability frameworks, as well as respective horizon scanning and foresight approaches.

Figure 8: Projected evolution of the German Poisoning Registry (DVR) into the National Expertise Centre on Toxicovigilance (NET), integrating toxicological expertise, regulatory frameworks, and stakeholder networks. The NET will support early detection, risk assessment, and coordinated responses to chemical threats, while fostering national collaboration, green chemistry initiatives, occupational health and safety, food and feed safety, environmental protection, product safety, and other future scientific and regulatory areas.

In the long term, the infrastructure is expected to operate across national and EU regulatory frameworks, supporting informed decision-making through systematic use of poisoning data and knowledge (Bruinen de Bruin et al., 2022). Thematic application areas may include medical treatment optimisation, human and environmental surveillance, emergency preparedness, occupational protection, green chemistry, and targeted risk-reduction strategies. Through interdisciplinary collaboration aligned with national, EU, and global frameworks, poisoning data and toxicivigilance knowledge can generate sustained public-health impact.

5 Acknowledgements

The development of this strategy document would not have been possible without the support and collaboration of numerous internal and external experts and reviewers. We would like to express our sincere gratitude to our long-standing cooperation partners at the seven Poison Information Centres in Berlin, Bonn, Erfurt, Freiburg, Göttingen, Mainz, and Munich for their constructive comments to this strategy and for their invaluable daily contributions to poisoning assessment, treatment, and intervention.

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7 Supplementary Material: Action Plans for the Development of the German National Register of Poisonings

This supplementary material provides detailed action plans for each of the thematic building blocks underpinning the development of the German National Poisoning Register (DVR). For each building block the scope, objectives, planned deliverables, required resources, potential risks, and mitigation strategies are summarised in a structured manner. Key actions and timelines are presented per building block in respective tables and linked to one of the three Strategic Objectives (SO) described in the paper.

- **SO1:** Engage PCs as critical infrastructure through a participatory approach and position the DVR as a recognised entity at national and international levels.
- **SO2:** Enhance efficiency and effectiveness of data exchange and management through organisation, standardisation, harmonisation, and digitalisation.
- **SO3:** Foster long-term dialogue and communication with stakeholders and disciplines, and identify and address resource gaps through collaborative solutions.

7.1 Quality and Knowledge Management (QKM)

7.1.1 Scope and objectives

The Quality and Knowledge Management building block ensures continuous access to multidisciplinary, high-quality information and documentation relevant to toxicovigilance, fosters knowledge production and learning, and makes knowledge available in a manner tailored to stakeholder needs. Specific objectives include safeguarding institutional memory and traceability of information, ensuring the development, implementation, and sustained operation of the DVR and team processes, mapping and building competencies through self-education and formal training, standardising and documenting workflows within the institutional quality management (QM) system, and continuously updating protocols and interfaces. In addition, the building block contributes to the systematic generation and interpretation of poisoning knowledge to inform stakeholders and policy, and to anticipate emerging national and European challenges that may require the support of the DVR.

7.1.2 Key deliverables and timelines

Major deliverables included the establishment of an accessible knowledge repository, the creation of documentation in compliance with BfR procedures and templates, the development of a digital competence map documenting requirements and availability of expertise, and the integration and implementation of standardised processes as part of the DVR itself.

Further outputs comprised the design and implementation of training and information programmes tailored for internal and external users and the development of a structured management of change plan to guide organisational adaptation at both DVR and institute level. From 2026 onwards, 360° feedback mechanisms form part of the self-learning and improvement process to identify additional development needs.

Table 1: Key actions, timeline and strategic objectives QKM

Key actions implementation strategy 2024–2026+	Timeline	Strategic Objectives
Develop strategy plan	Q1–2, 2024, 2026+	SO1
Establish knowledge management infrastructure	Q1–2, 2024, 2026+	SO1,2,3
Map team competences and training needs	Q2–3, 2024	SO2
Define and test KM functionalities DVR	Q3 2024–Q4 2025	SO1,2,3
Documentation in compliance with BfR procedures and templates	Q3–4, 2024	SO1,2,3
Develop a training programme to operate DVR	Q1–Q4 2025, 2026+	SO1,3
Gather 360° feedback	2026+	SO1,3

7.1.3 Resources

The management of this building block oversees training and development needs, ensuring that data quality and documentation comply with BfR procedures and documentation requirements. This role includes established procedures to systematically collect and analyse feedback, with findings integrated into the DVR's improvement cycle and self-learning mechanisms. Resources include an operational knowledge management infrastructure, competence mapping, and implement training modules tailored to operational needs.

7.1.4 Risks and Mitigation

Risks have included limited resources, bureaucratic and/or technological hurdles, resistance to organisational change, and shifts in institutional or team dynamics. Mitigation strategies have comprised the allocation of backup resources, regular technology reviews, the implementation of a structured management of change plan, and the sustained engagement through continuous communication and training initiatives.

7.1.5 Budget and Success Criteria

Budgetary planning is expressed in person-days allocated to specific tasks. Success is measured by the timely delivery of key actions and milestones for this building block. Additional success criteria include demonstrable improvements in knowledge accessibility, data quality procedures, process continuity, and the progressive development of team competences.

7.2 Data Production, Collection and Management (DAMA)

7.2.1 Scope and objectives

The DAMA building block addresses the production, collection, and harmonisation of poisoning data submitted to the DVR from diverse sources. Objectives include defining input fields, selecting harmonised coding standards aligned with current and emerging European requirements, developing terminology mapping tools, preparing import concepts for existing

data (such as reports from physicians and insurance providers) and designing linkages to information on toxicologically relevant ingredients.

7.2.2 Key deliverables and timelines

Key deliverables have included the design of a harmonised set of data standards and accompanying mapping tables, which enhance the interoperability of poisoning data from different national (and international) sources and support downstream analytics and research. These deliverables were developed through 2024–2025 in close coordination with poison information centres and other partners and form the operational basis for routine data exchange and analysis within the DVR as of 2026.

Table 2: Key actions, timeline and strategic objectives DAMA

Key actions implementation strategy 2024–2026+	Timeline	Strategic Objectives
Assessing the needs of the DVR noxes naming and categorisation of respective data	Q2–4 2024	SO2,3
Assess poisoning field definitions and requirements as input for an integration and harmonisation plan	Q3–4 2024, Q1, 2025	SO1,2
Perform research on harmonisation and mapping practices, terminology and data alignment opportunities	Q4 2024, Q1–2 2025	SO2
Establish data transmission, storage and data/case handling practices	Q3–4 2024	SO2
Development of data input options and data searching functions and tools	Q3–4 2024	SO2
Establish strategy to implement historical poisoning data into the new registry	Q3–4 2025, 2026+	SO1,2
Ensure the DVR processes make use of innovative and modern tools and practices on information and data processing	2026+	SO2

7.2.3 Resources

The management of this building block oversees the scheduled key actions, ensuring alignment with agreed timelines and partner expectations. Successful delivery has required close collaboration with all data-providing partners to agree on data standards and to implement harmonisation measures. Core resources include coordination staff, IT developers, and subject matter experts responsible for preparing data for import, developing and maintaining mapping tools, and implementing search and retrieval functionalities.

7.2.4 Risks and Mitigation

Risks identified during development, testing, and early operation include insufficient consensus on data standards, mapping errors with potential for misclassification, incomplete or empty fields requiring manual data entry, loss of manually added information during system updates, and a high manual workload resulting from unstructured source data

and, in some cases, limited resources. Additional risks include partner resistance to adopting innovative technologies and implementation delays during harmonisation phases.

Mitigation measures have included intensive negotiation and consensus-building with partners, systemic validation and testing of mapping routines, the introduction of automated data documentation and completion tools, clear data ownership agreements, and robust procedures for data cleaning and quality validation. Legal constraints on modifying partner data are addressed through formal agreements, and synchronisation mechanisms are in place to prevent data asynchronies during import.

7.2.5 Budget and Success Criteria

Allocated internal resources have covered the costs of partner engagement, coordination, and both in-person and online workshops. Tasks are distributed among standardisation experts, data managers, and IT specialists as part of routine DVR operations.

Success is measured by partner consent having been obtained, the availability of functional and validated harmonisation tools, and the ability of all partners to deliver legally compliant, processable data. As of 2026, monthly data provision has been established as the operational baseline.

7.3 Integrated and Secure Data Platform (SECDAT)

7.3.1 Scope and objectives

SECDAT encompasses the design, implementation, and operation of a user-centric data platform with physical and cybersecurity measures. The goal is to provide a secure, user-friendly web-based application for the DVR that complies with data protection regulations (GDPR) and recognised cybersecurity best practices.

The platform supports data entry, management, and analytics, and enables controlled data access and sharing with partners through role-based access controls. Security is embedded by design and by default, including secure server environments, regular update cycles, and comprehensive audit trails, in line with recommendations from the Federal Office for Information Security (BSI). These measures ensure the integrity, confidentiality, and availability of DVR data in routine operation and crisis situations.

7.3.2 Key deliverables and timelines

The platform comprises user interfaces for data entry and management, administrative modules for register and workflow configuration, and implementation role- and group-based access controls. It also integrates data-analysis functionalities provide operational overviews. In addition, a dashboard enables partners to view and export their data.

Development was carried out in a tiered and iterative manner during 2024-2025, supported by regular stakeholder feedback. As of 2026, the DVR is operational and able to receive, store, and analyse poisoning data on a routine basis. Further development continues from 2026 onwards, focusing on incremental functional extensions, performance optimisation, and evolving analytical capabilities.

Table 3: Key actions, timeline and strategic objectives SECDAT

Key actions implementation strategy 2024–2026+	Timeline	Strategic Objectives
Clarify and set up the system environment requirements	Q2–4 2024 – Q1–2 2025	SO2
Define and develop data handling operations	Q2–4 2024 – Q1–2 2025	SO2
Establish user and rights management procedures	Q2–4 2024 – Q1–2 2025	SO2,3
Define frameworks for data exchange and validation of incoming and outgoing data	Q4 2024 – Q1–3 2025	SO2,3
Design and implement reporting templates and crisis analytics and formats	Q3–4 2024 – Q1–3 2025	SO2,3
Embed and implement security standards	Q3 2024 – Q1–2 2025	SO2
Build support functions in compliance with data and privacy regulations	Q3–4 2024 – Q1–Q4 2025	SO2,3
Develop and test incident response plan and user training	Q3–4 2024 – Q1–Q4 2025	SO2,3
Perform security stress testing vulnerability assessments	Q3–4 2024 – Q1–Q4 2025	SO2
Build, test, and implement DVR interfaces for data entry, management and administrative configuration for BfR staff and partners	Q3–4 2024 – Q1–Q4 2025	SO1,2,3
Tiered-wise further buildup of the DVR based on needs, resources and lessons-learned	2026+	SO2

7.3.3 Resources

The management of this building block coordinates and oversees the key actions required to operate a functional DVR in compliance with regulatory obligations as of 2026, with additional functionalities being developed and scaled beyond 2026. Core competencies include front- and back-end web developers, database and server administrators, statisticians supporting reporting and analytical functions, and thematic experts from the team who define workflows and conduct application testing and validation.

Infrastructure resources include secure technical environments, administrators with expertise in hardware and software security, established regular update and patch cycles for servers and applications, and operational expertise in the selected application framework.

7.3.4 Risks and Mitigation

Key risks identified during development and the transition to operation included the need to secure IT resources well in advance (with a minimum of two years ahead), temporarily resource constrains, frequent specification changes during the building phase, increased documentation requirements, insufficient testing prior to early feature deployment, and unresolved dependencies such as incomplete harmonisation or inconsistent institutional support. These risks were mitigated through iterative, test-driven development, regular

technical and stakeholder reviews, structured sprint planning, and the early prioritisation of critical functionalities and data harmonisation requirements.

Additional risks—such as limitations in the availability of secure infrastructure, delays in hardware and/or software procurement, or insufficient patch and update management—have been mitigated through early planning of secure technical environments, timely procurement procedures, and the application of established cyber-security and patch-management practices. Residual operational risks are continuously monitored as part of the routine system governance and quality management.

7.3.5 Budget and Success Criteria

The budget has covered the recruitment of external support required to develop the DVR in accordance with defined requirements and functionalities. Personnel costs related to domain expertise and workflow definition are included in the internal budget. The ongoing operation, adaption, and maintenance of the DVR continue to rely heavily on the availability of specialised IT resources, which remains a structural risk, as BfR does not hold a dedicated long-term financial budget earmarked exclusively for this purpose.

As of 2026, the successful delivery and deployment of a Minimal Viable Product (MVP) capable of receiving, storing, and analysing poisoning has been achieved and constitutes the primary success milestone. Additional measures of success include secure and stable platform performance, validated and routinely applied data exchange and reporting workflows, and demonstrated readiness for scaling and expansion beyond the initial release.

7.4 Data Analysis and Reporting (DAR)

7.4.1 Scope and objectives

The Data Analysis and Reporting building block defines and operationalises the analytical and reporting framework for the evaluation and dissemination of poisoning data. Its objectives include defining monitoring parameters and report types, the selection and use of appropriate analytical tools, the implementation of workflows for data cleaning and reporting, the integration of legacy and newly collected data, the establishment of early warning and signal-detection functions, and the provision of dashboards to support structured data queries and situation overviews.

A further objective is the identification and prioritisation of research themes and external scientific collaborations, ensuring that DVR data support both operational toxicovigilance activities and longer-term scientific, regulatory, and policy-relevant analyses.

7.4.2 Key deliverables and timelines

Key deliverables were implemented in a phased manner. Initial activities included the definition of parameters of interest and report formats and the selection of appropriate analytical tools. Subsequent deliverables comprised the establishment of an operating reporting workflow, validated protocols for merging historical and current data, functional specifications for early warning and signal identification mechanisms, and the design of a dashboard. Many activities will extend through 2026 during which components are becoming gradually operational and continue to be further developed and optimised based on usage, stakeholder feedback, and emerging requirements.

Table 4: Key actions, timeline and strategic objectives DAR

Key actions implementation strategy 2024–2026+	**Timeline**	**Strategic Objectives**
Define data analytic approaches and report generation	Q2 2024	SO1,2,3
Establishment of a notified data quality control	Q3–4 2024 – Q1–4 2025	SO2,3
Develop internal data assessment and early warning system	Q2–4 2024 – Q1–4 2025, 2026+	SO1,2,3
Designing stakeholder reporting formats and new updates	Q2–4 2024 – Q1–2 2025	SO1,3
Design (interactive) reporting options for operational situations	Q3–4 2024 – Q1–4 2025	SO1,2,3
Design (interactive) and (real-time) dashboard reporting options for emergency situations	2026+	SO1,2,3

7.4.3 Resources

Implementation and ongoing operation are supported by a dedicated building block management that coordinates and oversees all key actions. Integration activities rely on a combination of internal IT capacity and subject-matter expertise within the team and BfR, supplemented by external developers where required. Data transfer (API) specifications are defined, maintained, and updated in alignment with established workflows and quality standards.

Capacity building has focused on, and continues to include, analytical tools (e.g. R and Python), data visualisation, and GIS, alongside operational expertise in dashboard and interactive tool development. Certain specialised tasks—such as AI- or machine-learning-based product classification—are implemented or supported through external contractors where appropriate

7.4.4 **Risks and Mitigation**

Mitigation measures have included, and continue to include, targeted training of staff in advanced analytical tools, the enforcement of standardised data entry formats, the implementation of AI-based product classification to manage unstructured inputs, systematic mapping of non-standardised data to BfR standards, and the development and execution of regular response simulations to ensure coordinated procedures during chemical threats or crises.

A residual governance-related risk remains in situations where the reporting of product-related risks or legal disclosure obligations of the BfR may overlap with, or affect, services provided by Poison Centres. This may challenge sustainable collaboration and role clarity between BfR and the Poison Centres, which constitute the backbone of the DVR. These issues are addressed through structured dialogue and established governance mechanisms, including the Advisory Board (Beirat), which will be operational during 2026.

7.4.5 Budget and Success Criteria

Budget items have included training costs, the contracting of design and development services for dashboards and product classification tools, and ongoing software licences. Personnel costs cover the in-house expertise required for analysis, quality control, and workflow management as part of routine DVR operations.

Success is assessed based on the establishment and routine application of a functioning and notified data quality control framework, the operational use of early-warning and reporting systems, the availability and use of interactive dashboards for both routine monitoring and emergency situations, and the demonstrated ability to deliver timely, accurate, and actionable reports to stakeholders.

7.5 Dissemination and Capacity Building (CAB)

7.5.1 Scope and objectives

CAB supports and operationalises the translation of registry requirements and outputs into structured collaboration formats, practical working models (e.g. working groups), and the sustained development of human capacities. It also encompasses established best practices for collaboration with internal and external partners who use or contribute to poisoning data, as well as the systematic dissemination of knowledge.

Specific objectives include:

(i) supporting and conducting needs assessments, preparing strategic documentation, and disseminating surveillance results to stakeholders and the public through reports, press releases, infographics, and open information resources;

(ii) organising and maintaining structured information exchange with internal and external partners and DVR users, covering data entry, analysis, and interpretation; and

(iii) building and sustaining regulatory and scientific networks of expertise at national, European, and international levels to share best practices and enable collaborative research.

7.5.2 Deliverables and timeline

The implementation of the DVR focused on four core actions that have been established as routine operational practices. Engagement with data providers—including Poison Centres, medical professionals, and accident insurers—was conducted continuously from Q3 2024 through 2026 and remains an integral component of routine DVR operations, supporting high-quality and comprehensive reporting.

In parallel, information and dissemination tools and associated best practices were developed and implemented jointly with partners, including communication formats targeting the public. These activities commenced 2024 and are maintained and further refined beyond 2026. Strategic collaboration was strengthened through completed stakeholder needs assessments, defined implementation plans, and the establishment of expert networks during both 2024 and 2025.

As of 2026, these activities position the DVR as a functioning national focal point for poisoning data and toxicovigilance, with increasing visibility and engagement at the national and international level, supporting coordinated prevention, preparedness, and response.

Table 5: Key actions, timeline and strategic objectives CAB

Key actions implementation strategy 2024–2026+	Timeline	Strategic Objectives
Data provider engagement as part of the regulatory implementation and development of the DVR (Poison Centres, Medical Staff, Accident Insurers)	Q3–4 2024, Q1–4 2025, 2026+	SO1,2,3
Develop of information and dissemination tools and best practices with partners comprising the public	Q3–4 2024, Q1–4 2025, 2026+	SO1,3
Preparation strategic collaboration and tailored-information exchange by stakeholder need assessments, implementation plans and the setting up of networks of experts	Q2–4 2024 – Q1–3 2025	SO1,2,3
Establishing the DVR as a national and international focal point	2026+	SO3

7.5.3 Resources

The implementation and ongoing operation of the key actions are supported by a dedicated building block management that oversees and sustains long-term collaboration structures. Resources for specific networks, workshops, and engagement formats are allocated, institutionalised, and organised as part of routine DVR operations.

Specialist expertise supports effective and coordinated communication with internal and external stakeholders, including media representatives. Communications specialists contribute to the design and production of outreach and dissemination materials, while subject-matter experts ensure scientific accuracy, consistency, and alignment with the DVR's regulatory mandate

7.5.4 Risks and Mitigation

Risks identified during the implementation and early operational phase included incomplete or variable data quality, temporary reductions in stakeholder engagement, fragmented communication channels, and limited national and international visibility during the transition to routine operation. These shortcomings potentially delay the identification of emerging risks, hinder coordinated responses, and reduce the overall public-health impact of the DVR.

Mitigation strategies have comprised proactive and sustained stakeholder outreach, the phased rollout and consolidation of communication tools and collaboration networks, early identification and resolution of operational and legal barriers, and the use of interim and transitional data-sharing mechanisms to ensure continuity of operations during the implementation phase. These measures are now embedded in routine dissemination and capacity-building activities and are subject to continuous review and improvement.

7.5.5 Budget and Success Criteria

Budget allocations have covered personnel costs for management, communication, and technical expertise, as well as operational costs associated with stakeholder networks,

workshops, and the development and maintenance of dissemination tools. Additional resources have supported media engagement and the production of high-quality outreach and communication materials.

Success is assessed based on the number and diversity of actively engaged data providers, the operational readiness and routine use of dissemination tools, the establishment and sustained functioning of collaboration networks, and the recognition of the DVR as a national focal point for poisoning data and toxicovigilance, with increasing visibility at the international level.

7.6 Policy Integration (POLI)

7.6.1 Scope and objectives

POLI ensures and operationalises the alignment of the DVR with relevant national and international regulatory frameworks and contributes to evidence-informed policy. Its objectives include the integration and application of principles derived from international conventions, agreements and regulations, as well as compliance with the General Data Protection Regulation (GDPR).

The building block also supports active collaboration and harmonisation with national and European initiatives and infrastructures on Toxicovigilance, and the application of WHO toxicovigilance tools and networks. The activities strengthen policy coherence and enabling future interoperability with pan-European poisoning registry initiatives.

7.6.2 Deliverables and timeline

The DVR has implemented a series of targeted actions to strengthen its policy relevance and impact. A science-to-policy value-chain framework was established between Q3 2024 and Q3 2025, enabling the systematic translation of DVR data into actionable policy recommendations.

The framework of the legally required DVR Advisory Board and its associated collaboration network was established between Q4 2024 and the end of 2025, thereby consolidating stakeholder involvement and governance processes. In parallel, science-to-policy pilot projects were defined from Q3 2024 onwards and initiated, with further implementation continuing beyond 2026 in collaboration with DVR´s national, EU and WHO partners.

Table 6: Key actions, timeline and strategic objectives POLI

Key actions implementation strategy 2024–2026+	Timeline	Strategic Objectives
Establish value chain science-to-policy framework	Q3–4 2024 – Q1–3 2025	SO1,3
Establish DVR Advisory Board and collaboration network	Q4 2024 – Q1–4 2025	SO1,3
Develop (and implement) policy influence pilot project(s)	Q3–4 2024 – Q1–4 2025, 2026+	SO1,3
Scaling integration initiatives	2026+	SO1,2,3

Continuous improvement and adaptation and increasing national and European impact	2026+	SO1,2,3

7.6.3 Resources

Successful implementation and ongoing operation are supported by a dedicated building block management that coordinates key actions to ensure effective science-to-policy support of the DVR at both national and European levels. Essential resources include established representation from ministries responsible for health, environment, chemicals, and defence; formal documentation demonstrating compliance with relevant international and national chemical and data-protection regulations; and standardised, operational models that enable secure data sharing while safeguarding data ownership and privacy.

Mechanisms are in place to regularly inform policymakers of DVR evolutions and outcomes and to integrate policy feedback into continuous operational improvement. Active participation in European initiatives and ongoing alignment with WHO toxicovigilance tools and networks further support policy coherence and support of pan-European poisoning registry structures.

7.6.4 Risks and Mitigation

Key risks identified during implementation and early operation included remaining ambiguities in the interpretation and application of chemical, environmental, and data-protection legislation, potential conflicts between regulatory requirements, and delays in concluding formal agreements with stakeholders.

These risks have been addressed, and continue to be managed, through early and sustained engagement of legal experts and policy analysts, proactive cross-stakeholder coordination, and the development and application of standardised agreement templates to expedite procedures. Early and continuous partner engagement, combined with transparent communication of the DVR's added value and legal framework, has reduced delays, uncertainty, and resistance and remains an integral element of ongoing governance.

7.6.5 Budget and Success Criteria

Budget items have covered the establishment and maintenance of stakeholder networks, participation in national and international meetings, and the preparation and regular updating of strategic and policy documents. Personnel costs cover the expertise required within the DVR team to support routine policy-integration activities.

Success is assessed based on the timely completion of key actions, the number and diversity of formally engaged stakeholders, the demonstrable integration of DVR outputs into policy and regulatory processes, continued compliance with applicable legal requirements, and measurable progress towards national and European toxicovigilance integration.

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About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the German Federal Ministry of Agriculture, Food and Regional Identity (BMLEH). It protects people's health preventively in the fields of public health and veterinary public health. The BfR provides advice to the Federal Government as well as the Federal States ('Laender') on questions related to food, feed, chemical and product safety. The BfR conducts its own research on topics closely related to its assessment tasks.

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