



Effective and Innovative Practices among European Civilian Firearm Registries

Emile LeBrun
Aline Shaban

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CREDITS

Authors:

Emile LeBrun, Small Arms Survey

Aline Shaban, Small Arms Survey

Contributors:

Callum Lloyd, Arquebus

Adrian Whiting, Arquebus

Gabrielle Op 't Hoog, Ecorys

Jan Essink, Ecorys

Mois Faion, Center for the Study of Democracy

Vladislav Krastev, Center for the Study of Democracy

Tihomir Bezlov, Center for the Study of Democracy

Fact-checker:

François Fabry, Small Arms Survey

Copy-editor:

Erin J. Brewer, Small Arms Survey



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Penu Kiratzov

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The active engagement of the project's beneficiaries was instrumental in the success of the research presented here and is reflected in various sections of this report. Beneficiaries answered a questionnaire, hosted the REGISYNC team in their home country, participated in one of the law enforcement agency (LEA) workshops organized in June 2023, and provided comments on the report.¹ The beneficiaries represent Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Kosovo, Lithuania, Luxembourg, Moldova, Netherlands, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, and Ukraine. We also extend our thanks to The International Criminal Police Organization (INTERPOL) for participating in the LEA workshops.

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Finally, the authors, contributors, and reviewers have taken particular care in compiling this report; however, given the participation of fewer than the total number of possible beneficiaries, it should not be considered exhaustive of all practices encountered in the region.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANSI	American National Standards Institute
ABIS	Automated ballistic identification system
API	Application programming interface
CFRT	Canadian firearms reference table
CoEU	Council of the European Union
CSD	Centre for the Study of Democracy
CSV	Comma-separated values
DMG	Dealers, manufacturers, and gunsmiths
EC	European Commission
EIS	The Europol Information System
EFE	European Firearms Experts
EFP	European Firearms Pass
EMPACT	European Multidisciplinary Platform Against Criminal Threats
ESS	Electronic services system
eTRACE	Electronic Tracing System
EU	European Union
EUR	Euro
Europol	European Union Agency for Law Enforcement Cooperation
FMJ	Full metal jacket
FRT	Firearms Reference Table
GPS	Global Positioning System
iARMS	Illicit Arms Records and Tracing Management System
ID	Identification
IFRT	The International Criminal Police Organization Firearms Reference Table
INTERPOL	International Criminal Police Organization
ISF	Internal Security Fund
ISO	International Organization for Standardization
IT	Information technology
LEA	Law enforcement agency
NFFP	National Firearm Focal Point
NWR-IDs	National Weapons Register identification numbers

OS	Operating system
QR	Quick response
RCPM	Royal Canadian Mounted Police
REGISYNC baseline study	<i>National Civilian Firearm Registries: Common Practices Identified in a Survey of Selected Beneficiaries</i>
SIENA	Europol's Secure Information Exchange Network Application
SIS II	Schengen Information System
SOCTA	Serious and Organized Crime Threat Assessment
SPoC	Single point of contact
UMF	Universal message format
UN	United Nations
UN-IAQF	United Nations Illicit Flows Questionnaire
UNODC	UN Office on Drugs and Crime
URN	Unique reference number
UTF8	Unicode Transformation–8-bit
XML	Extensible markup language

EXECUTIVE SUMMARY AND KEY FINDINGS

The fight against illicit firearm proliferation and misuse in the EU and its regional neighbors is a multifaceted challenge. This challenge encompasses the diversion of arms from national stocks and actors; trafficking from inside and outside the region; the illicit manufacture or transfer of parts, components, accessories, and ammunition; and the conversion of alarm, signal, acoustic, and air guns.

An equally important dimension is the administration, management, and control of legally held civilian firearms, thus typically excluding law enforcement and military arms. Ensuring national authorities have visibility and insight into the import, sale, use, export, or destruction of all legally held firearms across their life cycle is essential in preventing civilian firearm movement into the illicit market and subsequent misuse or violence. The EU Firearms Directive (CoEU and European Parliament, 2021) establishes minimum standards for civilian firearm registry elements within the EU to develop common measures, set the conditions for harmonization, and facilitate information exchange between national registries.

Over the last few years, the national authorities of EU Member States, countries in the Western Balkans, Moldova, and Ukraine have taken steps to reform, update, and modernize their national firearm registries. But until now, there has been no assessment of these steps, current practices, motivations, or obstacles towards modernization. As this project launched before the war between Russia and Ukraine began,² concerns over the trafficking and legal control of firearms have only increased in the region, especially for states near the conflict zone.

Over 2022–23, the REGISYNC project has engaged beneficiaries in 35 countries in the European Union, Western Balkans, Moldova, and Ukraine to understand current civilian firearm registry practices and to identify particularly innovative and effective measures beyond common standards.

An initial assessment of common practices identified in an earlier phase of this project³ made the following observations:

- Based on data from 21 beneficiaries, at least ten applied the EU Firearms Directive A, B, or C categorization; had legislatively defined essential components; and had a designated authority that owns and is responsible for updating registry data.
- Personal data within a civilian firearm registry typically includes names, addresses, and relevant dates associated with dealers or manufacturers, brokers, and owners. Some registries go beyond these parameters.
- Firearm data contained in the registries typically includes the brand, type, model, calibre, and serial number. Information on the essential

components, other than the frame and the receiver, is also frequently included, as is information on firearms modified to salute an acoustic expansion and limited circulation, collection, deactivated, or signal-blank firearms.

- A significant number of registries include linkages with other databases and tracing capabilities. This linkage partly explains why it is possible to trace weapons from import to the last legal owner in many registries, although tracing is not necessarily a function of the registry itself.
- In most cases for which data was available, firearm manufacture and destruction records are held for at least 30 years; other records are held for at least 20 years.
- Most registries have security procedures in place to access the system to enter, edit, or view data and use similar database technology and operating systems.
- The ability to produce statistical reports from the data in the civilian registry is a typical feature of many registries. While some authorities develop and routinely make reports available, other cases require a request.

Based on subsequent in-depth exchanges with nine beneficiaries concerning registry practices that go beyond the common standards,⁴ key findings presented for the first time include the following:

- A few beneficiaries have developed or deployed standardized information exchange formats for firearms, firearm components, and user records that greatly simplify agencies' ability to communicate with each other about specific cases. Notably, several states employ a Firearms Reference Table (FRT), and Germany's XWaffe system provides an example of a global language code for specifying specific firearms and components, permits, holders, and other essential registry elements.
- Many beneficiaries have established transportation and transit monitoring functionalities in their civilian firearm registries. These functionalities include monitoring parts, components, and complete firearms between factory or import and storage facilities, distributors, and retail locations. Additionally, they provide holistic, real-time Global Positioning System (GPS) visibility to this part of the firearm life-cycle. Perhaps the most sophisticated system researchers reviewed was that of the Czech Republic.
- Beneficiaries that have engaged in multisectoral consultations and engagements—including with firearm manufacturers, distributors, retailers, and civilian end-users—appear to develop or enhance registries in ways that are responsive to a wide range of stakeholders, with the result of improving cooperation between authorities and private actors. Documentation of extensive consultation processes provides examples from the Czech Republic, Germany, Kosovo,⁵ and Lithuania.

- Beneficiaries pointed to several motivations for updating and refining their civilian firearm registries. The most prominent motivations were to digitalize and enhance the delivery of e-government services more broadly and for conflict-related security concerns. The latter was most common in beneficiaries near or affected by the Russia-Ukraine conflict. Others were motivated by the need to implement the EU Firearms Directive quickly and to have efficient record-keeping systems to support the activities of the National Firearms Focal Points (NFFPs).
- Some beneficiaries described blockages to ongoing improvements to their civilian firearm registry systems, most notably insufficient national legislative frameworks and funding gaps.
- Although test-firing programmes are not common, entail costs, and have yet to record many matches and successful prosecutions, this activity could eventually support investigations and provide additional deterrence for civilian owners to misuse their firearms. Empirical research on the benefits and drawbacks of these programs would be welcome.
- Additional research to fill out the picture of registries, including registries not engaged to date, could provide additional insights and good practices relevant to the EU region and beyond. A similar survey of beneficiary licensing practices and an assessment of the natural person data elements captured for firearm licensing would also be of value.

I. INTRODUCTION

The publication of this report is part of the REGISYNC project,⁶ which aims to assess the standards of civilian firearms registries and to contribute to improving information exchange among EU member states, Southeast Europe, Ukraine, and Moldova. REGISYNC is implemented jointly by Arquebus Solutions Europe (Arquebus), the Center for the Study of Democracy (CSD), ECORYS Europe EEIG–GEIE (ECORYS), and the Small Arms Survey through the Graduate Institute of International and Development Studies.

This report builds on previous research conducted by the project partners and captured in the background paper *National Civilian Firearms Registries: Common Practices Identified in a Survey of Selected Beneficiaries* (REGISYNC baseline study). The background paper can be found in the Annexe, with elements referenced throughout this report. Below, the Methodology section provides further information about the scope of research conducted under this project.

II. BACKGROUND

National civilian firearm registries are record-keeping systems typically located within ministries of interior, in which the state exercises its authority over the civilian licensing, purchase, and sale of firearms in conformity with national law. Within the EU, the minimum requirements in the EU Firearms Directive guide firearm registries. The current Directive 2021/555, codifying Council Directive 91/477/EEC of 18 June 1991, sets basic standards for civilian firearm acquisition and possession within the EU.⁷ While EU member states are obliged to implement these minimum requirements into national law—a process that sometimes takes years to conclude—they are generally free to adopt supplemental rules and regulations.⁸ For example, the EU Firearms Directive provides little guidance on the carrying of firearms by civilians, creating considerable variation among national legislation regarding authorizations to carry.⁹

Since the EU Firearms Directive requirements are functional (procedural) rather than technical, the way member states implement their civilian firearm registry measures also varies. National registries in Europe do not all use the same technology and features or enjoy the same modalities of information sharing between relevant agencies. Information exchange is a critical capability for firearm registries as information on new civilian firearm purchase requests, denied licences, or lost, stolen, or recovered firearms should be instantly available to several relevant, authorized agencies. Informing possible improvements on information exchange, both at the sub-national level—where licensing typically occurs—and the national and international levels, is a central concern of REGISYNC and is the focus of an associated policy paper from this project.

At the outset, it is important to state that this assessment is based primarily on the inputs and experiences of the administrators, staff, and ministerial users of a selection of civilian firearm registries. The research team prioritized their perspectives as they are the practitioners and experts best placed to judge the merit of specific registry features and to identify changes that would improve their effectiveness. The REGISYNC project, therefore, refrained from applying external criteria of effectiveness and innovation. The following sections discuss this approach.

III. METHODOLOGY

Box 1. Note on terminology

Project REGISYNC focuses on legal firearms in civilian circulation rather than those possessed by members of the military or police for the performance of their duties. Of note, however, is that registries may contain details of weapons seized by law enforcement or handed in by civilians, which may be ‘illicit’. National registries may also hold details of weapons other than those defined as ‘firearms’ in Article 1 of the EU Firearms Directive (CoEU and European Parliament, 2021). For example, alarm and signal weapons designed and used for that purpose. Given that this project examines the registries concerning the legal possession of firearms by civilians, this report refers to the registries as ‘civilian firearm registries’. It sometimes uses the terms ‘firearm registries’ or ‘registries’ for explicit reference.

Previous work conducted under the REGISYNC project to establish direct contacts with the civilian firearm registries—referred to as beneficiaries—of EU Member States, plus six Western Balkan countries, Moldova, and Ukraine, facilitated the development of this report.

Thirty-five beneficiaries received a questionnaire to generate baseline data on registry practices. Of these beneficiaries contacted at the project’s onset, 21 agreed to participate and share information. Those that agreed were Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Kosovo, Lithuania, Luxembourg, Moldova, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, and Sweden. Based on the data received from these beneficiaries, a preliminary report on common practices was drafted and submitted to the European Commission (EC) in December 2022 (see Annexe).

Subsequently, the REGISYNC partners assessed the practices documented in the 21 beneficiaries’ questionnaires, highlighting those that went beyond common standards and might be deemed innovative. The methodology for selecting the case studies of beneficiaries with ‘effective and innovative practices’ is based on the considerations described below. Selection criteria for ten case studies were discussed between the project partners at the Second Methodological Workshop on 8–9 November 2022 and validated by the project’s advisory committee.

Consideration of the following practices and factors guided the selection of the case studies:

- Evidence of sophisticated technological platforms or interfaces for engaging users and stakeholders
- The presence of linkages between the private sector’s internal system and the civilian firearm registry through an application programming interface (API)

- Direct linkages to other domestic information systems, such as criminal records
- Direct linkages to international information systems such as the Schengen Information System (SIS II)
- The possession of a separate tracing dataset
- The use of a Firearms Reference Table (FRT)
- A recent update or upgrade of the civilian firearm registry
- Advanced statistics and reporting tools integrated into the registry
- Geographical diversity of case study beneficiaries across Western, Central, and Southeastern Europe, and EU and non-EU beneficiaries
- Beneficiaries' demonstrated willingness or interest, as well as availability in sharing good practices

Utilization of these criteria generated a pre-selection of 15 beneficiaries for the case studies. The case studies included Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Estonia, France, Germany, Greece, Kosovo, Lithuania, Moldova, Portugal, Slovakia, and Slovenia. After that, REGISYNC distributed requests for field visits to ten beneficiaries through the National Firearm Focal Points (NFFPs). Engagement with officials and staff at various levels occurred during the field visits:

- Technical, where registry functions are created, implemented, and utilized;
- Operational, which is the utilization of registry capabilities for law enforcement objectives and criminal intelligence purposes; and
- Management or Policy, with consideration of policy responses to firearm-related trafficking and violence that require registry data or improvements to registry features.

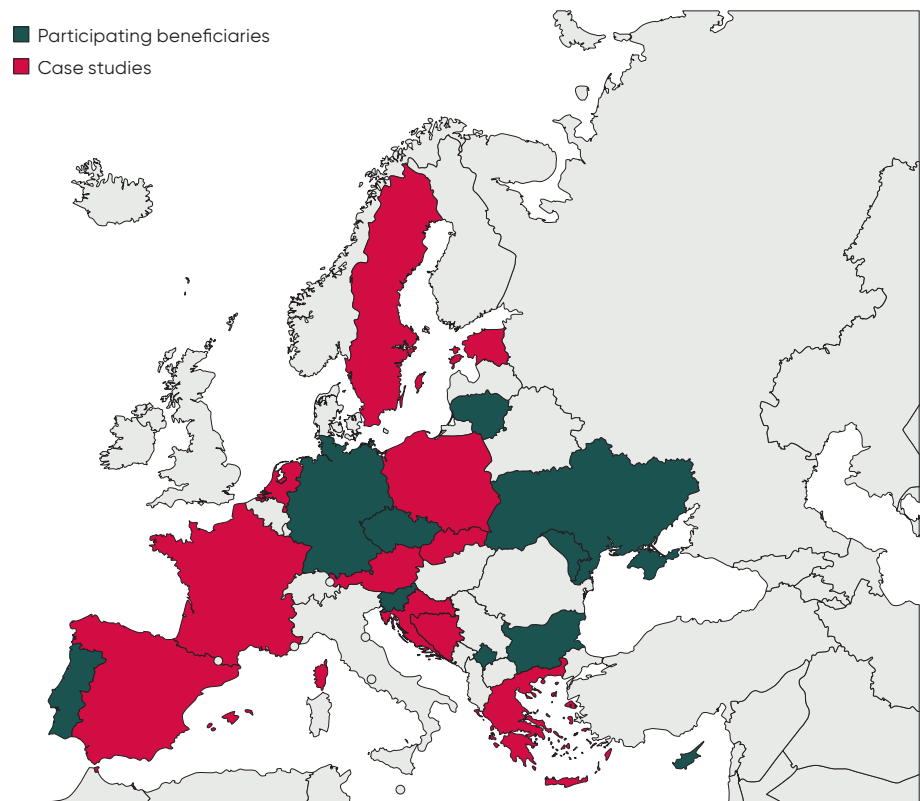
The REGISYNC project partners developed a guidance document for the interviews that was flexible and responsive to the specific features of beneficiaries' registries to be captured in the case studies. Questions addressed *usage*—use of registry components for different objectives, *utility*—examples of the use of registry capabilities for investigations and other purposes, and *needs*—what is needed to improve specific elements of the registry. Capturing the perceived practical value of specific registry features, or combinations of features, for criminal analysis and preventing firearm crime and violence was particularly important for the case studies. Emphasis was also laid on information exchange and interoperability in and between beneficiary states.

In the end, REGISYNC teams conducted nine site visits lasting between a half-day and two full days for the following beneficiaries: Bulgaria, Cyprus, Czech Republic, Germany, Kosovo, Lithuania, Moldova, Portugal, and Slovenia. Although communication and exchanges also took place with representatives

in Bosnia and Herzegovina, Estonia, France, Greece, and Slovakia, these exchanges did not lead to site visits or in-depth interviews.

The start of the conflict in Ukraine resulted in a break in contact with the national firearm registry there. In early 2023, however, it was announced that Ukraine would be making significant changes to its national register. Ukrainian registry representatives joined the REGISYNC law enforcement agency workshops in June 2023, during which a presentation of the initial findings of this research occurred. The current report reflects exchanges with Ukrainian officials held at those sessions and considerations from other beneficiaries shared during those workshops.

Map 1. Beneficiaries' participation to the REGISYNC project



Finally, an effort was made under this project to engage other relevant national authorities whose mandates touch on legal firearms, especially NFFPs.¹⁰ In some jurisdictions, NFFPs are key intra-government agencies or desks that bring different kinds of data together for the analysis, development, and dissemination of intelligence products designed to support criminal investigations and monitor trends in firearm proliferation and violence.¹¹ Interviews with representatives from the dealers, manufacturers, and gunsmiths (DMG) sector also took place in countries that indicated a connection between their central registry and the private sector's internal systems. Nearly fifty stakeholder consultations transpired during the nine visits. Additional insights gathered at the law enforcement agencies (LEA) workshops on 19 and 21 June 2023 supplemented the findings of the present paper.¹²

While the project successfully engaged 21 of 35 of the targeted jurisdictions, and was able to conduct deep dives with nine of them, some advanced registries were not fully engaged. For this reason, the report should not be considered definitive, fully representative, or exhaustive.

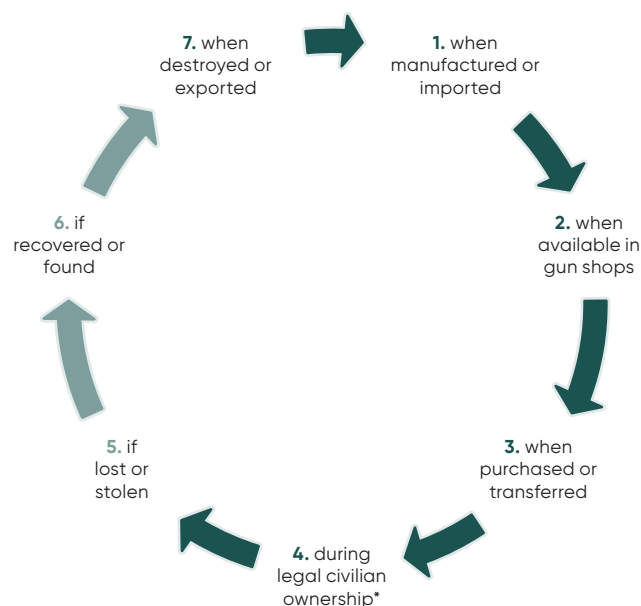
Future efforts to engage other beneficiaries with a strong reputation for registry practices would enhance and supplement the findings. Nevertheless, this study represents the most up-to-date study of its kind as of late 2023.

IV. THE LIFE-CYCLE FIREARM REGISTRY CONCEPT

The REGISYNC project emerged to support the development and elaboration of so-called ‘life-cycle firearm registries’. While some registry officials have used this term, it does not have an agreed definition or universal usage. It generally refers to the ability of the registry to manage civilian firearms from the moment they are manufactured or imported and made available to the legal market until the moment they are disposed of—for instance, by destruction or deactivation—or transferred outside the registry’s jurisdiction by export. Between these endpoints, several intervention or visibility moments can occur. The more such moments are visible to the registry, the more oversight the system can exert over the firearms and their owners.

The practical value of the life cycle¹³ firearm registries concept (Saferworld, 2012) is to provide a structure and framework for understanding where additional oversight moments may be needed to prevent or respond to firearm loss, theft, and other forms of diversion into the illicit market. In the past, it was considered sufficient—and within technological and human resource constraints—for law enforcement to be able to ‘see’ a firearm at specific high-risk moments in its life cycle, such as at the point of initial sale or during private transfers. Conversely, it has increasingly become possible and feasible for registries to have the capacity to identify the location and status of all civilian firearms at any moment in time. Ideally, the registry should capture data throughout all stages of the firearm life cycle and changes in the legal status of a firearm. For example, ‘during legal civilian ownership’, there might be instances where the modification of a firearm changes its EU Firearms Directive category.

Figure 1. Key stages of the firearm life cycle



* Including if modified or deactivated, which implies a change in the firearm category.

The licenced users associated with the firearm should ideally also be identified and linked to that data at each stage. REGISYNC's main interest from an information management perspective is to explore how much of this information a registry captures, if and how crime prevention and investigations leverage this information, and whether there are problems the registry cannot currently address given missing data, linkages, or processes. For example, registries without direct links to criminal records might prevent licensing staff from effectively stopping unauthorized users from obtaining licences; registries not linked to mental health checks might miss opportunities to decline applications based on histories of severe mental illness. Ultimately, a registry serves as a tool for documenting the entire life cycle of every registered civilian firearm in a territory. Key phases in a firearm's lifespan include manufacture, import, initial purchase, changes of ownership, alterations, assessments, and eventual outcomes such as deactivation, seizure, destruction, or export.

While this report and project have focused on firearms, in principle, a life-cycle registry can also encompass firearm ammunition. That is the intention, for example, in Lithuania, where the beneficiaries are currently developing and testing this capability, with an expected launch in late 2023. Once implemented, the firearm registry will enable centralized records of ammunition imports, holdings, and sales by the dealers. In addition, and as required by the EU Firearms Directive,¹⁴ many jurisdictions record and track the life cycles of essential components and controlled accessories (CoEU and European Parliament, 2021); however, the way in which these are recorded within national registries differs.

V. COMMON REGISTRY PRACTICES

Before highlighting practices considered innovative or effective according to beneficiaries, describing the baseline of registry practices or ‘common standards’ is essential. The latest EU Firearms Directive sets out the very minimum *legal* standards of a registry. Identification of the *actual* common standards occurred through empirical investigations with stakeholders.

Based on the research methodology described above, the REGISYNC project partners were able to scope an initial baseline of registry practices. These practices draw from the responses of 21 beneficiaries to a questionnaire sent to 35 national agencies, as well as from follow-up interactions. These elements are discussed below and explored in more detail in the Annexe.

Common practices¹⁵ included an A, B, or C categorization of firearms, legislatively defined essential components, and an authority—typically the ministry of interior—that both owns and is responsible for updating registry data.

Most registries also have security procedures to access the system to enter, edit, or view data, and typically use similar database technology and operating systems (OS). Firearm data contained in registries typically includes the brand, type, model, calibre, and serial number. Information on the essential components, other than the frame and the receiver, is also frequently included, as is information on firearms modified to salute an acoustic expansion and limited circulation, collection, deactivated, or signal-blank firearms.

Personal data contained in the registries typically includes names, addresses, and relevant dates associated with dealers or manufacturers, brokers, and owners; some of this data goes beyond the EU Firearms Directive’s requirements, which refer only to names and addresses. As per the current EU Firearms Directive, the European Firearms Pass (EFP) contains information on the identity of the holder, such as date, place of birth, nationality, and licensee photographs requested at the time of application.¹⁶ The gap between data requirements in registries and the EFP suggests that a common EU-wide natural persons dataset structure for civilian firearm registries would have merit.

Table 1 provides a snapshot of the type of information beneficiaries typically record in their civilian registries.¹⁷ The current EU Firearms Directive offers minimum guidance on information to be recorded, as described in para. 12:

‘(12) The records held in the data-filing systems should contain all information allowing a firearm to be linked to its owner and should record the name of the manufacturer or brand, the country or place of manufacture, the type, make, model, calibre, and serial number of the firearm, and any unique marking applied to the frame or receiver of the firearm. Essential components other than the frame or receiver should be recorded in the data-filing systems under the record relating to the firearm to which they are to be fitted.’

(CoEU and European Parliament, 2021, para. 12)

Some states go beyond these minimum standards to develop a record-keeping system that will allow them to link a firearm to its owner more efficiently. Similarly, because the EU Firearms Directive does not specify *what* kind of information the private sector must share with national authorities and *how* to share it, there are significant variances among beneficiaries in these areas.

Table 1. Types of information recorded in a registry

Firearm*	Ammunition**
<ul style="list-style-type: none"> • Manufacturer • Country of manufacture • Type • Make • Model • Calibre • Serial number • Unique marking • Category and subcategory • Date of sale, receipt, repair, transfer • Method of acquisition • Proof house • Proof mark • Additional calibre(s) 	<ul style="list-style-type: none"> • Manufacturer • Place of manufacture • Calibre • Lot/batch numbers • Quantity • Photographs • Bullet nature (e.g., FMJ) • Bullet weight • Propellant weight • Nature of propellant • Additional markings • Images
Individual	Legal person or DMGs
<ul style="list-style-type: none"> • First name and last name • National id number • Date of birth • Place of birth • Address • Citizenship • Gender • Names of parents <p>Document</p> <ul style="list-style-type: none"> • The type, number, date of issue, and validity of the weapons document, • The name of the issuing authority. Information relating to changes and data relating to the transfer of ownership (type of change, date) 	<ul style="list-style-type: none"> • Uniform identification number • Company name • Registered address • Business activity • Date of commencement of activity or date of issuance of authorisation • First name and surname of the representative or responsible person • Data relating to changes (type of change, date) • Data on entry (authority, date, reference number)

* Bold typeface represents the minimum information requirements set out in the EU Firearms Directive.

** Recording details on ammunition is unusual and was found in only one beneficiary's registry.

A significant number of registries include linkages with other databases and possess tracing capabilities. This linkage partly explains why it is possible to trace weapons from import to the last legal owner in many registries, although tracing is not necessarily a function of the registry itself. In terms of storing records in the registry, in most cases for which data was available, firearm manufacture and destruction records are held for at least 30 years; other records are held for at least 20 years.

Finally, the ability to produce statistical reports from the data in the civilian registry is a typical feature of many registries. While some authorities develop and routinely make reports available, other cases require a request.

VI. EFFECTIVE AND INNOVATIVE PRACTICES

Although the EU Firearms Directive establishes legal standards for minimum firearm registry elements, member state institutions can elaborate on these functional elements in their own ways. Meanwhile, no externally imposed objective definition of what is ‘effective’ or ‘innovative’ about registries exists. These aspects are context-dependent and continuously evolve in response to the changing context of national legislative frameworks for firearms, the crime context, related e-government modernization processes, and other factors. For this reason, unlike the REGISYNC baseline study (see Annexe), this paper does not provide quantitative data on the prevalence of specific practices among different beneficiaries. Instead, it provides a purely qualitative set of observations.

Innovation can include not only advanced technological features but new approaches or processes that go beyond traditional practices. For this reason, it was essential to engage in dialogue with stakeholders from selected countries to provide them space to articulate for themselves what features or approaches they considered particularly valuable, useful, and effective in the functioning and deployment of their registry.¹⁸

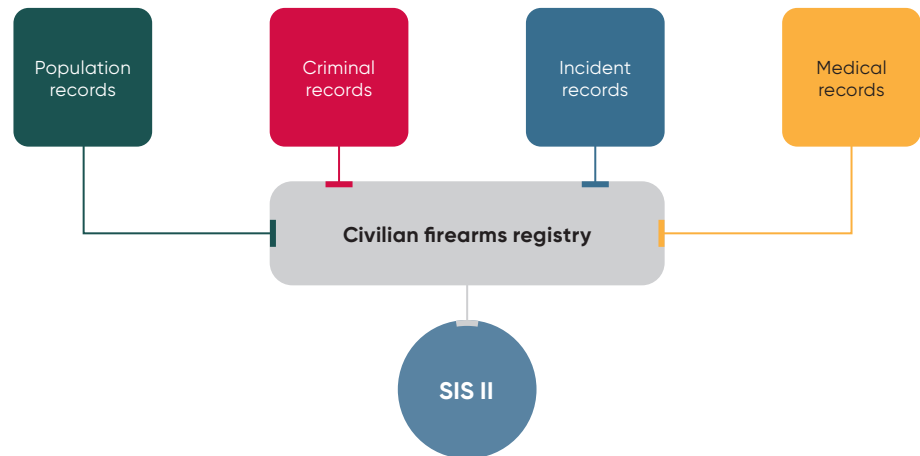
This section highlights characteristics especially sought after in a civilian firearm registry and provides examples that contribute to their enhancement, according to the national stakeholders themselves. For example, field research reveals that a modern and efficient registry must be interoperable with selected databases, adaptable to evolving threats and legislative requirements, and secure, fast, robust, and customizable to the country’s needs and context. According to beneficiaries, these elements can improve the effectiveness of the registry across the life cycle of civilian firearms.

Interoperability. Generally, interoperability can be understood as ‘the ability of information systems to exchange data and enable sharing of information’ (CoEU, 2017). Various tools and information technology (IT) mechanisms exist to establish such connections based on the systems and their characteristics. To connect two different systems, for example, the use of APIs allow a ‘client’ (database A) to securely connect to a ‘server’ (database B) by establishing common protocols and definitions. The subject of interoperability has been consistently discussed and promoted in the EU space in past years (CoEU, 2021a), where it has been foregrounded as a key feature of a modern registry. Thus, this dimension formed a key element in the terms of reference for the REGISYNC project.

Interoperability is a broad concept that is applicable in the context of information exchange between international databases, domestic databases—between systems from the same jurisdiction, and domestic and international databases. Discussion of civilian firearms registries with stakeholders reveals that interoperability is frequently present at the domestic and international levels with relevant databases such as SIS II (see Figure 3). Automation provides several advantages, for instance, increased productivity and

efficiency, reduced human errors, and a reduction of staff costs in some cases. Examples of interoperability with domestic databases such as population registry, criminal records, incident records, and medical records are below.

Figure 2. Useful connections in a civilian firearm registry



First, most registries have links to the national population records and residency database. These linkages allow the registry to auto-populate certain fields for the firearm applicant and enable licensing officers to understand who lives at an address with the firearm licence applicant or holder.

In addition, it is good practice to have law enforcement systems, including criminal records, linked to the registry. In Lithuania, for example, the police information system and the criminal records system can send alerts to the registry as necessary. These alerts allow licensing officers to understand the suitability of licence applicants while processing applications in the registry, in addition to revoking licences should an individual's suitability change, such as if an individual commits domestic abuse or other violent crimes. The registry in Lithuania also allows patrol officers to access registry information via search engines by using mobile devices. This access allows police officers to establish an individual's licence conditions without requesting information from control rooms, saving significant time. In most jurisdictions surveyed, police patrols need to call their headquarters to check the registry data, for example, when they find a gun in a car.

In Kosovo, an API link between the **police event and case management system** and the registry allows the system to notify users if a person—whether listed in the database as a natural person or officer of a legal entity—is flagged as a suspect in a criminal procedure. As in the UK, individuals in Kosovo can be tagged as suspects in the system without a prosecutor declaring them as such. The notification flags the suspect's status but not the case details, as there is no need to keep these in the registry, and is triggered when a case is open and under investigation. Ministry staff can then act on the notification and take any preventative action, such as directing the police to conduct a pre-emptive seizure of firearms and ammunition. Although not currently implemented, registry officials discussed the possibility of future

development of this feature, such as the preventative seizure of firearms from civilian licence holders in the event of a notification of a domestic violence accusation. This feature would require legislative change, however.¹⁹

In Romania, for example, both the criminal records and the incident databases are linked to the central registry. While the former requires a criminal offense to take place for a notification to show on the registry, the latter would send a notification in the registry once a firearm holder or applicant is involved in an incident that is incompatible with the legal conditions to carry or use a firearm (violent incidents, threats). When there is a report of this type of incident, a call to the police is made to seize the weapons and investigate the situation.²⁰

In Lithuania, the registry system is also linked to the **electronic health records system**. This linkage means that the applicant obtains a medical suitability certificate to enter into the registry, which is also placed into the health services system by the applicant's doctor, and can act as a notification to medical professionals indicating that the individual may have immediate access to firearms and ammunition. This approach enables a doctor to send an alert message to the police if the situation requires, for instance, if the applicant suffers from severe mental health issues or substance abuse. For most registries, however, the researchers observed that the medical information is not usually sent to the registry automatically.

In Cyprus, the health department shares the names and public ID numbers of citizens admitted to a psychiatric ward with the firearm registry office at police headquarters on a weekly basis. The firearm registry office at police headquarters cross-checks the names to see if these citizens are in possession of a firearm. If this is the case, the firearm registry office will notify the respective district police, who will prepare the paper for the revocation of the firearm(s). Then, the police will inform the family members that they will confiscate the individual's firearm. Moreover, the firearm registry office will update the individual's account and revoke the eligibility for a firearm licence until further notice. The individual's account will also be updated if the individual does not have a firearm licence as to not issue a firearm licence unless the individual presents a new medical health certificate issued by a medical board.²¹

Note that at least one beneficiary expressed concerns about interoperability between states for civilian firearm registries given the sensitive nature of firearm ownership information and national legal rights. For this beneficiary, it was apparent that the SIS II is the limit of what they allow.

Data security was a constant theme throughout most key stakeholder discussions, as firearm registries handle sensitive data. Updating or upgrading a registry is a delicate process and needs careful planning to prevent data loss or theft. In one case, a beneficiary highlighted that robust information security standards led to the adoption of the extensible markup language (XML) messaging system, which does not provide the ability to attach image files (Government of Germany, 2022).²² Ultimately, a system's functionalities are also influenced by the security standards adopted by the authorities. For a further discussion of security aspects, see Section VIII below.

Box 2. National Firearm Focal Points

In many jurisdictions, firearms-related data, including details about international transfers, civilian ownership, seizures, ballistic evidence, and firearm use in criminal activities, is distributed across agencies and databases that are neither connected nor interoperable. This distribution can inhibit a coordinated approach to firearms-related challenges, which cuts across administrative agencies.

Following the release of its Action Plan 624/2015 on 2 December (EC, 2015), the EU has supported the establishment of NFFPs as a model platform to connect these disparate elements. The NFFP's primary responsibilities are 'to gather analyses and improve the information flow on the criminal use of firearms and their illicit trafficking into and within the member states and across the EU, at a strategic and operational level by a coordinated collection and sharing of information to enhance the intelligence picture and to better inform law enforcement agencies' (CoEU, 2021b, p. 3). As of July 2020, 20 EU Member States and four Western Balkan partners had established some form of firearm focal points (EC, 2020, p. 5). The organizational structure of NFFPs may vary in structure and size, from a single point of contact (SPoC) acting as a 'virtual unit' that serves as the link between various departments working in ballistics, forensics, registries, and investigation, to a centralized multi-agency service.

At the national level, the NFFP must be able to access information systems such as National Intelligence Database(s), National Firearms Licensing Database(s), National Database on seized firearms, and forensic and ballistic database(s). As a minimum at the international level, the NFFP should have access to Europol's Secure Information Exchange Network Application (SIENA) but will also benefit from access to The Europol Information System (EIS), INTERPOL's Illicit Arms Records and Tracing Management System (iARMS), SIS II, and an electronic tracing system (eTrace) (EFE and EMPACT, n.d.). Among other tasks, NFFPs are expected to generate and disseminate firearm criminal intelligence reports and to act as a technical point of contact with the UN Office on Drugs and Crime (UNODC) to fulfil the requirements of the United Nations Illicit Flows Questionnaire (UN-IAQF) (CoEU, 2021b, p. 4–5).

Several beneficiaries highlighted the importance of ensuring that the registries **rapidly respond** to new requests and can process data efficiently, especially when large numbers of simultaneous requests may occur. One beneficiary noted that registry users can become frustrated and annoyed when the registry takes more than a few seconds to update. Therefore, authorities placed high value on designing a system that was as near instantaneous as possible. This design required replacing a queue system—first in and first out—with a more powerful processing system introduced as part of a significant update to the German registry. This registry system updates twice per year and has several back-ups, in addition to multiple testing environments, which allows for robust data security measures and loss prevention. Should the registry fail, operations can move to a back-up copy of the registry with minimal disruption to users.²³

Stakeholders were generally aware that civilian firearm registries are unique to each jurisdiction and that **customizability** around national capabilities and needs was essential. For example, a country with an established arms industry has different needs than one without domestic production. Therefore, equipping the registry with different features from its counterparts may be necessary, such as those allowing manufactures and other facilities to upload inventory data in bulk. Similarly, more than one official language in a jurisdiction may prompt the authorities to develop a multilingual registry. Overall, it was important for stakeholders to have a registry relevant to their domestic context and to have the ability to customize it in terms of content and format.

Decentralized federal governmental structures provide particular challenges to coordination and data-sharing needs when implementing national regulations and obligations. The case of Germany is instructive: The state (Länder) level conducts firearm licensing, with the sixteen federal states having about 550 different licensing bodies.²⁴ Although these agencies may not use the same commercial software platforms, they must all be able to share information. The challenge of ensuring the effective achievement of data sharing under these circumstances contributed to a flexible national recordkeeping system (described below on p. 21).

Advancing the functionalities of civilian firearm registries is not simply a question of accumulating new features; the underlying infrastructure and platform must be capable of being extended without introducing data or structural issues that affect the system's overall performance. **Future-proofing and adaptability** are, therefore, also important features. For example, introducing electronic firearm authorization needs to be supported by a sufficiently strong IT structure.

In the Slovak Republic, where a transition to a new firearm registry is underway, the authorities made a comprehensive assessment of the challenges they face with their current firearms registry, originally created in 2004. Among the main shortcomings of the firearm registry—which included the lack of interoperability between the legal and illegal firearm databases, as well as the national or transnational information systems such as SIS II—was the inability to introduce new functionalities such as the quick identification and traceability of firearms in e-services for citizens and businesses. As noted by the Slovak Republic, ‘any modernization of the relevant records and the associated modernization of documents—for instance, introduction of an electronic firearm authorization or licence, or chip licence—is from the technical point of view not feasible. Implementing new functionalities into the current information and communications technology, which are necessary to implement EU requirements, is a risky, lengthy, and complicated process.’²⁵

To overcome these challenges and adapt to the current environment, the Slovak Republic is proposing a comprehensive approach to combatting the misuse of firearms and crime, which includes a new IT infrastructure, a new hub for experts in illegal firearms with the International T-Class Confederation, and training to increase knowledge and use of international

platforms such as SIENA, EIS, the INTERPOL database, or SIS II.²⁶ Evaluation of the success of the Slovak project might be available in three years (2026) since the Internal Security Fund (ISF) is set up for the period 2021–27.

Above all, the beneficiary consultations highlighted that there is no one-size-fits-all formula for a registry. Although general principles such as interoperability, safety, and accessibility enjoy near universal support, caution is needed when recommending one system or feature over another.

VII. SPOTLIGHT ON SELECTED PRACTICES

This section highlights selected practices that beneficiaries consider important elements in their civilian firearm registries and contribute to enhanced visibility of civilian-held firearms across different life-cycle phases, thereby making strides towards a more comprehensive ‘life-cycle firearms registry’ approach. These practices go beyond those identified in the initial analysis of baseline or common practices (see Annexe). They could form useful reference points for other registry authorities seeking to update or advance their practices, enhance information exchange, and set up systems to facilitate interoperability. Standardized information exchange formats, transportation/transit monitoring, a direct connection between DMG’s and civilian firearm registries, and separate seized, found and recovered databases are discussed below.

Standardized information exchange formats

In line with the EU Firearms Directive, categorizing civilian firearms is an essential element for their regulation in any jurisdiction. An authority’s ability to share information on security-related issues, such as firearms, with another agency or with other states depends on different actors’ ability to speak a common language. In the legal firearms domain, this starts with commonly agreed definitions, a categorization system applied evenly across states, and the use, ideally, of a common FRT to prevent the misidentification of firearms in data-filing systems. It also requires data entry personnel for the registry, generally police officers, to be sufficiently trained in firearm identification.

Firearm Reference Tables are fundamental for the coherent, standardized entry and searching of firearm-related information in registries. According to the REGISYNC baseline study (see Annexe), very few surveyed beneficiaries employ an FRT. The low level of FRT use partly explains why beneficiaries identified data standardization as one of the key challenges for effective registry implementation.

FRTs are also essential for considering the use of international firearm data platforms. The FRT applied by a beneficiary determines, largely, what information enters into platforms and how it is processed. INTERPOL and the Royal Canadian Mounted Police (RCMP) maintain the most commonly used FRTs (INTERPOL, 2017; RCMP, 2023).

The INTERPOL FRT (IFRT), which is connected to the iARMS platform (INTERPOL, n.d.) contains more than 250,000 firearm references and more than 57,000 firearm images with additional information on markings, company histories, or manufacturers’ codes (INTERPOL, 2017)). It is an interactive tool which supports law enforcement officers in clean data entry by identifying the technical characteristics of firearms, which can be categorized by types or actions—unlike certain national FRTs. This interactive tool, in turn, facilitates the cross-border tracing of firearms and

related investigations. Access to IFRT is granted to authorized users in INTERPOL's member countries. The IFRT contains data drawn from the Canadian Firearms Reference Table (CFRT), which INTERPOL regularly updates when there are new CFRT entries.

The Canadian Firearms Reference Table (CFRT) is based on the Canadian regulations and amendments as well as technical assessments of firearms. It is an administrative document that assists domestic and international law enforcement officers in identifying and defining firearms. The CFRT includes approximately 190,000 individual records and has grown over decades, making integrating a user-friendly registry system increasingly difficult. The 195 INTERPOL member countries²⁷ have access to the CFRT, and an open (public) version with more limited information is also available.²⁸ The field visits revealed that several beneficiaries work with national firearm reference tables generally based on the CFRT.

FRTs focus specifically on firearm types, models, and calibres; however, it is necessary to exchange other types of information within the context of life-cycle firearm registries. Other types of relevant information could include specific firearm essential elements—those produced, transferred, imported, and exported on their own—or firearm licence permits, their holders, or specific moments in the life cycle, such as sales and other kinds of transfers.

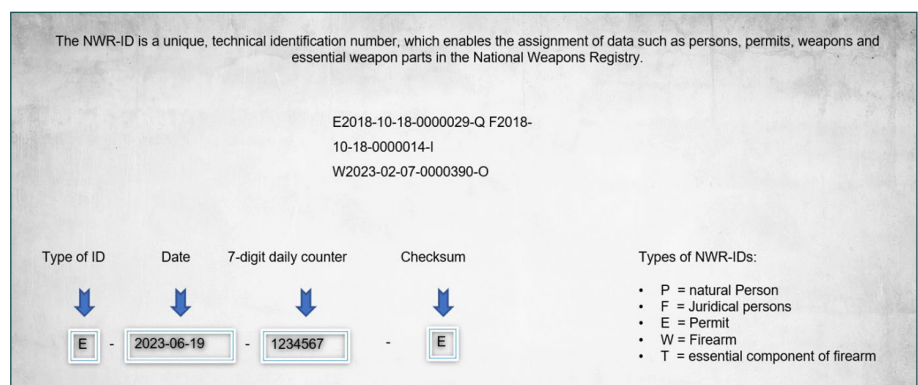
It is perhaps not surprising that an EU member state like Germany—with its political system of federal states that have a large degree of autonomy, as well as a strong national culture of hunting and sport shooting—should have developed a standard information exchange format that would allow state authorities to communicate efficiently and effectively about civilian firearms and their owners.

XWaffe²⁹ is an XML in Public Administration (XÖV) standardization framework³⁰ and the central interface for data exchange in Germany's National Weapons Register II, where essential information on firearm acquisition and ownership is centralized in a single database (Government of Germany, 2023). It allows for the creation of single strings—known as unique reference numbers (URNs) or National Weapons Register identification numbers (NWR-IDs)—that provide a unified description of data relevant to weapon law for all those involved. It also contains binding definitions of associated specialist 'catalogues', such as the FRT. Other similar projects by the EU have emerged in the past, such as Universal Message Format (UMF), which SIENA currently supports (CoEU, 2020, p. 77).

Like other European authorities, Germany uses a custom-made FRT developed in-house. Germany developed the XWaffe in parallel to the first iteration of the national firearm registry to have a system of standardization that better suited their needs. XWaffe has been actively in use since January 2013. Two updates have been released each year since its initial release, and the system is fully available online in XML.

XWaffe uses the customized FRT as well as other dictionaries, such as for calibre and essential components, that the URN includes. Where different calibres share names, the system provides synonyms to group them under common headings. Firearm models are not standardized but remain free text fields in the registry. Five types of identification (ID) numbers are generated: for natural persons, judicial persons, permits, firearms, and essential components (see Figure 4). XWaffe is a Unicode Transformation–8-bit (UTF8) format code, rather than an American National Standards Institute (ANSI) code, so it can accommodate strings of Latin and German special characters, providing a drop-down menu for choosing different alphabets for the same firearm, and will migrate to an International Organization for Standardization (ISO) code by the end of 2023.

Figure 3. Structure of the XWaffe NWR-ID



Source: REGISYNC LEA workshop, 2023

A series of steps specify the relevant code for creating a firearm record in XWaffe format. Each component relies on a catalogue of terms: 1) relevant weapon category in accordance with the EU Firearms Directive and the relevant part of the German firearm law;³¹ 2) firearm type; 3) firearm type detailed classification; and 4) firearm technical design. German importers and exporters have used XWaffe codes, which are freely available, to transmit data since 2019.

As many beneficiaries highlighted the challenges posed by the lack of standardization in entering and retrieving data from registries, that is, among different authorities within a territory to speak from the same catalogue, a system language such as XWaffe could provide lessons for other states. The XWaffe is a bridge for making different information technology systems interoperable. The variances between OS or language are no longer an impediment if they can each receive, decode, and interpret the XWaffe standard format. Considering the international exchange of information in the context of lost, stolen, or recovered firearms, it would be even more important for states to adopt similar languages, vocabularies, and catalogues. This adoption is one area where significant improvements could be made, given that only a small portion of beneficiaries reported even using an FRT.

Transportation or transit monitoring³²

Another particularly innovative practice that this study identified was a dedicated registry module that facilitates tracking firearm parts and components upon import or manufacture in a territory or to storage facilities, warehouses, distributors, or commercial retail outlets. This module is responsive to the large domestic firearms industry in the Czech Republic.

The national legal framework in the Czech Republic stipulates that shipments of more than 100 firearms, or 100,000 rounds of ammunition—and all explosives—must be accompanied by a Global Positioning Tracker (GPS) tracker. Commercial entities have also increasingly implemented the requirements for smaller quantities under these thresholds.

The transportation module, developed by a commercial provider, monitors incoming, outgoing, and in-transit shipments. The rationale for its implementation is to prevent the loss or diversion of arms in transit and provide real-time visibility for shipments of these potentially dangerous goods to facilitate rapid responses, if necessary. According to the beneficiary, there have not been any cases of lost or stolen firearms during transport since the implementation of this module.

The module is not limited to simple GPS tracking but also includes route planning and authorization elements. Commercial entities—that is, manufacturers, dealers, importers, and exporters—are also responsible for planning a transportation route. An initial ‘transportation declaration,’ specifying the quantity and type of arms transferred, must be filed with the authorities no sooner than ten days prior to shipment. Twenty-four hours before the shipment is to occur, the entity must file a second report re-specifying the contents of their shipment. The initial and second reports must match; otherwise, a system flag will occur, and the business entity will be penalized. According to the beneficiary, this rarely happens (single cases over the course of thousands of approved shipments).

An hour before the shipment is on the road and throughout the journey, the system checks road conditions and traffic through the police and national traffic centre. A monitoring dashboard in the operations centre of the police station continually shows all transfers on a real-time map. There is always one on-duty officer responsible for monitoring the platform.

In addition to the police operations centre, the department for firearms and ammunitions also has access to the system to check that legal requirements are met. Moreover, commercial entities and shipping companies can also enter the system to upload relevant data and route plans. Entities may enter the module directly through the firearm registry and foreign companies may access the transport system platform directly. At the time of this research project, about 150 operators, 300 cargo companies, and 100 vehicles were registered in the system.

Extended engagement with the large domestic firearm industry in the Czech Republic has helped achieve module implementation. A dedicated firearm registry helpdesk facilitated this by providing assistance and tutorials. In addition, the police organized numerous workshops.

The beneficiary suggested that other EU states—or, possibly, across all EU member states given the region’s open borders—could implement a transportation module of this kind. However, this type of solution would need to keep in step with and anticipate other modernization processes already underway (see ‘future-proofing’ section above). The most important requirements for implementing this module, they noted, are a proper legislative framework, sufficient funding, and good responsiveness from GPS providers to allow for speedy implementation. For example, the Czech Republic took advantage of the fact that the transport system already integrated many GPS providers, thereby saving time.

Direct connection between DMGs and the civilian firearm registry

In the first phase of the REGISYNC project, 21 beneficiaries answered a questionnaire on all aspects of civilian firearm registry systems, with several indicating that DMGs shared details of their stocks through the central firearm registry. As per the EU Firearms Directive, DMGs are bound by the following provision:

‘The efficient sharing of information between dealers and brokers, on the one hand, and national competent authorities, on the other, is important for the effective operation of the data-filing systems. Dealers and brokers should, therefore, provide information without undue delay to the national competent authorities. To facilitate that, national competent authorities should establish a means of electronic connection accessible to dealers and brokers, which can include submission of the information by email or directly through a database or other registry.’

(CoEU, 2021, para. 17).

Findings in the baseline practices paper (see Annexe) from 13 of 21 beneficiary survey responses suggest that DMGs typically share data with the authorities. However, only four indicated doing so through the civilian firearm registry. The more recent registries tend to invite DMGs to share details on their stock directly into the registry. In legacy systems and others, the procedure is for DMGs to send their data to the police, who update the civilian firearm registry with the information received. Meanwhile, around a quarter of the surveyed participants indicated that DMGs do not share data with national authorities (see Annexe, p. 62).

Further research indicated that the modalities of data sharing with the authorities vary significantly from one country to another and do not always meet the EU Firearms Directive requirement. This variation may be because certain countries are still in a transition process and do not currently possess the IT capabilities for direct data input from the DMG into the civilian firearm registry. The REGISYNC project field visits allowed researchers to delve into more detail about the modalities of data transfer between the DMGs and the national authorities and provide some examples of practices.

Traditional methods of data transfers include manually sharing a comma-separated values (CSV) file using a specified format, where templates and instructions are provided at the point of upload to ensure clarity for users. In

Cyprus and Portugal for example, the DMGs keep their own databases. They share them with the police, who are responsible for examining and inserting the data in the registry.

In Lithuania, the national law on the control of weapons and ammunition obliges DMGs to have a special account in the electronic police portal. Data on manufactured, imported, purchased, sold, or exported firearms must be submitted to the Centralized Register of Firearms by the DMGs. Police can see all changes to the firearm holder online. From the DMG's perspective, all firearms owned by DMGs can be managed in their accounts electronically.

In the case of the Czech Republic,³³ they developed an in-house centralized civilian firearm registry in the police department in 2014. They encourage this approach and consider it cheaper and more flexible as it allows them to know what is inside the system and how it is built. As such, the Czech Republic had programmers who fully dedicated themselves to developing the registry. The Czech Republic has a robust firearm industry, and according to their national law, the DMGs are obliged to keep their records directly in the firearm registry. Accordingly, the barriers are low for companies to comply with the requirements and use the system. DMGs are not required to adopt special software, as all businesses can access the registry via the e-portal when connected to the internet. Around 1,000 company accounts currently use the civilian firearm registry.³⁴

When firearms, parts, or ammunition are produced or imported, the DMGs insert the data on the e-portal, and the authorities immediately receive the information. A lapse of 48 hours can be allowed in case of system failure, but the DMG is then obliged to enter the data manually. Since the DMG is legally liable for any errors in data entry, and can be held accountable for any offenses committed with incorrectly documented firearm(s), they generally avoid manual entry. When a weapon is exported or destroyed, the data stays indefinitely, but records remain in an accessible archive. The system possesses several features. In case of a part replacement or conversion of a firearm, for instance, the system provides suggestions to the DMGs on the type of components to use as replacements, with the most frequent conversion from auto to semi-automatic.

Ultimately, the converted firearm must be brought to the proof house to be tested for safety and validated through the registry once there is a conversion request. Standard firearm purchases where the owner fails to present their firearm to the police within ten days will be automatically flagged in the system by the registry. Bulk uploads are possible, which saves significant time for businesses. According to the stakeholders consulted, establishing a link between the DMG and the civilian firearm registry seems to have benefited the two sectors. While the EU Firearms Directive allows the 'submission of the information by email or directly through a database or other registry' (CoEU and European Parliament, 2021, para. 17), this project's research shows that automated links between the private sector's internal systems and the central registry are the most effective and reliable data sharing method.

Box 3. A separate seized, found, and recovered database

A number of beneficiaries have indicated that a ‘seized, found, and recovered’ weapons registry that conforms to a standardized set of data fields that can contribute to the UN-Illicit Arms Flows Questionnaire (IAFQ) and Europol Serious and Organized Crime Threat Assessment (SOCTA) would be highly beneficial to establish and link to the main civilian firearm registry. This type of dataset would increase the chances of identifying and clarifying the overlap between legal and illicit firearms. On the other hand, one participant favoured keeping databases on seized, found, and recovered weapons separately to establish API links to iARMS.

In Lithuania, in addition to the civilian possession registry, the system also features a registry of firearms recovered or seized and lost or stolen within the territory, with links to the SIS II. In fact, the civilian possession registry and the register of lost and found weapons form one system, ensuring continuity. This system enables LEA personnel to track the entire life cycle of firearms and their essential components. The life-cycle record means tracing requests can be readily performed by the police international enquiries unit and specialist investigators via their registry access. The tracing registry maintains an audit log of all access, searches, and reasons for searches, creating an audit log to provide accountability and oversight.

Serbia possesses its own lost, stolen, and found database. They recently updated it to include recovered weapons, as these weapons were not registered anywhere in the past. They have also further upgraded their database to establish a link with iARMS so tracing can occur simultaneously.³⁵

For some beneficiaries, defining what constitutes as a ‘seized’ firearm requires consideration. In some cases, assessing current practices and developing standard operating procedures would be necessary as a first step in developing a separate tracing dataset.

VIII. REGISTRY IMPROVEMENT CONSIDERATIONS

An important secondary aspect was to understand the underlying motivations and challenges for revising registry processes and elements. Not only was this aspect considered important for unpacking improvements beneficiaries had initiated, but it also helped provide insights for engaging registries that have not been able to upgrade their practices. In short, it was deemed important for contributing to a ‘lessons learned’ exercise.

One clear motivation for registry modernization was advancing efforts to continually reduce the possibility of diversion from the legal to illicit markets, though this was not the only or the most pressing concern. Another driver for modernization was parallel improvement processes leading to broader e-governance systems, as has already been noted. As one beneficiary noted to the project team, ‘the move towards a comprehensive and modernized system in our jurisdiction was a matter of administrative efficiency, and was a government-wide initiative, and had nothing to do with tightening down on gun crime, for example.’

Beneficiaries also emphasized better engagement with the private sector, especially in cases where large domestic production takes place. In short, it was to everyone’s benefit to develop a modern system so each actor could improve their visibility and exert better oversight. Both the registries and the private sector benefit from better visibility of all the shipments coming in and out of the factories, distribution facilities, or points of sale. In addition, as a result of this public-private sector cooperation, the industry shares responsibility, saves time thanks to automatization, and reduces staff-related costs since less data entry is required.

Lithuania’s engagement with private citizens has been modernized through an e-government platform dating back at least a decade. A possession licence can be requested, renewed, or modified through the secure online e-portal using various two-factor authentication options. If an applicant is not computer-literate, or has limited access to the internet, the beneficiary can also process licence applications via a paper-based application entered into the registry by police, but this practice is decreasing in popularity. In 2022, 63 percent of applicants utilized the e-portal. Applicants can also view the status of their licence request and the licensing officer’s decisions via the e-portal. The system generates automatic renewal reminders for licence holders.

In addition to services for natural and legal persons, the electronic services system (ESS) enables concerned citizens to provide information regarding firearm licence holders and applicants. For example, citizens can submit information on domestic violence, aggressive behaviour, mental illness, and unsuitability—such as links to organized crime groups—through the service. Receipt of such information prompts a police enquiry.

Lithuania's online services also allow for the payment of relevant fees, although this is completed outside the registry. Police staff check payments against the reference number given by the applicant. Since the public and police data overviews effectively mirror each other, progress updates for citizens are immediate upon completion of a task or allocation by the police. Citizen user satisfaction levels in this system and regarding service levels appear to be high.

In the Czech Republic and Moldova, there is a strong desire to move to a fully digital system for permits and licences while going free of paper IDs; however, in the Czech Republic, the EFP and the commissioning certificate would remain on paper. The authorities in the Republic of Moldova are reportedly working on solving inconsistencies and simplifying processes in the State Register of Arms launched in 2012.

One important motivating factor in upgrading civilian firearm registries is concern over data security, particularly data on firearm licence holders and firearm registration information. This concern is acute among South-eastern European beneficiaries, who shared worries about the impacts of the current Russia-Ukraine conflict on firearm and ammunition proliferation and about becoming drawn into the conflict. According to one affected beneficiary, 'The war in Ukraine has everyone on edge.' Among other signs, gun licensing and registration is up sharply, including among women in the Czech Republic.

Given the security challenges of the Transdniestrian settlement, Moldova has occupied a peripheral position in the Russia-Ukraine conflict for some time since it shares a border with Ukraine and public opinion is divided about the war. Moldovan beneficiaries highlighted the importance of creating features not subject to security breaches. Part of the motivation for improvements and modernizations was to firewall an earlier system developed by an external contractor and to prevent any possible external visibility of the registry contents. However, implementation of this firewall already occurred in a previous update to the system.

Officials in the Czech Republic referred to two incidents by hostile foreign armed forces in 2014 (on 16 October and 3 December) in which explosions occurred at ammunition storage facilities near the state-owned Military Technical Institute in the Zlín District close to the Slovakia border (Radio Free Europe/Radio Liberty, 2021).³⁶ The explosions resulted in the death of two people and years of clean-up. These concerns have underpinned calls for the modernization of existing systems and led to the creation of specific registry fail-safe capabilities that protect data on civilian firearms and their owners.

The conflict in Ukraine has had other effects that are seen in civilian firearm registries more generally, such as a reportedly significant but temporary increase in the number of private citizens requesting firearm licences and purchasing firearms in the region.³⁷

Box 4. Ukraine's Unified Arms Registry³⁸

Although Ukraine was initially a target beneficiary of this project, REGISYNC did not have direct dialogue with the Ukrainian national authorities until the end of the project phase, when the beneficiary presented the establishment of its Unified Arms Registry in June 2023 at the REGISYNC LEA workshop. The authorities highlighted the central importance of automation, which aims to promote effective control over firearms trafficking during their life cycle and decrease the administrative burden on police.

The legislative challenges have been significant and are still ongoing. The new law concerning the civilian possession of firearms in Ukraine covers firearms, storage, and owners (Parliament of Ukraine, 2021). In principle, the regulations provide complete coverage of the life cycle of civilian firearms, from manufacture through destruction or export, including secondary transfers from one citizen to another.

The registry system in the ministry of internal affairs will have several categories of information for citizens, business authorizations, ministry expert services, national police, and the licensing department. Private citizens will access the system using a token or banking ID. There is a system back-up in case of emergencies and unexpected events.

The **EU Firearms Directive** seems to have acted not only as a prompt but also as a perceived hindrance to some beneficiaries, partly because many authorities in EU member states were already updating their registries, and the Directive requirements did not always align with plans already being implemented. In some cases, the authorities considered the implementation deadlines too short (EC, 2021, p. 4).³⁹ As of October 2021, 23 Member States had fully transposed the provisions related to the data-filling systems and exchange of information into national law; four jurisdictions had either failed to notify the EC on the measures taken or did not complete the transposition of the provisions (EC, 2021, p. 6).

In terms of challenges experienced with updating registries, beneficiaries returned to a small number of issues, the most notable being the absence of, or incompleteness of, the **existing legal framework** for a centralized civilian firearm registry. Legislative reform processes are time-consuming, and, among other issues, legal data privacy concerns need full exploration. This challenge generates a complex environment in which EU requirements, national priorities, and other relevant domestic laws must align.

Another challenge is educating and training staff on using a new system that will likely differ significantly from previous systems. Beneficiaries have expressed that **the learning curve** is a major consideration and needs to be handled proactively, with briefings, training, help desks, and continual

progress monitoring. According to one beneficiary, there was a tremendous effort to get staff to adopt the registry and move to digital; however, many errors were discovered in the first year, leading to more time to check all entries. Beneficiaries that had retooled interfaces for the private sector, requiring significant changes in business practices and processes with a steep learning curve, made similar comments.

Finally, upgrades to the registry can be **costly**, and beneficiaries may not prioritize them unless they obtain external funding. Several beneficiaries highlighted the contributions of donor governments in registry modernization efforts with contributions in the hundreds of thousands of euros.

IX. FURTHER REFLECTIONS

In addition to the practices and registry improvement considerations described in Sections VI and VIII, discussions with beneficiaries on registry enhancements revealed additional insights. These improvements include process considerations such as multisectoral consultations, or practices whose effectiveness is not yet proven but may have merit, such as ballistic test-firing capabilities. Statistical reporting is also considered for inclusion here because it relates to registry product uptake and information sharing.

Multisectoral consultations

Project REGISYNC research reveals that certain beneficiaries take particular care in including the perspective of various stakeholders to improve the performance of their civilian firearm registry. According to at least one beneficiary, this approach is necessary to implement efficient registry processes that meet the satisfaction of both the users and authorities.

In the Czech Republic, consultations with representatives from a firearm manufacturer group occurred throughout the development of the centralized civilian firearm registry. These consultations allowed both parties to learn from each other regarding possibilities and limitations and to establish the most suitable technological tools to connect information systems.

In most cases, when authorities asked DMGs to use the registry and change their ways of working, they encountered some level of resistance and scepticism. However, conscious that an adaptation phase is needed to overcome this sentiment, the registry authorities put sensitization efforts and training on the use of the registry in place in the Czech Republic, Lithuania, and Germany. In parallel, authorities established a SPoC to act as a helpdesk and support the private sector during the transition. This helpdesk was available to answer any queries regarding commercial activities and processes in the Czech Republic and Germany. A helpline is also available to natural persons who are firearm holders and may need assistance navigating the e-portal and making queries.

In Germany, the registry administration team maintains an ongoing relationship with the registry's stakeholders, including natural persons, DMGs, and LEAs. The team holds bi-annual seminars for DMGs to discuss projected registry updates, gather user requirements, and provide training to use the registry. The beneficiary stated that the administration team frequently visits firearms exhibitions, both nationally and internationally, to engage with firearm owners and discuss user needs. They actively look for emerging trends in firearm ownership while promoting the use of the registry. In the view of the beneficiary, these steps were very effective.

Germany also put a roadmap in place as part of its continuous improvement strategy. Upcoming changes in legislation and feedback from firearm

owners, DMGs, and LEAs helped inform the roadmap. The beneficiary stated the benefit of this approach was that the registry continuously evolves with the changing needs of its stakeholders. Discussions also suggested that this approach helps to maintain a good relationship between firearm owners and national authorities.

Meanwhile, in one case, representatives of dealers and manufacturers conveyed that the design of the central firearm registry was not adapted for the private sector since the developments had end-users in mind rather than DMGs. These actors principally used the registry for authorizations as it is currently impossible for them to upload details of their stocks directly onto the system. Despite periodic consultations with this group of stakeholders, they conveyed that they should have had more involvement.

Ballistic test-firing capabilities

Less documented but potentially valuable in the registry context is the practice of passive test-firing. Using the registry, the forensic laboratory can produce a 'test-fire packing slip', which includes an alphanumeric code, and may correspond to a barcode or quick response (QR) code for rapid test-fire processing. This code matches the registered firearm's URN within the registry. During the automated ballistic identification system (ABIS) acquisition, both for active and passive programmes, the URN is entered as the case number of the relevant ABIS entry, ensuring that test-fires are anonymously associated to firearm records within the registry to provide impartiality and protect personal information. Should a hit to a test-fire be identified by the laboratory, or if intelligence suggests the diversion of a crime gun from legal civilian ownership, the legal test-fire can be associated with the firearm's entry within the life-cycle management registry.

Since 1994, Lithuania has operated a mandatory test-firing programme for category B short firearms and their barrels, which, in practice, means semi-automatic pistols and revolvers.⁴⁰ The beneficiary allows citizens to possess such handguns for personal protection and sport shooting. The beneficiary also encourages citizen membership in para-military and civil protection bodies, and private acquisition of firearms is permitted to facilitate training for these roles. Due to the beneficiary's proximity to the war in Ukraine and a subsequent increase in civilian firearm acquisition, the number of weapon test fires increased from 500 to 2,000 per month in 2022. It has since returned to earlier levels. As a passive test-fire programme, ballistic material is immediately placed into cold storage and linked to the registry via the URN corresponding to registry entries. Ballistic material is only acquired in an ABIS once a registry reports the firearm as lost or stolen. An informal risk assessment conducted by the beneficiary concluded that the most probable criminal misuse of lawfully possessed firearms would concern handguns. Accordingly, the beneficiary has the test firing programme primarily as a deterrent.

Lithuanian dealers that import handguns are also required to submit them for test-firing before sale. Additionally, short-barrelled firearms must be re-tested every five years. To do so, the dealer must schedule an

appointment at one of nine locations geographically distributed across the territory of the beneficiary. The appointment system is available online via the ESS or a call to the police switchboard, where the operator can then access the appointment system.

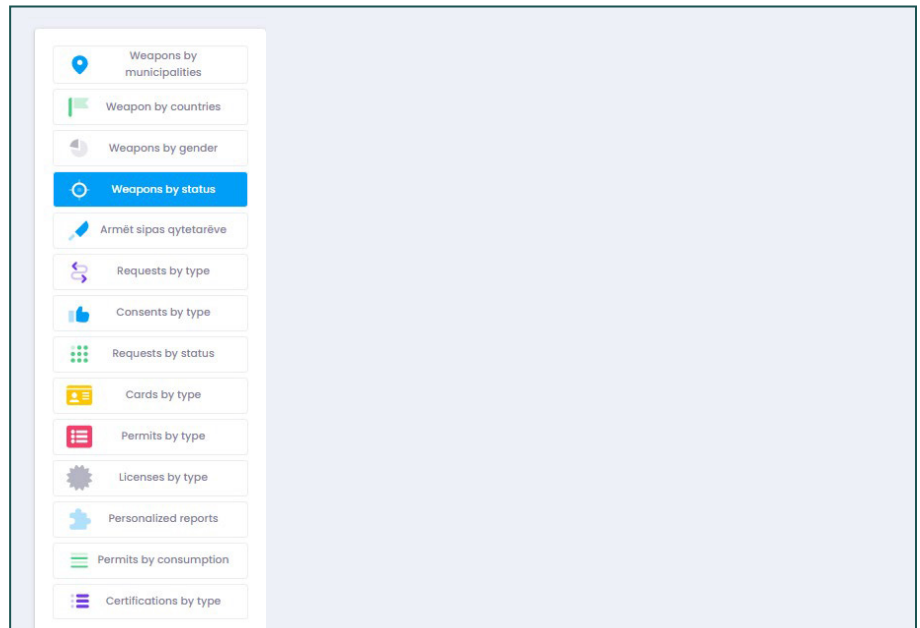
Test firing requires the owner to supply the necessary ammunition, three rounds per chamber, and as many rounds as the cylinder holds for revolvers. There is a fee of 24 EUR for the test-firing. The testing is conducted at forensic agency sites by ballistics staff, where testing personnel first examine the firearm. The beneficiary stated that this practice reduces safety risks for testing personnel and allows testers to inform owners of potential faults. A projectile recovery system is available at each site, allowing discharged pristine projectiles and cartridge cases to be recovered and stored.

The main forensic laboratory in Lithuania holds some 20,000 samples, and there are eight more sites within the beneficiary. While the number of hits to lost and stolen firearms is low—only one positive hit occurred in 2022, this may be a sign that the system is working. For both Lithuania and Kosovo, which operate similar test-fire programmes, the perceived benefit is one of deterrence, which is difficult to quantify. It appears that test firing programmes are perhaps one of the practices that depend upon LEA and ministerial judgement within a jurisdiction. Further empirical studies are needed to truly establish the effectiveness of civilian test-firing programmes.

Statistical reporting capacities

According to the CoEU, member states should have the ability to generate ‘data, statistics, information, assessments and reports...’ so they can provide the NFFPs with the necessary competencies to fulfil their duties (CoEU, 2021b, p. 19). The REGISYNC baseline study found that 17 beneficiaries indicated they could produce statistical reports from their civilian firearm registry.

Some beneficiaries have built their reporting capabilities into the registry, which are customizable along several variables. In Kosovo, the beneficiary can easily generate graphs and visualizations of data for almost all data fields, such as firearms, ammunition, essential components, age and gender disaggregation, firearm country of origin, and lost and stolen firearms. The system also has an export capability in English, which is a useful feature as it is one of Europol’s working languages (see Figure 4).

Figure 4. Registry data visualization options (Kosovo)

Source: Kosovo national authorities, February 2023.

In Slovenia, the authorities rely on Oracle BI Discover software to generate comprehensive statistical reports. Oracle BI Discover provides intuitive reporting and analysis from registry data, which was deemed very useful by the national authorities.

CONCLUSION

On the basis of extended discussions with a sample of 35 target beneficiaries in the greater European region—specifically, the EU, Western Balkans, Moldova, and Ukraine—this report has assessed firearm registry practices and processes that go beyond those previously identified as common among a larger selection of beneficiaries. This study’s findings, and the reflections provided by registry authorities and their stakeholders, provide much food for thought about the challenges modern registries face in establishing and modernizing life-cycle management systems. Regarding the content of the registry, many beneficiaries meet the EU Firearms Directive requirement and sometimes go beyond it.

Data standardization is a key challenge repeatedly identified for the accurate documentation and retrieval of relevant data in firearm registries—and for the international exchange of information. Consequently, standardized information exchange formats, such as FRTs and systems that can generate unique identifier codes for specific firearms, components, permits, and holders, such as Germany’s XWaffe, represent necessary means of redressing those challenges. It is not the place of this project to recommend a specific FRT or data coding system. It is only to point to the need to improve the common languages that registries speak with their internal partners, and eventually with external counterparts in other countries. Indeed, this study highlights how certain elements, like the use of an FRT, will predict how efficiently and effectively information can be exchanged between registries at the international level. Beyond FRTs, implementing a centralized lost or stolen or a ‘found firearms’ registry—and direct links to systems such as SIS II or iARMS—appears critical.

The transportation module showcased to researchers is a significant, advanced capability that provides registries and police partners with added visibility on both ‘ends’ of the life cycle, during particularly sensitive moments in the cycle, from import to point of sale, or from turn-in to destruction. This level of granular oversight may have particular applicability in territories where large domestic DMG sectors, in particular, are present. In general, consulting with private sector stakeholders, including but not limited to DMGs, is beneficial for providing those actors the use of registry functionalities in ways that improve—or at least do not hinder—their internal processes, such as inventory management. Some beneficiaries clearly consider providing the private sector, and even civilian gun owners themselves, direct access to the registry to be an obligatory service that goes hand-in-hand with e-government modernization initiatives spanning across services and sectors.

These findings should be seen against the backdrop of the reality that many national registries have not yet managed to achieve the minimum standards elaborated in the EU Firearms Directive on a number of dimensions. Some of the innovative practices described here may be aspirational for those beneficiaries. On the other hand, given e-government modernization efforts underway in many countries, it is conceivable that there will be consideration of these practices with other upgrades. Prioritization and financing will remain considerations, most importantly for the long-term sustainability of civilian firearm registries.

Endnotes

- ¹ Although beneficiaries provided inputs into this report, in its published form it remains a product of the REGISYNC project and its authors, who take sole responsibility for any errors and omissions.
- ² As discussed in Box 4, the conflict in Ukraine led to a temporary cessation of the project's engagement with Ukrainian national authorities; however, towards the end of the research phase, Ukrainian officials were able to join in cross-beneficiary exchange workshops organized by REGISYNC in June 2023. Based on these exchanges, this report includes some findings from Ukraine.
- ³ For other, less frequent baseline practices documented under this project, see the Annexe.
- ⁴ These exchanges include reflections gained from the project's Law Enforcement Agency workshops in June 2023. See the Methodology section.
- ⁵ This designation is without prejudice to positions on status. It is in line with United Nations Security Council Resolution 1244/1999 and the International Court of Justice Opinion of July 22, 2010, on the Kosovo Declaration of Independence.
- ⁶ EC Directorate-General for Migration and Home Affairs Grant Agreement 101035950. While this report frequently references the EU Firearms Directive, it was not part of the terms of reference for this project to evaluate beneficiaries' adherence to the Directive's elements.
- ⁷ Throughout this paper, 'common standards' refers not to the requirements in the EU Firearms Directive but to the measures documented in the sample of beneficiaries engaged under this project and described in full in the Annexe.
- ⁸ There are limitations on which rules member states can adopt—for instance, they cannot hinder the single market principle.
- ⁹ Paragraph 8 of the Directive (EU) 2021/555 states, 'Once firearms are lawfully acquired and possessed in accordance with this directive, national provisions concerning the carrying of weapons, hunting, or target shooting should apply' (CoEU and European Parliament, 2021).
- ¹⁰ NFFPs from Cyprus, Lithuania, and Kosovo engaged in this project.
- ¹¹ NFFPs are discussed further in Section VI.
- ¹² These two workshops provided a platform for national stakeholders in the EU region and neighboring states to discuss firearm registry practices and international information exchange.
- ¹³ The concept of the life cycle of a firearm has been in circulation as a policy tool for at least a decade.
- ¹⁴ As per Article 12 of Directive (EU) 2021/555, 'essential components other than the frame or receiver should be recorded in the data-filing systems under the record relating to the firearm to which they are to be fitted' (CoEU and European Parliament, 2021, art. 12).
- ¹⁵ 'Common' is deliberately unspecified but generally implies that a significant number of beneficiaries, if not a majority, are engaged in the specified practice.
- ¹⁶ See the application process in France (Government of France, 2021) or Germany (Government of Germany, 2022).
- ¹⁷ The information in the table comes from the responses to the questionnaires sent during the beginning of the project and information gathered during the field visits conducted in the latter stages of the project.
- ¹⁸ In the final analysis, REGISYNC partners relied on beneficiaries to assess 'effectiveness' as the project had not established a baseline of effective practices.
- ¹⁹ Kosovo beneficiary report on file with REGISYNC partners.
- ²⁰ Representative from Romania, REGISYNC workshop, June 2023.
- ²¹ Cyprus beneficiary report on file with REGISYNC partners.
- ²² Germany beneficiary report on file with REGISYNC partners.
- ²³ Germany beneficiary report on file with REGISYNC partners.
- ²⁴ Germany beneficiary report on file with REGISYNC partners.
- ²⁵ Programme Slovakia – ISF, confidential, 2021.
- ²⁶ Programme Slovakia – ISF, confidential, 2021.
- ²⁷ See INTERPOL, 2023c, for the list of INTERPOL Member countries.
- ²⁸ For more information, see RCMP, 2023.
- ²⁹ This section draws heavily on the Germany beneficiary report on file with REGISYNC partners.

- ³⁰ The basis for XÖV standards for digital data exchange in public administration are messages in XML syntax and associated dictionaries and processes. XÖV defines and provides regulations, reusable 'building blocks' (such as the definition of an address), tools for creation and documentation, and the infrastructure for publication and access. Since 2010, the German federal government has developed XÖV standards. Since 2011, the Coordination Office for IT Standards (KoSIT) has overseen them.
- ³¹ These categories are typically from the European Firearms Pass (EFP) and transfer permits.
- ³² This section is based on the Czech Republic beneficiary report on file with REGISYNC partners.
- ³³ Czech Republic beneficiary report on file with REGISYNC partners.
- ³⁴ Representative of Czech Republic, REGISYNC LEA workshop in Vienna, 21 June 2023.
- ³⁵ Representative of Serbia, REGISYNC LEA workshop in Brussels, 19 June 2023.
- ³⁶ Czech officials believe these explosions were deliberate by foreign actors under the direction of a hostile government.
- ³⁷ Discussions with Czech officials, Prague, February 2023.
- ³⁸ Representatives of Ukraine, REGISYNC LEA workshop in Vienna, 21 June 2023.
- ³⁹ The EU Firearms Directive amended in 2017 had to be transposed by 14 September 2018, except for Articles 4(4) on the regulation of arms dealers and brokers and 4(5) on the establishment of the data-filling system. Transposition of this exception occurred at a later deadline of 14 December 2019.
- ⁴⁰ This section is based on the Lithuania beneficiary report on file with REGISYNC partners.

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ANNEXE

National Civilian Firearm Registries: Common Practices Identified in a Survey of Selected Beneficiaries

December 2022

This report was drafted by the Small Arms Survey based on inputs from all REGISYNC partners. The project's Advisory Committee provided feedback on the draft. Unlike the main document to which it is attached, this Annexe did not go through an external peer review process.

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INTRODUCTION

The present paper is delivered as part of the REGISYNC project,¹ which aims to assess common minimum standards for legal arms registers ('life-cycle registry of firearms'), and to contribute towards improving information exchange among EU member states, Southeast Europe, Ukraine and Moldova. REGISYNC is implemented jointly by the Center for the Study of Democracy (CSD), ECORYS Europe EEIG-GEIE (ECORYS), Fondation pour l'Institut de Hautes Études Internationales et du Développement (IHEID) through the Small Arms Survey, and Arquebus Solutions Europe (Arquebus).

By providing this paper, which serves to fulfil deliverable D3.1 'Policy Paper outlining the common minimum standards for a life-cycle firearm registry—an electronic document reviewing the validated country profiles to identify common and essential elements for firearm registries,' incremental progress is made towards the specific objective 1 of the project to 'Harmonise the legal arms registers of 35 target countries (27 EU Member States, 6 Western Balkan countries, Ukraine and Moldova) by promoting good practices and common minimum standards.'

This Common Firearm Registry Practices paper builds upon work done in the previous phase of this project to establish profiles of Member States' firearm registries as well as their effective practices, gaps, and challenges. The following Methodology section describes the full process towards the completion of this paper.

METHODOLOGY

The development of this paper was made possible by the following steps across Work Packages (WP) 2 and 3:

Development of a data collection tool. Following discussion and validation by the Advisory Committee of the project at a dedicated methodology workshop in Brussels in January 2022, a data collection tool (questionnaire) was developed 'to capture parameters of all existing civilian firearm registers in the participating countries (data on the firearm and its history, data on owner), measuring units and standards applied, the level of detail in the information collected, and the compatibility of datasets recorded and used.' The questionnaire was designed to allow the mapping of existing legal registers and their strengths and weaknesses in 35 countries.² At the initial methodology workshop, country experts were appointed to validate the country profiles.

The partners deemed the questionnaire to serve the purpose of conducting a 'comparative analysis of national practices against a matrix of key elements for 'life-cycle' registration, including firearms' categorisation, manufacture, essential component controls, import/export, marking, tracing, transfer, destruction/deactivation, as well as owners' data.'

Data collection. Data collection was coordinated by Arquebus (WP2 leader) and implemented by research teams from all partners. To initiate contact, all partners used a list of National Firearms Focal Points (NFFP) provided by a Member of the European Commission. Beneficiaries who accepted to collaborate on the REGISYNC project each appointed a Point of Contact (POC) responsible for answering the questionnaires. Desk research and rounds of follow-up questions were subsequently conducted to clarify certain points. This phase was originally scheduled to take place between February 2022 and May 2022, but due to a slow response rate, it was extended to August 2022 (and, in one case, until early October 2022). Of the 35 beneficiaries contacted, 21 agreed to participate and share information on their civilian firearm registry. These include Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Kosovo, Lithuania, Luxembourg, Moldova, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, and Sweden.

Elaboration and validation of country profiles. Between April 2022 and September 2022, country profiles were completed for the 21 participating beneficiaries, elaborating key elements of the civilian firearm registries in use, and highlighting identified good practices and challenges for cross-border information sharing. Each partner (Arquebus, CSD, Ecorys, and IHEID) was responsible for the validation of country fiches, which were subsequently validated by the country experts that have been approached during the data collection stage, with feedback from these validation consultations integrated in the final country profiles. The validation process took place in September and October 2022.³

Data extraction for the paper. To standardise data abstraction and streamline the cross-comparison of responses to the questionnaire, a data extraction tool was developed by IHEID and Arquebus, and validated by the other project partners. IHEID and Arquebus then used this tool to create the cross-comparison data tables presented in this paper.

Paper validation. During a second methodology workshop in Brussels on 8 November 2022, the project partners validated the data collection results as well as the paper content and presentation. The validation exercise also informed planning and preparations for subsequent REGISYNC project deliverables, specifically for case study selection and the manual on effective and innovative practices in the life-cycle registry of firearms (WP3), as well as improving the regular exchange of information among target country law enforcement agencies (LEAs) and legal firearm registers (WP4).

Limitations. While the use of a questionnaire and written follow-up questions are practical, reliable and cost-efficient data collection tools, they were not without challenges. The most commonly encountered ones included unanswered questions, different understanding and interpretations of the questions asked, and lengthy response times. Moreover, to provide more flexibility, only open-ended questions were asked in the questionnaire. As a result, we received rich and individualised answers, but they came with the drawbacks of potential misapprehension and difficulty in quantification of the results during the analysis.

It should also be noted that, while this paper makes frequent reference to the current EU Directive (2021/555), this study did not evaluate beneficiaries' adherence to the Directive's elements. It is rather a structured account of relevant elements of the national firearm registries, as described by the beneficiaries themselves.

FINDINGS

Definitions and legal classification

Since 1991, shortly after the abolishment of border controls within the Schengen area, the **EU Firearms Directive** has sought to guide Member States' firearms control policy by setting minimum standards for the acquisition and possession of civilian firearms. The Directive divided firearms into four categories based on the level of lethality of the weapons: category A for prohibited firearms, category B for firearms subject to authorization, category C for firearms subject to declaration, and category D for freely available firearms. In 2017, category D was removed via Directive (EU) 2017/853. Since 1991, several amendments to the Directive were enacted to respond to emerging security threats and to align with international standards such as the United Nations Firearms Protocol. These changes concerned deactivated firearms, convertible firearms, medical checks, and firearms designed for military use with selective fire, among others.

In line with the Directive, categorising civilian firearms is an essential step for their regulation in the region. A state's ability to share information with another state on security-related issues, such as firearms, is dependent upon its ability to speak a common language. In the firearms domain, it starts with commonly agreed definitions, a categorization system applied evenly across states, and the use of a single firearms reference table to prevent the misidentification of firearms in data-filing systems. This section examines three of these areas, starting with an analysis of the definition of essential components by surveyed beneficiaries. It then explores the beneficiaries' reliance on an 'ABC' categorization scheme, and whether a firearms reference table is used.

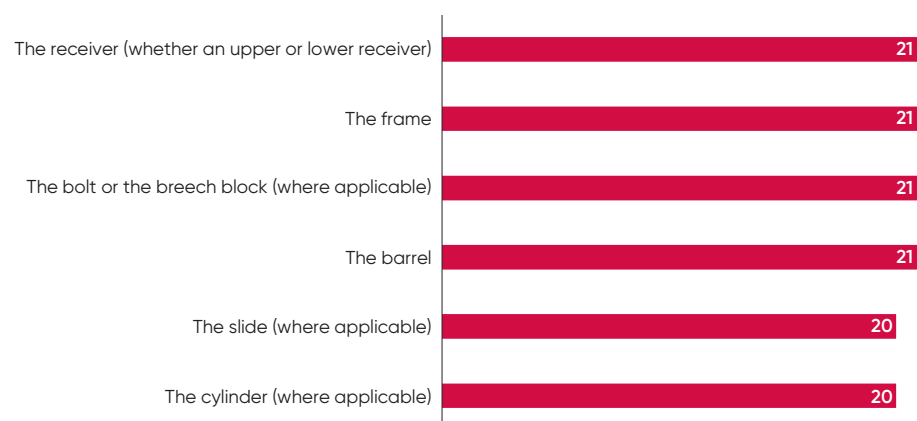
Article 1 of the Directive (EU) 2021/555 provides a list of definitions ranging from 'firearm' and 'dealer' to 'alarm and signal weapons', 'tracing', and 'essential components'. The definition of **essential components** is of particular importance for this project, as it will seek to assess the extent to which essential parts are recorded as single components in civilian firearm registries. Essential parts include 'the barrel, the frame, the receiver, including both upper and lower receivers, where applicable, the slide, the cylinder, the bolt or the breech block, which, being separate objects, are included in the category of the firearms on which they are or are intended to be mounted'.⁴ Table 1 provides a description of each of these components. The barrel and the receiver (or frame) are usually present in all types of firearms, but the other components listed are not always applicable.

Table 1. Essential components of a firearm

Essential components	Definitions
Barrel	The cylindrical tube designed to contain the pressure of a propellant and direct the projectile. For many weapons it consists of a chamber ending in a rifled or smooth bore. For a revolver, the barrel does not have a chamber.
Receiver (whether an upper or lower receiver)	The basic unit of a firearm which houses the firing and breech mechanism and to which the barrel and stock are assembled. In revolvers, pistols, and break-open guns, it is called the Frame.
Frame	The basic unit of revolvers, pistols, and break-open guns which houses the firing and breech mechanism and to which the barrel and stock are assembled. For other guns, it is called the Receiver.
Slide	The part of an automatic or semi-automatic weapon incorporating the breech and moving in a rail on the frame. ⁵
Cylinder	The part of a revolver holding rounds in separate chambers. The chambers are sequentially rotated in line with the barrel prior to each round being discharged.
Bolt	A movable essential part of a firearm which ensures the closing and the locking of the firearm for manual repeating firearms.
Breech block	Part of the firearm that closes the breech of a weapon (whether small arms or artillery) at the moment of firing.

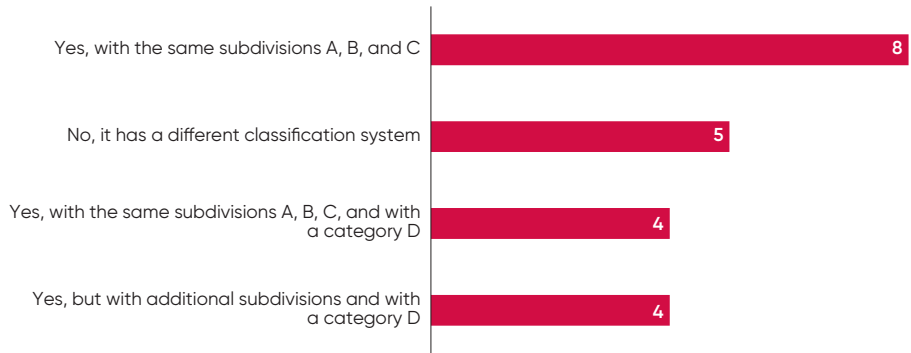
Source: European Firearm Experts Glossary⁶

The findings of this study show that most beneficiaries define the receiver, the frame, the bolt or breech block, the barrel, the cylinder, and the slide as essential components of a firearm (see Figure 1). In addition to these components defined as essential by the EU Directive, three (3) beneficiaries considered suppressors to be essential parts. One (1) beneficiary considered insert barrels as an essential component as well.⁷

Figure 1. Which of the following parts are considered essential components of a firearm by the beneficiaries?

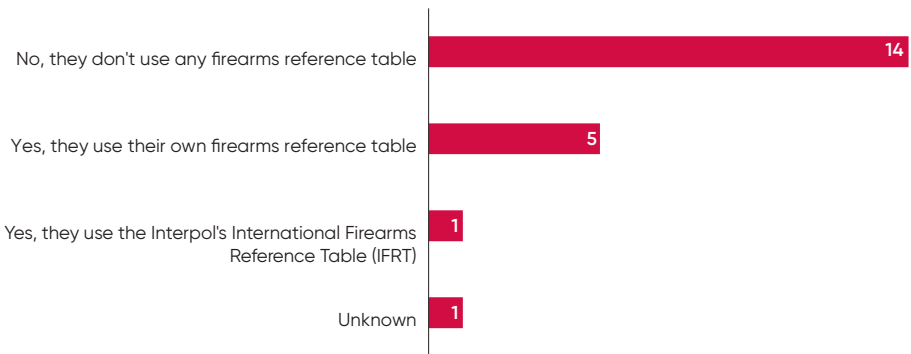
When it comes to the use of an ‘ABC’ **categorization system**, sixteen (16) of the 21 beneficiaries make use of the Firearm Directive categorization in one way or another (see Figure 2).

Figure 2. Does the beneficiary follow the EU Firearms Directive ‘ABC’ categorization?



Proper firearm identification and tracing can only proceed once firearms have been properly classified by make, model, calibre and serial number. When inquiring whether a beneficiary relied on a **firearm classification database**, it was found that the majority of beneficiaries (14) do not use a classification system and that five (5) use their own classification system. One (1) beneficiary indicated that they rely on INTERPOL’s International Firearms Reference Table (IFRT) when using INTERPOL’s Illicit Arms Records and Tracing Management System (iARMS). For one (1) beneficiary, no answer to this question could be obtained (see Figure 3).

Figure 3. Does the beneficiary use a firearms classification database such as Interpol’s International Firearms Reference Table (IFRT)?



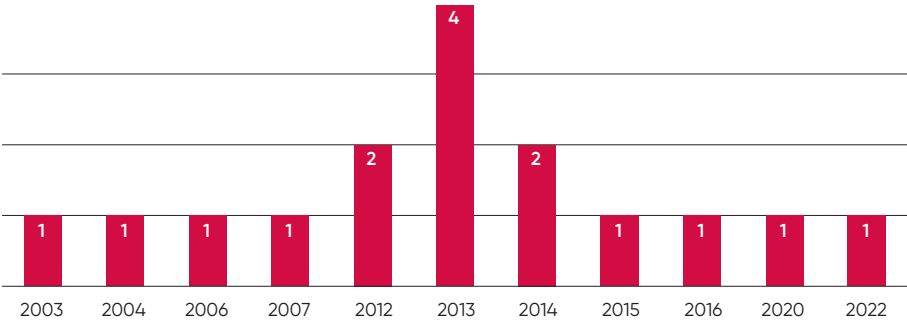
Principal registry of firearms in the possession of civilians

Registry fundamentals

The fundamental feature of a civilian firearm register is a ‘computerised data-filing system, either centralised or decentralised, which guarantees to authorised authorities access to the data-filing systems in which the necessary information regarding each firearm is recorded’.⁸

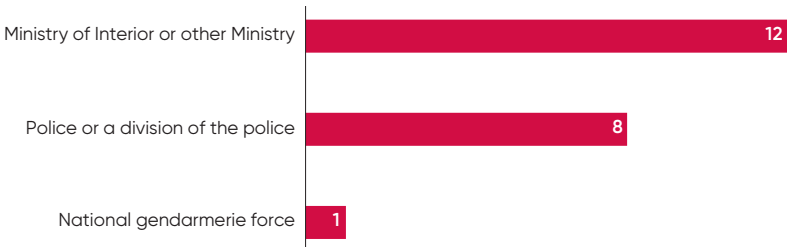
Firearm registries in the territories of the 21 surveyed beneficiaries have been **established** as early as 2003 and as recently as 2022, although for five (5) beneficiaries the date of initial establishment was not conveyed to researchers (see Figure 4). At least four countries have either recently upgraded their registry or are in the process of upgrading or transitioning the registry.

Figure 4. When was the registry on civilian possession of firearms implemented?



As depicted in Figure 5, the owners of civilian firearm registries are mainly the Ministry of Interior or another Ministry (12 of 21 beneficiaries), followed by the police or a division of the police (8 of 21 beneficiaries). In one (1) case, a national gendarmerie force owned the civilian firearm registry. In the majority of cases (17 of 21 beneficiaries), the owners of the registry are also responsible for keeping it up-to-date and scheduling its maintenance.

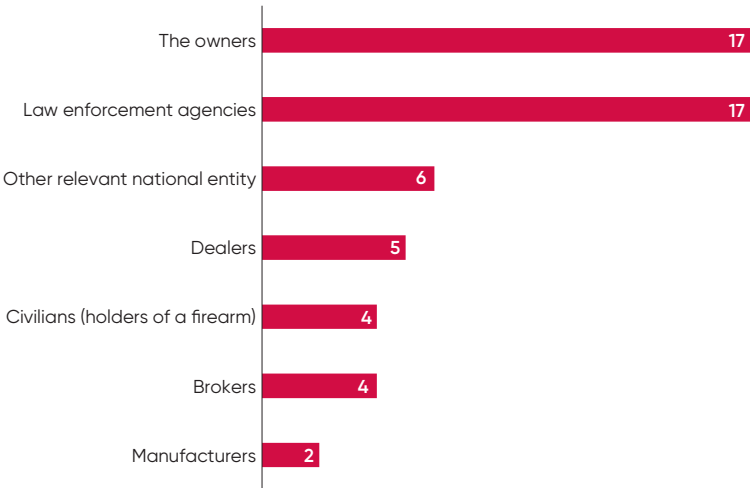
Figure 5. Who owns the civilian firearm registry?



In general, the owners of the registry, as well as law enforcement agencies, are the principal actors with **access** to the registry (see Figure 6). ‘Access’ in this context ranges from the ability to insert data or edit the data already inserted, to viewing certain information recorded in the registry. The beneficiaries’ responses tend to indicate that owners and/or law enforcement agencies have

access rights since they are also responsible for updating and maintaining the registry, while actors such as dealers, brokers, or firearms holders may generally only insert and view specific data. The answers received also indicate that specific security procedures to identify users seeking to access the database (for example, by inserting a national ID in a card reader) exist in at least 11 of the 21 cases reviewed.

Figure 6. Which of the following actors have access to the civilian firearm registry?



Data fields recorded in the registry

As per Article 4 of the EU Directive 2021/555, in addition to establishing and maintaining a computerized data-filing system (centralized or decentralized), Member States must record ‘information relating to firearms which is needed in order to trace and identify those firearms’. This includes the type, make, model, calibre, and serial number of each firearm. and any additional unique markings applied to the frame or receiver;⁹ names and addresses of suppliers and purchasers along with relevant date(s), and any conversions or modifications that lead to a change in category.¹⁰

Information on the firearm

As emphasised by the EU Firearms Directive 2021/555, ‘in order to increase the traceability of all firearms and essential components and to facilitate their free movement, all firearms or their essential components should be marked with a clear, permanent and unique marking and registered in the data-filing systems of the Member States’. Moreover, ‘the records held in the data-filing systems should contain all information allowing a firearm to be linked to its owner and should record the name of the manufacturer or brand, the country or place of manufacture, the type, make, model, calibre and serial number of the firearm and any unique marking applied to the frame or receiver of the firearm. Essential components other than the frame or receiver should be recorded in the data-filing systems under the record relating to the firearm to which they are to be fitted.’¹¹

The figures below provide an overview of the type of **information related to firearms usually recorded in the registries** of the beneficiaries surveyed. As shown in Figure 7, standard information such as serial number, calibre, type, and model are often recorded. The name of the manufacturer or brand, unique marking, make, and place of manufacture are also included for most countries, but not all. Additionally, beneficiaries also tend to record additional information such as place of storage, category of firearms, the capacity of the firearm, ammunition type, conversions, and modifications of the firearm. Meanwhile, Figure 8 captures whether essential parts other than the frame or receiver were generally recorded in civilian firearm registries.

Figure 7. Does the registry record the name of the manufacturer or brand, the country or place of manufacture, the type, make, model, calibre, and serial number of the firearm and any unique marking applied to the frame or receiver?

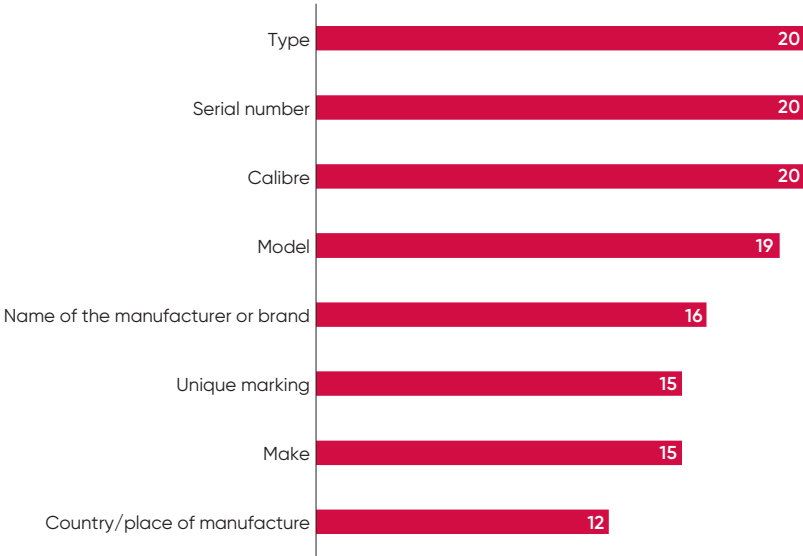


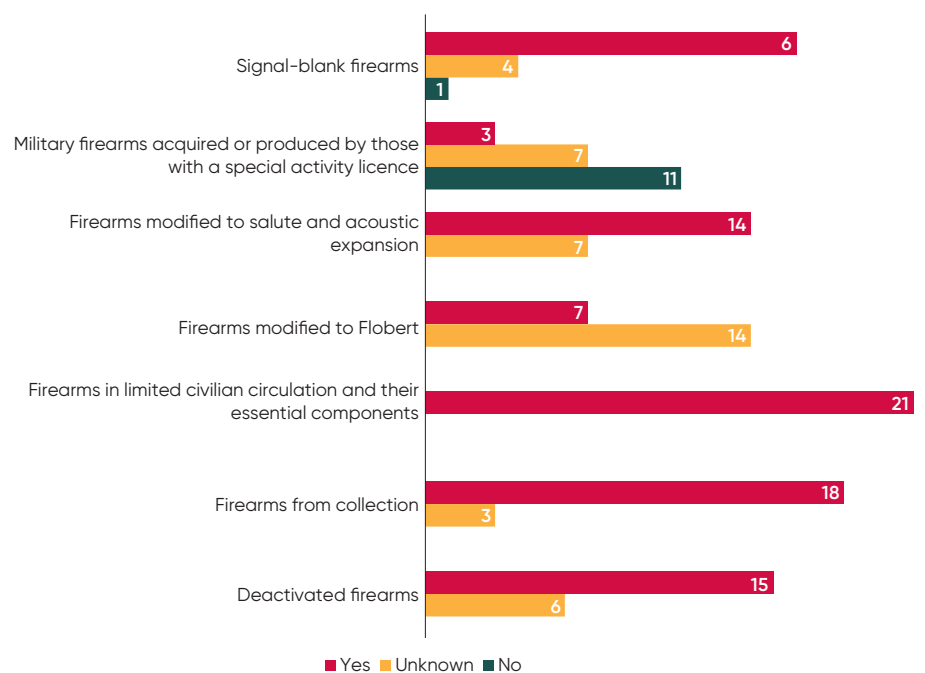
Figure 8. Are the essential components other than the frame or receiver recorded in the registry under the record related to the firearm to which they are to be fitted?



As depicted in Figure 9, firearms in limited civilian circulation and their essential components, as well as firearms from collection, are generally contained in the civilian firearm registry. Since the adoption of Directive 2017/853, weapons once considered special such as weapons modified to Flobert or modified to Acoustic Expansion Weapons (AEW) must now be categorized in their original category, and deactivated weapons (and all previously freely

accessible firearms) are now subject to declaration (category C).¹² While these weapons are currently integrated into official firearm categories, follow-up questions sought to examine if information on these types of weapons was available in the registry. Fifteen (15) beneficiaries stated that they record information on deactivated firearms, firearms modified to Flobert, and/or firearms modified to salute and signal weapons. Out of these fifteen (15), at least ten (10) beneficiaries indicated that the registry stored information on the entity that perform the deactivation or modification, and/or the date of the procedure.¹³

Figure 9. Which of the following information is stored in the registry?



As shown in Figures 10 and 11, data on service firearms and their holders such as police, customs, or prisons, as well as firearms held by armed forces are usually not recorded in the registry. However, as long as another separate registry records this type of information, this should not be perceived as problematic.

Figure 10. Does the registry store information on service firearms and their possessors (such as customs, police, prisons)?

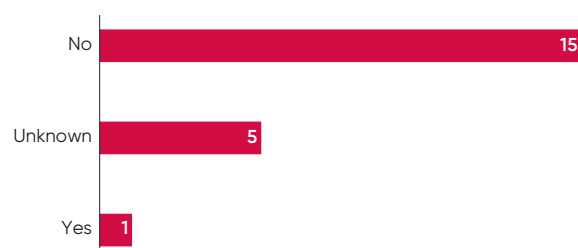
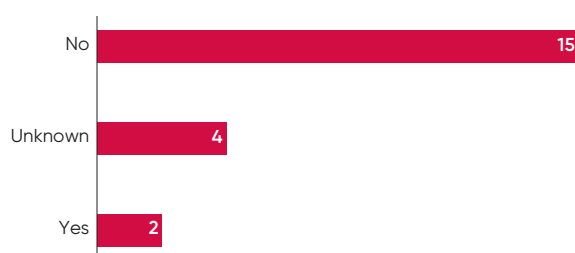


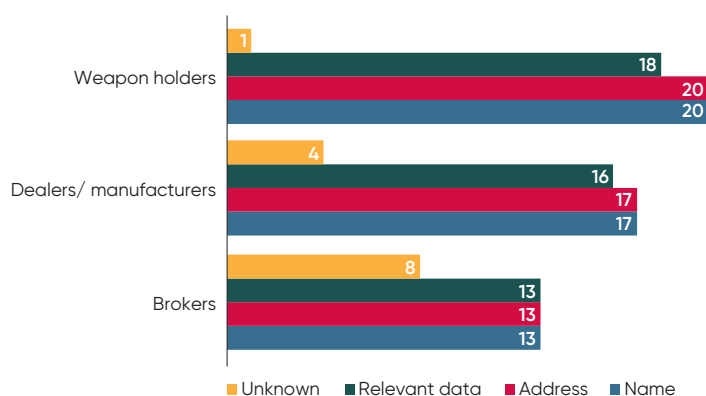
Figure 11. Does the registry store information on firearms held by the armed forces?



Information on the weapon holders and the suppliers

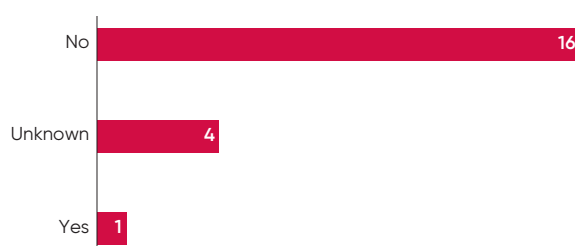
When gathering data on the **weapon holders and suppliers**, the following results were found (see Figure 12).

Figure 12. Does the registry store information on names, addresses, and relevant dates of the following actors?¹⁴



In addition to this minimum information (highlighted in Figure 12), sixteen (16) beneficiaries out of the 21 record **additional information** such as gender, former names, nationality, phone number, place of birth, parent's names, medical opinions, email address, information on the previous owner of a firearm, or European Firearm Pass (EFP) issued (see Figure 13).

Figure 13. Does the registry record any additional information on the weapon holder?



Data retention

Since a state’s ability to trace firearms and share relevant information also depends on proper record-keeping, this study explored **how long firearms records are kept** in the registry.¹⁵ As stated in the International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons (ITI), records on marked small arms and light weapons should ideally be kept indefinitely. However, the minimum requirement should be at least 30 years for manufacturing records, and 20 years for all other records, including records of import and export.¹⁶ At the European level, Member States are also responsible for ensuring that ‘the record of firearms and the essential components, including the related personal data, is retained in the data-filing systems by the competent authorities for a period of 30 years after the destruction of any firearms or essential components in question’.¹⁷ The information below sheds a light on record-keeping practices and the link to civilian firearm registries (see Figures 14, 15, and 16).¹⁸

Figure 14. Are the manufacturing records kept by the State for at least 30 years in a registry? Please indicate whether the records are kept/linked to the civilian firearm registry (ITI requirement).

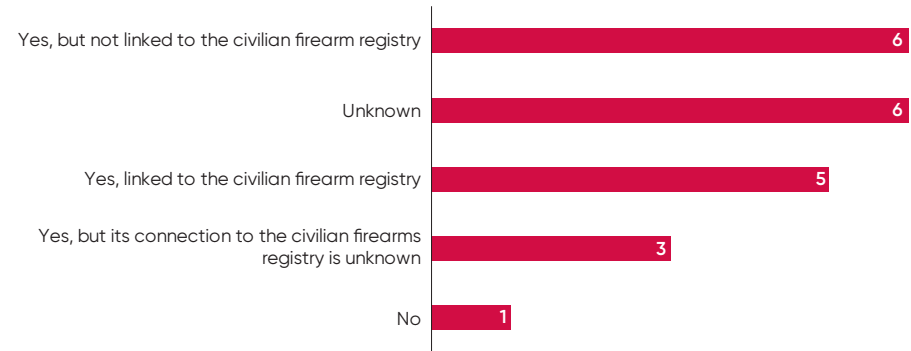


Figure 15. Are all other records, including records on import and export, kept by the state for at least 20 years in the registry? Please indicate whether the records are kept/linked to the civilian firearm registry (ITI requirement).

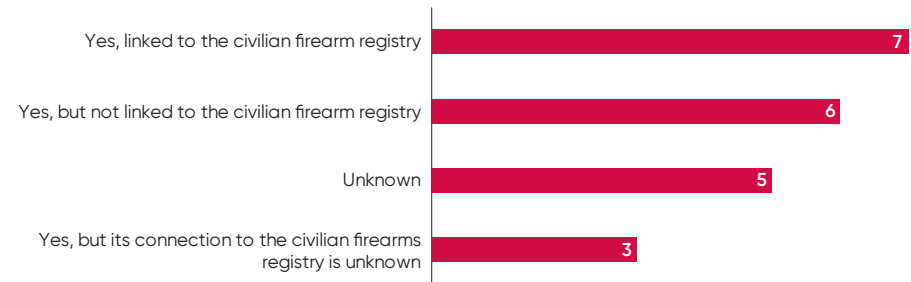
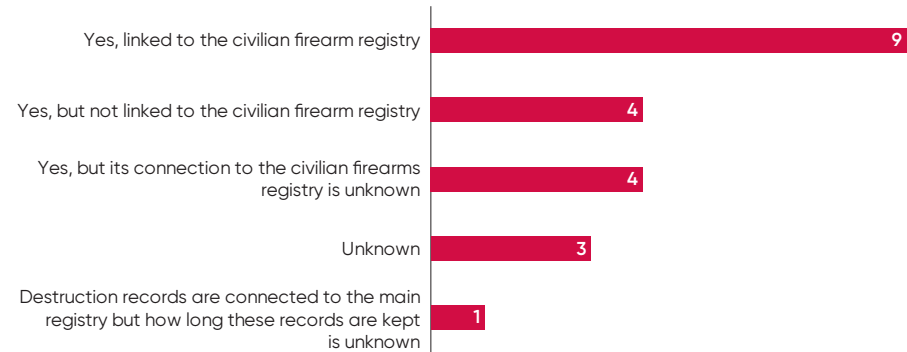


Figure 16. Are the destruction records kept by the state for at least 30 years in a registry? Please indicate whether the records are kept/linked to the civilian firearm registry (EU Directive requirement).



TECHNOLOGY

The most common **database technology** used by the beneficiaries surveyed are relational databases. This study also gathered information on the **operating system (OS)** used by the beneficiary. The OS defines the type of central processing unit (CPU), computer memory, file storage, input/output (I/O), and network connections (Hemmendinger, 2022). Several beneficiaries did not communicate details of the technical characteristics of their registries. For cybersecurity reasons, some technology-related findings collected under the scope of this study, such as specific database platforms and operations systems used by beneficiaries, are not reported here.

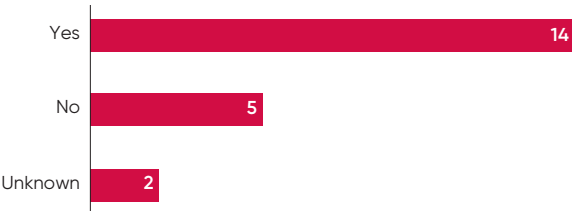
Frameworks are essential for establishing processes and policies for **information security management**. Their selection depends on the type of organization and compliance standards required. In the European Union, all Member States must follow the General Data Protection Regulation (GDPR), which offers guidance on how to ensure a high level of security for the data retained. When asked which framework they relied on, the majority of beneficiaries did not respond to this question, but four responded and indicated they used different sets of frameworks.

LINKAGES TO OTHER REGISTRIES AND INTEROPERABILITY

Linkages with other datasets

When asked about **linkages** of civilian firearm registries to other national databases, the majority of respondents indicated the presence of connections (see Figure 17). A registry’s level of interoperability and type of linkages with other databases may vary greatly from one registry to the next. For one beneficiary, a linkage indicates the ability of the weapons authority to perform queries in other registers within the framework of its legal responsibilities (e.g., verifying the reliability of the document provided or the address of an individual), rather than directly accessing other datasets through the civilian firearm registry. For example, if the civilian registry is linked to the population registry, when the address of an individual changes, the data of this individual is automatically updated on the civilian firearm registry as well. In other cases, the weapons authority can submit a query on the civilian firearm registry to access this data (e.g., to access an individual’s criminal record). Little information was generally shared on the exact nature of these connections (direct vs. indirect access to records), but upcoming case studies will be an opportunity to further delve in this area of interest. Commonly cited databases linked with the civilian firearm registry include population register databases and criminal records databases. Examples of linked registries range from tracing databases and registries on lost, seized or found weapons, police records such as wanted persons, information systems of hunting and sports federations, records on Schengen Entry/Exit Information System (EES),¹⁹ or imports/exports databases.

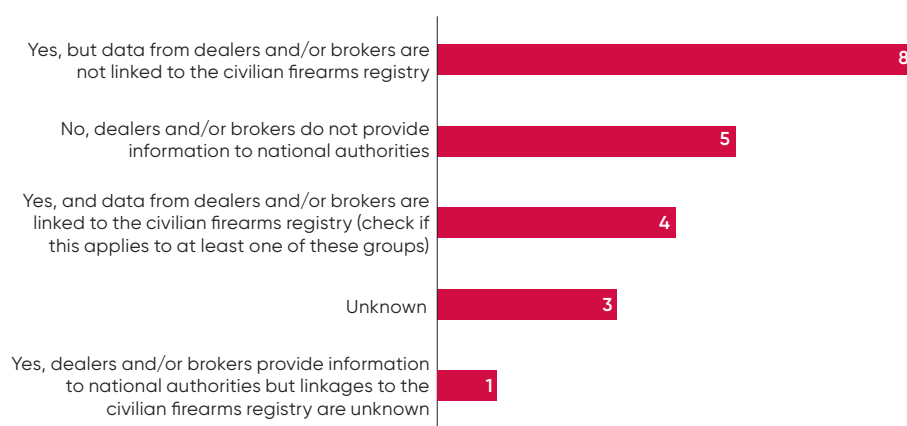
Figure 17. Is the registry linked to any other databases?



Given the considerable amount of data on civilian firearms in the private sector, the methods used to transfer information to national entities are considered in this project. The findings in Figure 18 suggest that **professionals usually share data** with the authorities (13 beneficiaries out of 21). However, only four (4) of them directly do so through the civilian firearm registry. More recent registries may invite professionals to share details on their stock directly into the system, while others send their data to the police who subsequently update the civilian firearm registry with the received information. Meanwhile, around a quarter of the participants (5) indicated that professionals such as dealers, manufacturers, or brokers do not share data with the national authorities (see Figure 18). Further investigation into this particular subject will be conducted in the next phase of the project.

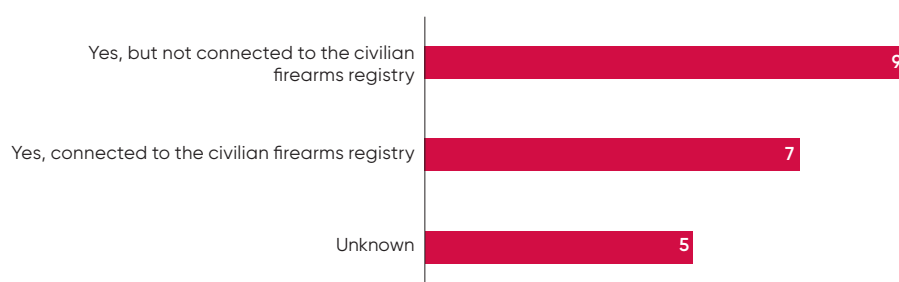
‘The efficient sharing of information between dealers and brokers, on the one hand, and national competent authorities, on the other, is important for the effective operation of the data-filing systems. Dealers and brokers should therefore provide information without undue delay to the national competent authorities. To facilitate that, national competent authorities should establish a means of electronic connection accessible to dealers and brokers, which can include submission of the information by email or directly through a database or other registry.’²⁰

Figure 18. Are dealers and brokers required to provide information to the national authorities (e.g., details of their stock) through a data-filing system?



There are various benefits to having the import/export registry linked to the civilian firearm registry, such as the ability to keep track of flows coming in and out of the country and to enhance the tracing of firearms. Out of the 21 participants, seven (7) beneficiaries indicated having an import/export registry connected to their civilian firearm registry, nine (9) stated possessing an import/export registry but without any linkages to the civilian firearm registry, and five (5) did not share sufficient information (see Figure 19).

Figure 19. Does the beneficiary manage a specific import/export registry?

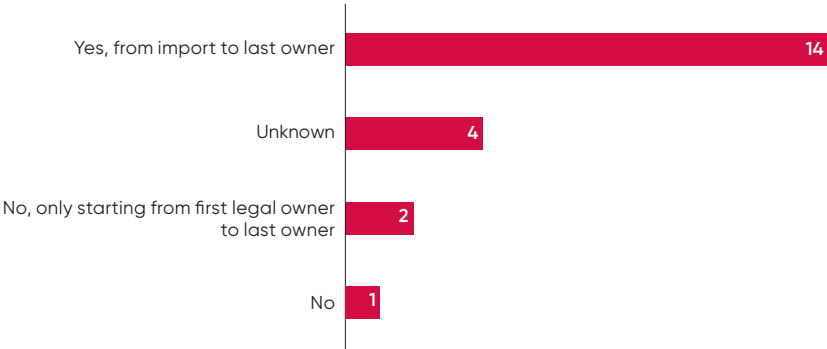


Tracing

One of the questions on tracing was formulated by asking if the beneficiary possessed a separate tracing database. The use of the term ‘database’ seemed to have generated misunderstandings among some respondents, which ultimately affected the quality of the responses received. For example, while a tracing capability may be present to allow the tracing of firearms, there is often no such thing as a tracing database. Therefore, some beneficiaries who answered negatively may, in reality, possess a tracing capability, while those who answered having a tracing database may have wished to express that they could trace firearms but did not necessarily have a full-fledged database. Moreover, in the case of several beneficiaries, it remains unclear how tracing is interconnected with the principal registry.

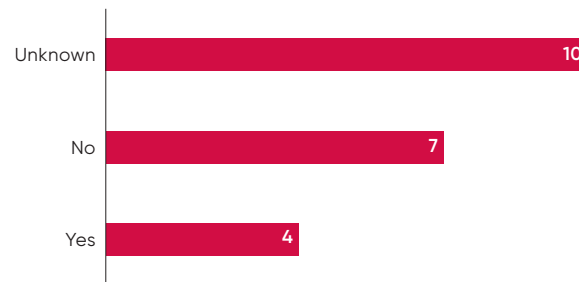
The study also inquired whether it is possible to trace the history of a weapon from import to the last owner. To this inquiry, fourteen (14) beneficiaries replied that it was possible to trace the history of a weapon from import to the last owner, two (2) beneficiaries indicated that tracing was possible starting from the first legal owner, and in one (1) case, a beneficiary indicated that while it is not possible to track the history of the weapon at the present time, it will be soon. One (1) beneficiary responded negatively. There was insufficient information in the case of four (4) beneficiaries to establish whether tracing was feasible or not (see Figure 20).

Figure 20. Is it possible to trace the history of a weapon from import to the last owner?



To gain a better understanding of the beneficiaries’ tracing practices, additional follow-up questions on tracing were asked. One such question was whether every tracing request was recorded, to which eight (8) beneficiaries responded positively, while others either did not know, did not reply or were not invited to answer (for example, if they had already indicated that tracing was not possible). A question on the use of INTERPOL’s iARMS database was also asked during follow-up exchanges (see Figure 21). Given that it was not possible to collect responses for all respondents, more research will be conducted in the case studies. In fact, iARMS is a useful tool for the police who can record illicit firearms in the iARMS database and search to check if certain firearms have been reported as lost, stolen, trafficked, or smuggled.

Figure 21. Does the beneficiary use iARMS to record lost/stolen and trafficked/smuggled firearms?



Ballistic test-firing

Less documented, yet highly relevant for this project, are beneficiaries' practices regarding **passive test-firing**. Forensic ballistic and test-firing tends to take place in the context of forensic investigations to link recovered bullets from a crime scene to the marks on test-fired bullets. When a bullet is fired from a weapon, it leaves microscopic marks that allow the examiner to make an assessment of whether the bullets came from the same firearm. Passive test-firing follows the same logic, but is applied more widely and consistently (for example to all weapon holders) to generate a reference database. The manner in which this data is stored, typically via IBIS or EVOFINDER, and whether it can be linked to the civilian firearm registry, is relevant to this project. The data received on test-firing suggests that passive test-firing is occurring in certain jurisdictions, but more research will need to be conducted to explore possible linkages with registries.

The information received shows that almost one quarter of the beneficiaries (5) are currently conducting some form of passive test firing, but practices differ greatly. For example, one beneficiary is only testing firearms held by the police and firearms given to civilians under special license for self-defence (pistols and revolvers), while another requires all short firearms to be test-fired as part of their passive test-fire programme. Similarly, in another jurisdiction, new owners of short-barrel firearms are required to submit them for test-firing within seven days from the date of acquisition. Meanwhile, it is possible to have a test-firing program applied on a broader scale. As stated by one (1) beneficiary, test firings are carried out for all types of firearms that are imported for the civilian market, by the legal entities that import them. In this case, a minimum of two projectiles and two cartridge cases from the importer's test-firing must be submitted. Samples of projectiles and bullets (ballistic record) are stored in the forensics laboratory, together with the ballistic notes (ballistic record). The validity of the testing also differs from one beneficiary to the next as highlighted by one (1) respondent who only requires it once in ten years.

STATISTICAL REPORTING

Establishing good practices and the common minimum standards regarding statistical reporting is directly linked to achieving Specific objective 2 of Project REGISYNC: ‘... [to] strengthen the regular exchange of information among law enforcement agencies and registry officials of target states to prevent and detect diversion and trace seized firearms.’ Moreover, as per the 2021 Council of the European Union (CEU) (10726/21) Council Conclusions on the Implementation of the National Firearms Focal Points (NFFPs) in the EU Member States, Member States should have the ability to generate data in order to provide ‘data, statistics, information, assessments and reports...’ so they can provide the NFFPs with the necessary competences to fulfil their duties.

When asked if they produced statistical reports from the data in their civilian firearm registry, seventeen (17) beneficiaries responded that they could, three (3) could not or did not do so, and one (1) did not provide information (see Figure 22). Figure 23 reveals that these reports are generally not available to the public, but can be shared upon request.

Figure 22. Does the beneficiary produce statistical reports from the data in the civilian firearm registry?

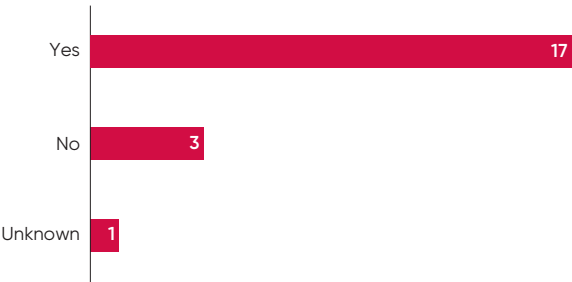
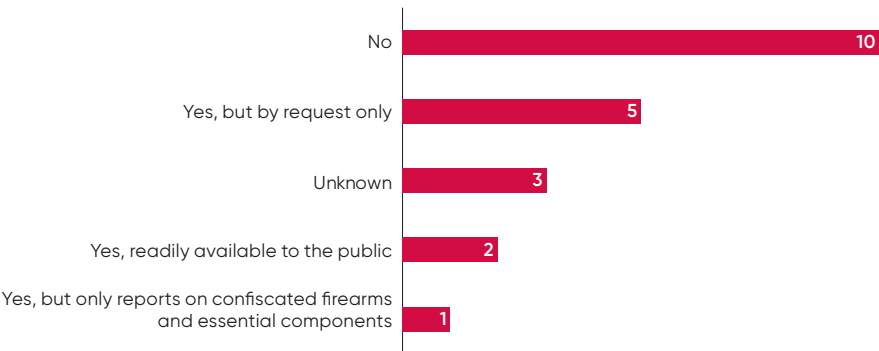


Figure 23. Does the beneficiary share these reports with the public?



CONCLUSION

With a response rate of 60% (i.e., 21 out of the 35 target beneficiaries), the REGISYNC project successfully engaged a majority of the targeted states. As expected, the data received varied both in comprehensiveness and clarity, but it allowed the team to observe common practices among national civilian firearm registries.

This study found that a significant number (10 of 21 beneficiaries) of the registries of beneficiaries surveyed include **baseline elements** such as 'ABC' categorization; legislatively defined essential components; and an authority, typically the Ministry of Interior, that both owns and is responsible for updating registry data. These elements are in line with the current EU Directive. Most registries have **security procedures** in place to access the system (to enter, edit, or view data), and rely on relational databases to store the data.

Personal data contained in the registries typically includes **names, addresses, and relevant dates** associated with dealers/manufacturers, brokers, and owners; some registries go beyond these parameters.

Firearm data contained in the registries typically includes the brand, type, model, calibre, and serial number. Information on the **essential components**, other than the frame and the receiver, is also frequently included, as is information on **limited circulation firearms** and collection firearms, deactivated firearms, firearms modified to salute and acoustic expansion, and signal-blank firearms. Far fewer registries include service or armed forces firearms in civilian registries.

Importantly, a significant number of registries include **linkages with other databases** and include a **tracing capability** or database. This partly explains why in a significant number of registries, it is possible to **trace weapons from import to the last legal owner**, although this is not necessarily conducted through the registry itself.

In terms of the **storage of records** in the registry, in most cases for which data was available, manufacture and destruction records are held for 30 years; other records are held for at least 20 years.

Finally, the ability to produce **statistical reports** from the data in the civilian registry is a typical feature of many registries. While some authorities develop and routinely make reports available, in other cases they must be requested.

While there is no objective definition of what constitutes 'common minimum standards,' the elements enumerated above provide a firm foundation and baseline of practices of a significant number of beneficiaries participating in this project, and are broadly in line with the EU Firearm Directive (for specific elements) and the International Tracing Instrument (for data retention).

A range of other practices are less common but would enhance registry performance, and eventually support harmonization, if adopted by a wider range of national authorities. These include the use of a uniform reference table such as Interpol's Firearm Reference Table; the use of a common database technology platforms and operating systems; direct access by dealers and brokers to the registry for updating relevant data; direct connection to an import/export registry database; the existence of a tracing database connected to the main civilian registry; and the use of iARMS.

While this study has shown that there are significant commonalities between beneficiaries, as well as divergences in practices, some beneficiaries with potentially exemplary practices may not have been captured because of challenges in reaching or obtaining data from them.

After the validation of this paper during the second methodology workshop in Brussels on 8 November 2022, this project will focus on selecting 10 case studies to develop a manual on effective and innovative practices, drawn from the beneficiaries already engaged. The selection criteria for that publication will be based on the recognition of beneficiaries that have advanced beyond the baseline in particular areas, and will observe geographical diversity. To foster the overall REGISYNC objective of harmonisation of firearm registries, the subsequent output will focus on issues of interoperability, data platforms, and the exchange of information.

Endnotes

- ¹ European Commission Directorate-General for Migration and Home Affairs Grant Agreement 101035950.
- ² A methodology previously tested in the Western Balkans was incorporated into this exercise.
- ³ By then, 13 of 21 participating beneficiaries reviewed and validated their fiches. These include Austria, Croatia, Cyprus, Czech Republic, France, Germany, Kosovo, Lithuania, Poland, Slovak Republic, Slovenia, Spain, and Sweden.
- ⁴ Article 1(2), Directive (EU) 2021/555.
- ⁵ This definition of slide is a translation of the Portuguese legislation because it does not exist in the EES Glossary or in the Directive of the European Parliament and of the Council of 17 May 2017 amending Council Directive 91/477/EEC on control of the acquisition and possession of weapons (Directive (EU) 2017/853).
- ⁶ Author correspondence with the Polícia de Segurança Pública (PSP), 9 December 2022.
- ⁷ Insert barrels are items which fit inside a barrel, like a sleeve, in order to fire sub-calibre ammunition, typically for cheaper training.
- ⁸ Para 10, Directive (EU) 2021/555.
- ⁹ If the serial number or unique marking on other essential parts differs from the marking on the frame or receiver, it must also be recorded (Article 4(5)(b), Directive (EU) 2021/555).
- ¹⁰ Article 4(5), Directive (EU) 2021/555.
- ¹¹ Para 11-12, Directive (EU) 2021/555.
- ¹² See Jongleux and Florquin (2020, pp. 3–4), who also note the exception of firearms considered ‘antique weapons’ under Directive (EU) 2017/853, annex 1, part III.
- ¹³ EU firearms standards require that ‘(d) any conversions or modifications to a firearm leading to a change in its category or subcategory, including its certified deactivation or destruction and the relevant date or dates’ be recorded in the registry (Article 4(5)(d), Directive EU 2021/555).
- ¹⁴ As stated in the Directive, ‘Member States shall ensure the establishment and maintenance of a computerised data-filing system, either centralised or decentralised, which guarantees to authorised authorities access to the data-filing systems in which each firearm subject to this Directive is recorded. That data-filing system shall record all information relating to firearms which is needed in order to trace and identify those firearms, including: ... (c) the names and addresses of the suppliers and of the persons acquiring or possessing the firearm, together with the relevant date or dates; and (d) any conversions or modifications to a firearm leading to a change in its category or subcategory, including its certified deactivation or destruction and the relevant date or dates’ (Article 4(5)(c)(d), Directive EU 2021/555).
- ¹⁵ The ITI states that, ‘For the purposes of this instrument, “tracing” is the systematic tracking of illicit small arms and light weapons found or seized on the territory of a State from the point of manufacture or the point of importation through the lines of supply to the point at which they became illicit’ (Para 5, International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons, 2005).
- ¹⁶ Para 12, ITI, 2005.
- ¹⁷ Article 4(5), Directive (EU) 2021/555.
- ¹⁸ Most of the information gathered for Figures 14, 15, and 16 occurred during follow-up exchanges with beneficiaries.
- ¹⁹ The EES is ‘an automated IT system for registering travellers from third-countries, both short-stay visa holders and visa exempt travellers, each time they cross an EU external border’ (European Commission, n.d.).
- ²⁰ Para 17, Directive (EU) 2021/555.

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