



Registers The New Frontier

A proposal for the development of a new target operating model for registers.

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Foreword

Our responsibilities as Registrars or our known equivalents have expanded dramatically over the past few years. The complexities in performing our duties and that of operating our registers, have also increased exponentially. These complexities are coupled with the increased expectations of our stakeholders, which now include law enforcement agencies, financial intelligence units, other competent authorities, regulators, obliged persons, and the public.

The combined effect has placed greater demands, higher expectations, and delivery pressures across all registry functions. In addition, the expectations of registry users are also evolving in line with wider digital applications they now regularly have access to. International standards and legislation such as European Union directives now require registry functions to consider transparency issues, international sanctions, anti-money laundering requirements, and how registry administration aids in effectively preventing terrorist and proliferation financing.

It is now a serious undertaking to maintain our service level commitments and the extent and responsiveness of the services we deliver. Indeed, these demands have only accelerated in a post-covid world, where working from home and other like practices have made governments rethink public service delivery. Societies are questioning the 'old normal' and considering what the 'new normal' will be. For us, this is not only about where we perform our work, how we do our work and how we operate as registries. Societal response to the pandemic has put the spotlight on many of government's orthodoxies. It is incumbent on us, as the leaders of our registry organisations within our domain, to examine these orthodoxies, and in doing so we may uncover significant improvements in our operations.

Registries need to consider significantly transforming their processes, organisational structure, and capabilities, including enhancements to their digital capabilities. We, as a public service, need to become increasingly data and insight-driven and will need to align our organisations to become more user-centric, in line with increasing international standards.

An operational statement of best practice for registries will aid the transition to the 'new normal', help with delivering effectiveness and navigate future technology advances. We hope this document will stimulate discussions on the process of investigating current registry ecosystems and that encapsulating such a statement will be highly positive to our entire registry domain. We welcome this paper's attempt at beginning this process for the benefit of all registers.

Foreword by



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Introduction

Over the last decade, the world has experienced a rapid digital transformation that has significantly impacted the public sector. Technological advancements have increased demand for end-to-end digital services, and citizens and businesses expect governments to deliver more convenient, accessible, and user-friendly services. As a result, governments need to rethink their current operating models for registries and transform to fully digital services to meet the expectations of their customer base.



Changes in the registry domain and technologies, such as AI, RPA, ML, federated identify validation frameworks, the design towards more interoperability, open data stewardship, national and global transparency regimes, and government agencies and departments restructured to operate in a post-covid world, have all influenced the need for a new more ambitious Target Operating Model (TOM) for registers. The demand for data accuracy and transparency has increased, and governments need to leverage technology and automated processes to improve data governance, management, and analysis.

There is now significant evidence that the Current Operating Model (COM) for registries is no longer adequate, and that there is an urgent need for a more agile and innovative approach that leverages the latest technological advancements, digital design thinking, the regulatory changes at a national and international level, and incorporates best practices standards and guidelines for registries and their future operations.

In this paper, the authors describe a TOM for all registers and urge the domains/registry fora to seek to publish a registry-specific TOM best practice standard. The drivers of change are critical to the new vision of operating registers for Government because they represent the factors shaping the way we use technology to manage and access information, adjust our policy frameworks, and become more efficient and effective as progressive digital governments. In a short span of the last decade, we have witnessed some of the most influencing drivers of change.

An ever-changing Register and Regulatory Landscape

The regulatory landscapes that govern registers are ever-changing as shown by international standards for fighting Anti-Money Laundering (AML), the Combating the Financing of Terrorism (CFT), Countering Proliferation Financing (CPF), new technologies, societal values, legal frameworks, the need for interoperability, and mechanisms ensuring higher data quality and accuracy are emerging. What we can learn from these in adapting our TOM are outlined:

- 1. International Standards** - Financial Action Task Force (FATF)¹ and EU AML Directives have become the primary focus of registers in recent years. This is particularly true with respect to FATF recommendation 24 & 25² and IO5. Indeed, registers are struggling to digest the array of competing regulations within this space in terms of operational effectiveness.
- 2. New Technologies** - Registers are increasingly digitised and connected to other systems through APIs, cloud computing, or blockchain technologies. This allows faster and more secure data exchange and creates new data protection and privacy challenges. Regulatory frameworks must adapt to these new technologies to ensure that registers remain secure and trustworthy.
- 3. Societal Impacts** - Changing societal values and concerns that impact our regulatory frameworks around registers include evolving need for privacy and data protection, accessibility, transparency, and compliance with other global norms (i.e., beneficial ownership frameworks), and ensuring accountability (i.e., both internal with Government and externally through users and service providers).
- 4. Legal Frameworks** - The legal and policy frameworks that govern registers are subject to frequent changes and updates. For instance, new laws may be introduced to regulate data protection, anti-money laundering (EU AML Directives a case in point), public access to information and open data policies. Regulatory frameworks need to keep up with these legal and policy developments to ensure that registers are compliant with the latest requirements.
- 5. Interoperability and standardisation** - Registers are often used across different sectors and jurisdictions, which requires interoperability and standardisation to ensure consistent data formats and quality. Regulatory frameworks must establish standards and protocols for interoperability and ensure that registers can be seamlessly integrated with other systems.
- 6. Data quality and accuracy** - Registers, other competent authorities, and obliged persons, rely on accurate and up-to-date data to be valuable and trustworthy. However, errors, fraud, or changes in circumstances can affect data quality and accuracy. Regulatory frameworks must ensure registers have data validation, verification, and correction mechanisms to maintain data quality and accuracy.

1. FATF Recommendation as at February 2023, The FATF Recommendations (fatf-gafi.org)

2. FATF Methodology for assessing compliance with the FATF Recommendations and the effectiveness of AML/CFT systems, <https://www.fatf-gafi.org/en/publications/Mutualevaluations/Fatf-methodology.html>

The globalisation of the registry domain in terms of interoperability

Interoperability is a multifaceted and complex issue, requiring support from policymakers, regulatory bodies, and adoption from governmental and private sector actors to become genuinely successful. In the early 2000s, the Organisation for Economic Cooperation and Development (OECD) noted numerous issues and barriers governments face in developing interoperability solutions. This included problems integrating legacy systems, a lack of shared standards and infrastructure, and slow adoption of technological improvements. These have been longstanding issues that are often still present in many jurisdictions around the globe.³

We recently authored a paper, **Enabling Digital Government: Interoperability and Data Exchange Across Registries**, which educates on the foundational constructs of our public registers and outlines a clear and achievable path to begin to address this critical challenge. Our registries hold valuable data developed under legislative frameworks and duplicative across information silos. Policymakers must demand interoperability up front and include it in legislation, policy frameworks and procurement approaches. Practitioners need to embrace interoperability as a core tenant of modern design thinking.

Some key developments are underway in the European Union (EU) and Canada regarding digital Government and architecting frameworks to support data interoperability. The EU has made significant advances and investments in designing and implementing its interoperability framework for all Member States.⁴ Some fundamental building blocks and lessons learned can be applied to future collaboration between public data repositories and registries nationally and internationally. Much can be gained from the foundational work around interoperability and data exchange across registers under the European Union's digital government initiatives.

Interoperability, even that which focuses on the registry domain, exposes a wide area of research, and no single methodology or specific steps can be used to improve the Current Operating Models (COM). Under a new TOM, there will be a view of, and ultimately an exchange of, shared design and component considerations across registries that improve technical and process interoperability and support data exchange.

Registers must be adaptive to ensure they stay ahead of the operating curve to ensure efficiency⁵

Governments must be proactive in adapting to changing technologies and evolving needs to ensure that public registers remain efficient and effective, such as investing in digital infrastructure to ensure that public registers can operate efficiently in a digital environment. This includes developing secure and reliable data storage and management systems and investing in technologies that can automate data processing and analysis. The TOM for registers must embrace emerging technologies, such as artificial intelligence, machine learning, and blockchain capabilities, to improve public registers' efficiency and accuracy. These technologies can automate, if not all, of the manual processes associated with managing public registers today and will provide real-time insights into key data points, to which we are limited under our Current Operating Models (COM).

3. OECD e Government Studies. The e-Government Imperative. https://www.oecd-ilibrary.org/governance/the-e-governmentimperative_9789264101197-en, 2003. (Accessed: 09.12.2021).

4. Foster Moore, Enabling Digital Government: Interoperability and Data Exchange Between Registries, 2023, <https://www.fostermoore.com/interoperability>

5. FATF IOS – effectiveness of the underlying implemented system and the relevant jurisdictional ratings.

Consolidation of more register types under a single register custodian

With ongoing consolidation of data and operations of government registries being managed under a single custodian, we need to maintain focus across the following key areas in guiding the TOM:

- 1. Increased use of artificial intelligence and machine learning:** With the increasing availability of data, there will be a need for more sophisticated tools to process and analyse this data. Artificial intelligence and machine learning technologies can be used to identify patterns and insights in data across registers that would be difficult or impossible to uncover using traditional data analysis methods. Some of these outcomes will require more attention to data management, public accountability, and governance.
- 2. Greater emphasis on data privacy and security:** As government data becomes more centralised, there will be an increasing need to ensure that this data is secure and protected from unauthorised access. This will require the implementation of robust security protocols and the use of advanced encryption technologies.
- 3. Integration with other systems and platforms:** Consolidated government registries must integrate with other systems and platforms. This will require the development of open APIs and other integration tools that enable seamless communication between different systems.
- 4. Data management:** Consolidating data from multiple sources/registers can be complex, so it is critical to have a robust data management strategy that includes data integration, data quality management, and data security measures that will need to be applied under the custodian and the management of growing registers and entity types.
- 5. Seamless service delivery:** The TOM should be designed to improve service delivery to all stakeholders seamlessly, with streamlined processes, providing self-service options, and ensuring the service model across all registers is responsive and accessible.
- 6. Change management:** Consolidating registries under a single custodian/operator can be a significant change for staff, stakeholders, and the broader registry ecosystem. A comprehensive change management plan is needed to ensure stakeholders under the key benefits derived from the new operating model.
- 7. Governance:** It is essential that the governance structures and processes under the TOM are extendable to future consolidation or extensions and ensure accountability, transparency, and full compliance with the regulatory framework in the registers and the custodian operations. This should include a clear outline of roles and responsibilities, decision-making processes, and performance monitoring and reporting.

Overall, these future trends towards consolidation under a single register custodian will need to leverage new technologies and revised processes and structures to maintain the efficiency, accuracy, and accessibility of government data. This will require a focus on developing secure and reliable solutions to meet the evolving needs of government agencies and citizens.

Data-driven government perspectives - ongoing and expedited directives around open data and data stewardship

A key characteristic of mature digital governments is that they are data-driven. They leverage their national data assets in an open framework to generate insights that improve decision-making, inspire innovation in public and private sectors, and develop advanced analytics and artificial intelligence use cases. We identify this as one of the key drivers around the future TOM for registers as government departments continuously pursue digital transformations. In the public sector, the role of data has come up against legacy technologies, particularly their data repositories and registries, and significant technical skills shortfalls to achieve a net positive outcome on progress.

A genuinely data-driven public sector recognises data as a key strategic asset with its value defined and impact measured. Thus, mature digital governments provide a cross-government, coherent approach to data governance and architecture that reflects standards, interoperability and semantics across government agencies and registers. In addition, mature digital governments are developing the necessary data regulations and the required data infrastructure to support the publication, sharing and re-use of data.

It is the authors' view that the Current Operating Model (COM) for most registers has changed little over the decades. Many transformation efforts within registry domains are technical refreshes or replacement projects for obsolete legacy systems, and these projects typically do not have any TOM or holistic design included.

The TOM is designed to help organisations improve their operations and achieve their strategic objectives. It provides a roadmap for how an organisation will operate in the future, outlining the necessary changes to people, processes, and technology. The design of a TOM involves analysing the organisation's current state, identifying areas for improvement, and designing a future state aligned with the organisation's goals and objectives. The TOM can help organisations to streamline their operations, reduce costs, improve efficiency, enhance customer experience, and drive growth.

The primary purpose of a TOM is to enable the application of a register's strategy or vision to provide register services within an operational context. It is a high-level representation of how a register authority can be best organised to deliver and execute the Register's strategy more efficiently and effectively and be far more adaptive and resilient to future changes in the domain.

Scope

The registry domain has undergone significant changes in recent years, driven by the need for new operating structures, national and international regulatory changes, and various environmental factors reshaping how registries are created, managed, and used.

These changes have prompted the development of a new Target Operating Model (TOM) designed to help registries adapt to the evolving landscape. Some of these fundamental shifts at a baseline level include:

- 1. Digital transformation:** The rise of digital technologies and the pursuit of digital-first Government mandates have transformed how registries are created, managed, and accessed. Digital transformation has led to the need to implement registry-specific software platforms, innovative data management tools, and the desire for cloud hosting and infrastructure services designed to support online registries.
- 2. Regulatory changes:** Changes in regulations and compliance requirements have impacted the way registries are created and managed. For example, the General Data Protection Regulation (GDPR) in Europe has significantly impacted how personal data is collected, stored, and processed in registries.⁶ Additionally, and most impactful, the regulatory changes being adopted around the globe to deal with Anti-Money-Laundering (AML) and Corporate Transparency in registries.
- 3. Increased data sharing:** The need for data sharing and integration between different systems and applications has become more critical in recent years. This has driven the development of new interoperability standards and protocols, as well as new data exchange platforms and services.
- 4. Shift to outcome-based models:** There has been a shift away from input-based models to outcome-based models, where the focus is on measuring the impact of registry data on outcomes such as public health, transparency, efficient and effective access to government services, driving economic growth, or improving on social welfare. This has led to the development of new performance measurement frameworks and tools.
- 5. Emergence of new technologies:** The emergence of new technologies, such as blockchain and artificial intelligence, has created new opportunities for registries to improve their efficiency, accuracy, and security. These technologies are being increasingly adopted within the registry domain.

The TOM and best practice statement guide provides a framework for modernising, managing, and using registries in the "new frontier" that considers the latest trends, technologies, operating mandates, and regulations within the registry domain. They include new governance structures, operating models, data management practices, and technology frameworks that are tailored and adaptable to the specific needs of different types of registries.

6. Regulation (EU) 2016/679 (General Data Protection Regulation)

Best Practice Statements

The following are the statements of best practice and related initiatives that are closely aligned to a best practice statement as defined by the authors:

1. Cape Town Convention (CTC) Academic Project – Guide on Best Practices for Electronic Collateral Registers (BPER):

Electronic registries are the most important element of systems that collect, store, disseminate and establish rights in data or property represented by that data. The incorrect use and mismanagement of these registries can result in liability and legal uncertainty, translating to substantial economic and commercial damages.⁷

The CTC Guide on Best Practices for Electronic Collateral Registers outlines several best practices for establishing and maintaining electronic collateral registers (ECRs) that comply with the Cape Town Convention on International Interests in Mobile Equipment requirements and its Protocols (e.g., matters specific to aircraft equipment). Some of the essential best practices include:

1. Security: ECRs should have robust security measures in place to protect against unauthorised access, data breaches, and other security threats. This includes authentication, access control, data integrity, and backup and recovery measures.
2. Reliability: ECRs should be designed to be consistently reliable and available, with appropriate backup and recovery mechanisms in place in case of system failure or data loss.
3. Technical considerations: ECRs should be designed with appropriate technical considerations in mind, including system architecture, data formats, and communication protocols, to ensure that they are interoperable and can support cross-border transactions.
4. Legal and regulatory considerations: ECRs should be established within clear legal frameworks and comply with relevant laws and regulations established under the Protocols, including data protection and privacy. Effective cross-border coordination and collaboration are also essential to ensure that ECRs can support international transactions.
5. Stakeholder involvement: Effective ECRs require the involvement of various stakeholders, including governments and regulators, financial institutions, and technology providers.

By following the BPER guide, stakeholders can establish and maintain ECRs that support the efficient and effective management of international interests in mobile equipment, helping facilitate cross-border transactions and economic growth.

7. Cape Town Convention Academic Project (CTCAP), Guide on Best Practices for Electronic Collateral Registries AUGUST 2021

2. The Legislative Guide on Key Principles of a Business Registry⁸:

The Legislative Guide on Key Principles of a Business Registry was prepared by the United Nations Commission on International Trade Law (UNCITRAL). The Legislative Guide on Key Principles of a Business Registry was prepared by the United Nations Commission on International Trade Law (UNCITRAL).

This comprehensive legislative guide has benefited from various tools prepared by international organizations that have supported such reform processes in numerous regions around the world. Data made available through the activity of international networks of business registries that, among other activities, survey and compare the practices of their affiliates in various States around the world have also been referenced.

Some of the key elements covered in the Guide are referenced here:

1. **Electronic Registries:** Jurisdictions or States looking at creating legislation or enacting reforms should also be aware that establishing an electronic business registry requires a well-designed body of law that promotes simplicity and flexibility and avoids, to the greatest extent possible, discretionary power and the making of exceptions.
2. **Interoperability and Data Exchange Across Government:** When a State has developed the ICT infrastructure necessary to achieve full business registry automation, it could be integrated with other online registration processes for taxation, social security and other purposes.
3. **Additional Funding Mechanisms:** A final improvement would be the development of mechanisms for disseminating value-added business information products to interested parties; such products could substantially contribute to the financial sustainability of the registry.
4. **Electronic versus Paper, and Hybrids:** One issue that would likely arise when the online registry is able to offer fully fledged electronic services would be whether to abolish any paper-based submission of information or to maintain both online and paper-based registration. In many jurisdictions, registries choose to have mixed or hybrid solution. A mixed or hybrid approach may result in considerable cost for registries, since the two systems require different tools and procedures. Moreover, if this option is chosen, it is important to establish rules to determine the time of registration between electronic and paper-based submissions.

8. UNCITRAL https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/lg_business_registry-e.pdf

5. Machine-readable Forms: ICT solutions could be applied to assist in the filing of financial information in machine-readable format (such as extensible Business Reporting Language, or XBRL).
6. Unique Identifiers: Although the adoption of a system of unique identifiers facilitates information sharing between public authorities, it is important that sensitive data and privacy be protected.
7. Globalization of Business and Cross-Border Exchanges: The internationalization of businesses of all sizes creates an increasing demand for access to information on businesses operating outside their national borders. However, official information on registered businesses is not always readily available on a cross-border basis due to technical or language barriers.
8. Legislation and Ever Evolving Technology: Since information technology is a field marked by rapid technological evolution, requirements in the law that establish a technology-specific approach may result in preventing further technological development. States should thus consider establishing only guiding legal principles in their legislation (in particular those of technical neutrality and functional equivalence).

Even though this report was first published in 2013, its work and its parameters were set much earlier, indeed in an era that focused on the simplification of the processes of registration and the resulting burden on SMEs. This report describes the variance in business registration systems and states that its focus is the adoption of best practices to optimise the operation of the business registry for its users so that it is simple, efficient, and cost-effective.

However, it does not derive a best practice statement for Business Registers, it makes recommendations of the environmental factors to operate a good register, such as simplified law, good systems and accurate data, proper custodianship, and standardised forms.

In our view, the recommendations are too generalised and do not constitute a statement of best practice.

3. ISO 19135-1:2015 (geographic):

ISO 19135-1:2015 provides a comprehensive framework for managing metadata for geographic information, including metadata creation, maintenance, and dissemination procedures, as well as metadata quality management and registration⁹.

The best practice guidelines for the registration of metadata, which directly applies to all types of registration datasets, include the following:

1. **Standardisation:** Metadata should be registered according to an established standard to ensure consistency, interoperability, and ease of use.
2. **Completeness:** Metadata should be complete, including all mandatory and relevant optional metadata elements.
3. **Accuracy:** Metadata should accurately describe the data it represents with correct and up-to-date information.
4. **Consistency:** Metadata should be consistent with the data it represents, with unambiguous relationships between the metadata and the data.
5. **Accessibility:** Metadata should be easily accessible to potential users, with clear and concise descriptions that are easy to understand.
6. **Maintenance:** Metadata should be regularly reviewed and updated to ensure its accuracy and relevance over time.
7. **Versioning:** Metadata should be versioned to track changes over time and provide a clear record of the evolution of the data.
8. **Interoperability:** Metadata should be designed to facilitate interoperability with other metadata standards and systems.
9. **User feedback:** Users should be encouraged to provide feedback on the metadata to help improve its quality and relevance over time.
10. **Governance:** Metadata registration should be governed by established policies and procedures, including quality control and quality assurance processes.

9. ISO/CD 19135 Geographic information registration — Requirements, <https://www.iso.org/standard/83471.html>

4. European Commission - Best Practices for Registers and Registries¹⁰:

The European Commission's Best Practices for Registers and Registries provides recommendations for establishing and maintaining national registers and registries that can support effective and efficient policymaking, implementation, and monitoring across a range of policy areas. The document outlines a framework of best practices that can be applied to the development and management of registers and registries, including:

1. **Legal and institutional frameworks:** Registers and registries should be established within clear legal frameworks that provide a sound basis for their operation. It is also essential to ensure that institutional arrangements are in place to support the effective management of registers and registries.
2. **Governance and management:** Registers and registries should be governed and managed transparently and with accountability, with clear roles and responsibilities for stakeholders involved in their operation.
3. **Data quality:** Registers and registries should ensure data quality, accuracy, and completeness and implement appropriate measures to safeguard data privacy and security.
4. **Interoperability:** Registers and registries should be designed to be interoperable, allowing for seamless integration with other data systems and registers.
5. **Accessibility and usability:** Registers and registries should be designed to be accessible and user-friendly, with appropriate tools and resources to support data analysis and reporting.
6. **Continuous improvement:** Registers and registries should be subject to continuous improvement processes, including regular review and evaluation of their performance, to ensure that they continue to meet evolving user needs and policy requirements.

Overall, the European Commission's Best Practices for Registers and Registries provides a comprehensive framework for establishing and managing registers and registries that can support effective policymaking, design, and implementation guidelines, and monitoring frameworks, which encompasses the support of economic growth and social progress.

10. European Commission (EC), Best Practices for registers and registries, <https://joinup.ec.europa.eu/collection/are3na/solution/re3gistry/best-practices-registers-and-registries>

5. Dun and Bradstreet - Best Practices in Registration Data Management:

Dun and Bradstreet identify several key challenges in managing registration data and how some fundamental data management principles and practice guidelines within our target operating model can address them:

1. **Data quality:** One of the biggest challenges in managing registration data is maintaining data quality. To overcome this challenge, future operating models for registries should focus on standardising data collection processes and implementing data quality checks. This can include establishing data governance frameworks, defining roles and responsibilities for data management, and regularly updating and maintaining data.
2. **Data security:** Another critical challenge is ensuring the security of registration data. To address this challenge, future registry operating models should prioritise data security by implementing appropriate security measures, such as encryption, limited access to sensitive data, and regular security audits.
3. **Data silos:** A common challenge is that registration data is often siloed within different departments or agencies, making it difficult to share and use the data effectively. To overcome this challenge, future operating models should prioritise integrating data across departments and agencies and implement a centralised data repository on a registry allowing easy sharing and collaboration.
4. **Data privacy:** With increased concerns around data privacy, future operating models should prioritise data privacy by implementing appropriate policies and procedures for handling personal information. This can include implementing privacy-by-design principles, such as data minimisation and purpose limitation, and ensuring data are collected and used transparently and ethically.
5. **Data interoperability:** Finally, the target operating model should prioritise data interoperability by implementing standardised data formats and protocols, allowing seamless data sharing and collaboration across different systems and platforms.

Dun & Bradstreet has identified a set of best practices for managing registration data that are helping government organisations ensure data integrity and mitigate the risk of fraud. When implemented together, these best practices create an end-to-end Registration Data Management solution that leverages comprehensive, third-party commercial data to verify, authenticate, and monitor the registration data of businesses and individuals. Government agencies implementing this approach have realised several benefits:¹¹

1. Improved management of registration data;
2. Better data integrity – more complete, accurate, timely and linked;
3. Significant reduction of business fraud and other crimes;
4. More efficient renewals of licenses, permits and other registration requirements;
5. Enhanced transparency of business information and processes;
6. Improved collection of taxes, fees, and other payments; and robust data that can be used to promote economic development and other government initiatives.

11. Dun and Bradstreet, Best Practices in Registration Data Management, 2011, https://www.dnb.co.uk/content/dam/english/dnb-solutions/risk-management/whitepaper_registration_management.pdf

By designing and implementing registries that prioritise data quality and integrity, enable verification and authentication leveraging with 3rd party data sources and applications, protect privacy, and ensure interoperability, Government can better manage and ensure the integrity of the data, enhance service delivery, and improve the overall efficiency and effectiveness of data management operations.

6. Organisation for Security and Cooperation (OSCE) in Europe - Developing a Positive Climate for Business and Investment: A Best Practice Guide¹²:

The OSCE practice guide provides a framework for improving the investment climate by establishing a supportive business environment. It emphasises the importance of creating a transparent and predictable legal framework to foster trust in digital processes. It highlights the need to develop e-government systems that are secure, efficient, and user-friendly and to ensure that electronic registries are interoperable with other systems to support cross-border transactions.

The guide also highlights the importance of effective digital Government, including e-government and digital registers, in facilitating investment and business growth. It emphasises the need for governments to adopt best practices in digital governance, such as establishing a digital strategy, creating a regulatory framework for electronic transactions, and ensuring data security and privacy.

In addition to these published works that describe and outline best practices related to the registry domain, there are some valuable insights from the global consultancy arena around operating models for digital Government that are relevant to outline.

7. McKinsey's – Introducing the Next Generation Operating Model for a Digital World:

The McKinsey paper provides insights that can help inform the Government about developing future target operating models for electronic registries. Technology is a core element of any next-generation operating model, and it needs to support much faster and more flexible deployment of products and services¹³.

The paper outlines four fundamental principles for next-generation operating models that can be applied to governments' digital transformation; these include:

1. Customer-centricity: The next-generation operating model should be designed around the needs and preferences of customers while supporting internal government processes or organisational structures within a completely digital operating environment. This can involve improving the user experiences (i.e., externally and internally), providing easy access to information and services, and leveraging digital tools to simplify and streamline processes.

12. Organisation for Security and Co-operation in Europe, Developing a positive climate for business and investment: A Best Practice Guide, 2022, <https://www.osce.org/secretariat/518247>

13. McKinsey, The next-generation operating model for the digital world, 2017, <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-next-generation-operating-model-for-the-digital-world>

2. End-to-end digitisation: The next-generation operating model should leverage digital technologies to fully automate processes, reduce or even remove manual intervention (unless dealing with complex reviews), and enable real-time decision-making. This can involve automated validations, electronic signatures and digital authentication frameworks, document management tools, and other digital tools and platforms embedded in the processes (e.g., AI and RPA).
3. Agile ways of working: The next-generation operating model should be based on agile principles, such as cross-functional teams, rapid prototyping, and continuous improvement, which can support fast and flexible responses to changing user needs, legislative and regulatory changes, and adaptation to market conditions.
4. Empowered employees: The next-generation operating model should empower employees to take ownership and perform more knowledge-based work activities, make informed decisions, and drive innovation through a culture of trust, collaboration, and experimentation.

The next-generation operating model should be designed to support the Government's digital strategy and enable the organisation to deliver digital services effectively. This may involve reorganising the organisational structure, developing new processes and workflows, and leveraging new technologies such as cloud computing and artificial intelligence.

By applying these principles towards future modernisation objectives, government organisations can better adapt to a TOM designed for more efficient, effective, and customer-focused electronic registries.

8. PWC – The Journey to Digital Government 5.0¹⁴:

The Journey to Digital Government 5.0 outlines a vision for the future of digital Government, where technology is used to improve the lives of citizens and drive economic growth. The paper highlights several key areas where digital technologies can be leveraged to create a more efficient, effective, and customer-focused government, including electronic registers.

In the context of electronic registers, the PwC paper emphasises the importance of creating integrated, citizen-centric solutions that can streamline processes and improve access to information and services. This can involve using advanced analytics and artificial intelligence (AI) to automate decision-making and provide real-time insights into critical government data. It can also involve using blockchain technology to create secure, tamper-proof records that authorised parties can easily access.

The paper also emphasises the importance of creating a digital ecosystem supporting collaboration and innovation across government agencies and stakeholders. This can involve creating common standards and platforms for sharing data and information and fostering a culture of experimentation and entrepreneurship to drive innovation.

14. PWC, The Journey to Digital Government 5.0, 2022, <https://www.pwc.com/m1/en/publications/documents/the-journey-to-digital-government-part-two.pdf>

Overall, the PWC provides a valuable framework and principles to apply to the TOM for electronic registers in Government by emphasising the importance of creating integrated, citizen-centric solutions and fostering collaboration and innovation across different government agencies and stakeholders.

Developing our Target Operating Model (TOM) around these collective best practices in the redesign of government registries is critical so we can achieve some key benefits and outcomes:

1. **Improved data quality:** A TOM based on best practices can help ensure that data in government registries is accurate, complete, and consistent. This can improve the quality of data-driven decision-making and enable better policy development.
2. **Increased efficiency:** A well-designed TOM can help streamline registry operations, reducing costs and improving service delivery. This can result in faster response times, reduced processing times, and more efficient use of resources.
3. **Better stakeholder engagement and customer centricity:** A TOM based on best practices can help facilitate stakeholder engagement and participation. This can include input from the public, other government agencies, industry groups, and other stakeholders who rely on the data contained in government registries.
4. **Greater transparency:** A well-designed TOM can help increase transparency in managing government registries. This can enhance public trust and confidence in government institutions and promote a more open and accountable Government.
5. **Improved interoperability:** A TOM based on best practices can help ensure that government registries are interoperable with other Government and private-sector systems. This can promote data sharing and improve data quality, enabling better decision-making and policy development.
6. **Digital transformation:** Incorporating best practices into the TOM can enable government registries to leverage digital technologies and transform operations. This can improve data quality, reduce costs, and increase stakeholder engagement and participation.

Best practice statements, including standardisation, quality, innovation, and international harmonisation, can significantly benefit the international registry domain. These published works provide a comprehensive set of best practices to be considered and incorporated into the design and management of a registry and the next-generation digital Government operating models. Using some of these common themes around best practices and digital design principles, we can develop our TOM so that the domain can ensure that their future registries operate effectively and efficiently and provide high-quality data for decision-making and research.

13. PWC, The Journey to Digital Government 5.0, 2022, <https://www.pwc.com/m1/en/publications/documents/the-journey-to-digital-government-part-two.pdf>

Register Best Practice

While the authors recognise that a best practice statement may vary depending on the specific context, legal and regulatory environment, and, indeed, the goals and objectives of the Register, a statement of best practice for registers can be primarily grouped into six distinct efforts by the Register to maintain efficiencies in operation:

1. **Data Quality:** Registers are only as good as the data they contain, so it is essential to ensure that the data is accurate, complete, and current. This can be achieved through regular data cleansing, validation, and verification processes.
2. **Data Governance:** Establishing clear policies and procedures is critical to ensure the integrity and security of the data in the Register. This includes defining roles and responsibilities for data management, ensuring compliance with relevant regulations and standards, and implementing appropriate data security measures.
3. **Stakeholder Engagement:** Effective stakeholder engagement is essential to ensure that the Register meets the needs of its users. This includes engaging with data providers, users, and other stakeholders to understand their needs and requirements and ensuring that the Register is designed and operated to meet those needs.
4. **Standardisation:** Standardisation of data elements and formats is critical to ensure consistency and interoperability between registers and other systems. This can be achieved by adopting common standards and protocols, such as those developed by international organisations like ISO or IETF.
5. **Automation:** Automation of register operations can help to improve efficiency, reduce errors, and free up staff time for more complex tasks. This can include the use of automated data validation and verification processes, as well as the use of software tools to manage and process data.
6. **Continuous Improvement:** Registers are dynamic systems that require ongoing maintenance, improvement, and adaptation to meet changing needs and requirements. It is essential to establish a culture of continuous improvement, which includes regular review and evaluation of the Register's performance, ongoing data quality monitoring, and identifying and implementing improvements and enhancements as needed in addition to changing needs of stakeholders, including end users/consumers.

The following are what the authors consider the characteristics of best practices within register operations. This list is not exhaustive and requires further validation by register operators of a wide range of register types (legislation):

- **Customer (citizen and business) centric approach¹⁵:**
 - ⊙ Customer-first/Customer centricity to provide a positive user experience and build long-term relationships.
 - ⊙ A focus on customer value drives the design of processes, policies, and incentives (even for back-office processing).
- **Support all register channels and ecosystems:**
 - ⊙ Registers will typically have complex/tiered channels to their stakeholders.
 - ⊙ Recognition that most customers will interact with the Register through third-party products and separate implementations, not simply on designated Register Portals.
- **Self Service¹⁶:**
 - ⊙ It should be possible for a customer to consume services independently of support channels.
 - ⊙ Extensive context-sensitive support that allows a customer to fulfil a service without recourse to the Register.
- **Fully electronic registers:**
 - ⊙ Every facet, every form and every service must be electronic.
 - ⊙ In a post-covid world, if a register service is not electronic, it does not exist.
- **Register Process Automation¹⁷:**
 - ⊙ Extensive use of AI and RPA.
 - ⊙ Manual intervention in processes remains the exception to the processing of filings.
 - ⊙ Throttling of the level of automation over time.
- **Extensible¹⁸:**
 - ⊙ Register Authority must, with ease, support additional register types/legislation.
 - ⊙ Changes in the legislative and regulatory landscape cannot be predicted nor foreseen; the underpinning technology and related systems must support new register types within existing investments.

15. New South Wales Government, 2021, Towards a Customer Centric Government, <https://www.nsw.gov.au/nsw-government/projects-and-initiatives/towards-a-customer-centric-government>

16. New Zealand Government, Service Design, <https://www.digital.govt.nz/standards-and-guidance/design-and-ux/service-design/>

17. Gartner – Top 10 Government Technology Trends for 2023 <https://www.gartner.com/en/newsroom/press-releases/2023-04-17-gartner-announces-the-top-10-government-technology-trends-for-2023>

18. United Kingdom Government, Government Digital Services, 2015, Characteristics of a Register, <https://gds.blog.gov.uk/2015/10/13/the-characteristics-of-a-register>

- **Cloud Hosted¹⁹:**
 - ⊙ Register physically deployed in the Cloud to use unlimited infrastructure services (throttling for peak periods).
 - ⊙ Business Continuity Planning is made more accessible by the entire register services deployed in the Cloud.
 - ⊙ Use of Public Offices/Counters eliminated.
- **Flexible/Configurable:**
 - ⊙ Changes to the setup of the Register should be affected easily and quickly.
 - ⊙ Changes reflected across all services are ubiquitous, irrespective of the delivery channel.
- **Business Intelligence / Reporting:**
 - ⊙ A fully automated electronic register relies on its ability to report in real-time and handle processing or transaction exceptions.
 - ⊙ Extensive reporting capabilities.
- **Benchmarking Performance Monitoring:**
 - ⊙ Publish how the Register performs – annual report or live processing statistics.
 - ⊙ Performance of the Register is continually assessed to enable reconfiguration based on current environmental conditions and service demand.
 - ⊙ Use benchmarking in their operations to measure themselves against internal or external standards.
- **Continuous Improvements:**
 - ⊙ Process of continually improving register services, preferably with shared services road maps.
 - ⊙ Use of COTS products with an inherent vision of future-proofing the technical underpinnings of the Register.
- **Absence of technical or functional obsolescence:**
 - ⊙ Functional or technical systems are not allowed to degrade.
 - ⊙ The Register always deploys the latest process design and is supported by suitable technology.
- **Standardisation²⁰ (Data and identity):**
 - ⊙ Data across the registers is standardised, and identity management systems are consolidated. Minimum viable data set – no duplication.
 - ⊙ The Once Only Principle – citizens are not asked for data elements already provided while consuming other services.
 - ⊙ Data supplied to register is not requested multiple times.
 - ⊙ Interoperability and connections to other registers and data sources.

19. New Zealand Government, Government Cloud Programme, <https://dns.govt.nz/digital-government/programmes-and-projects/cloud-programme/>

20. Government of Ireland, DPER, Public Service Data Strategy, 2019-2023, <https://assets.gov.ie/7107/7ac4ae109cd944dc99c9e178962fa095.pdf>

- **Published vision of public service:**
 - ⊙ Roadmap of improvements to the public service.
 - ⊙ The recognition is that register services exist within a more comprehensive public services design with a consolidated approach to their delivery.
- **Public Service Design incorporates the views of citizens and businesses²¹:**
 - ⊙ Service design is inclusive.
 - ⊙ Increased interconnection and diffusion.
- **Focus on the processes rather than the digitisation²²:**
 - ⊙ Differentiation of the efficiencies in processes to be supported rather than simple digitisation.
 - ⊙ Much of Register's past efforts have been digitising existing paper processes.
 - ⊙ Legislation is mainly premised on paper processes.
- **Know Your Customer (KYC):**
 - ⊙ Implement systems that reduce the risk of placing natural persons on the Register that have not been validated, which may cause reputational risk for the Registration Authority.
 - ⊙ KYC processes for registers are wholly inadequate or non-existent.
 - ⊙ Implement minimum KYC processes for natural persons triangulated against available data sources.
- **Protects Citizens' identity concerning overarching privacy legislation or principles²³:**
 - ⊙ Identity Assurance Principles and privacy-related aspects of identity-related initiatives must be strictly adhered to.
 - ⊙ The Register shall not syndicate personal information from the Register that was supplied under specific conditions.
 - ⊙ The Register will deploy sufficient security infrastructure to protect the personal information retained on its Register from the public and its staff.
- **Transformation of the Registers as part of broader e-Government initiatives:**
 - ⊙ Coordinate with the other agencies of Government that the Registers remain the single source of truth – canonical.
 - ⊙ Transformation efforts of the Register are part of Government-Wide efforts to improve public services.

21. United Nations Development Programme, UNDP, 2011, "Design Thinking for Public Service Excellence", Global Centre for Public Service Excellence, https://www.undp.org/sites/g/files/zskgke326/files/publications/GPCSE_Design%20Thinking.pdf

22. New Zealand Government, Strategy for a Digital Public Service, <https://www.digital.govt.nz/digital-government/about-digital-government/introduction-to-nzs-digital-transformation/>

23. European Union, Global Data Protection Regulation, 2018, <https://gdpr-info.eu>

- **Support SMEs by the creation of new value-add products:**
 - ⊙ Digital transformation will create a new set of potential products and or intermediaries that consolidate/amalgamate and harmonise the product sets.
 - ⊙ The Register should make available its data in a consumable format to allow SMEs to create new products and increase the value and transparency of the Register.
 - ⊙ The Register Authority should resist the inclination to control and monopolise the data provided to the Register.
- **Targeted promotion and marketing efforts to motivate and increase the use and the correct use:**
 - ⊙ Adopt reframed marketing strategy concerning changing stakeholder behaviour and improve it by reinforcing submission errors/send-back.
 - ⊙ The Register should always publicly aim to promote the efficient use of the Register.
- **Represents the operational view of the Register to promote legislative improvements:**
 - ⊙ The Registration Authority seeks to modernise the legislative basis to improve the public service design.
 - ⊙ As the primary input to all register operating models, the legislation should provide feedback on the operational view to legislative change.
- **Reduction or absolute removal of paper/public offices in a post-Covid world²⁴:**
 - ⊙ Maintaining public offices with over-the-counter physical services is unsafe in a post covid world and delays the transformation possible.
 - ⊙ Removal of all public service offices and information counters.
- **Identity Validation Services²⁵:**
 - ⊙ All registry services should include online identity validation and removing physical identity processes.
 - ⊙ IDV should be incorporated into every onboarding process for customers of the Register.
- **Enforcement /Regulatory:**
 - ⊙ Automated enforcement processes
 - ⊙ Risk profiling of entities and natural persons related to register entities.
 - ⊙ Automation of processes affords the Registration Authority more bandwidth for value-add regulatory processing.

24. World Economic Forum, How to transform your business model for a post-COVID future, 2020, <https://www.weforum.org/agenda/2020/11/transform-business-model-post-covid-future/>

25. United Kingdom, Companies House, Companies House Reform: Identity Verification, 2022, <https://companieshouse.blog.gov.uk/2022/12/12/companies-house-reform-identity-verification/>

- **Interoperability²⁶:**
 - ⊙ Registers adhere to the principle of being canonical, whereby the Register only stores data pertaining to the legislation that instantiated it.
 - ⊙ Registers interrogate all other available data sources and registers to validate register entities or for triangulation.
 - ⊙ Interface layer
- **Primacy²⁷:**
 - ⊙ The Register is the single source of truth consistent with its legislation.
 - ⊙ The Register will exist within an ecosystem of other related bodies or government agencies that can interrogate it securely and efficiently.
- **Transparency:**
 - ⊙ The ultimate function of a public register is to be transparent. Opening the Register to as broad an audience in terms of scrutiny is what makes the Register efficient.
 - ⊙ Use of Open Data and other platforms to increase the accessibility of the Register is essential.
- **Security²⁸:**
 - ⊙ The security infrastructure, procedures and processes directly reflect on the reputation of the custodian of the Register.
 - ⊙ Misuse of the Register, fraud (strawman filings), identity theft and other nefarious transactions on the Register directly reflect on the Register – consider the PSC in the UK leading to the latest Corporate Bill.
- **Data Integrity²⁹:**
 - ⊙ The data integrity and the quality of the processes validating this data are the key metrics of the efficiency and effectiveness of a register.
 - ⊙ The Register should always seek to sample its register data to ensure anomalies are identified.
- **Compliance with Standards:**
 - ⊙ Adopting and adhering to existing international and/or jurisdictional standards means the Register implements best practices and ensures greater interoperability for it and its peers—for example, XBRL and ISO OSI.
 - ⊙ The registration authority should cooperate in efforts to standardise its data at a jurisdictional level and with its peers at an international level.

26. Foster Moore, Enabling Digital Government: Interoperability and Data Exchange Between Registries, 2023, <https://www.fostermoore.com/interoperability>

27. United Kingdom Government, Government Digital Services, 2015, Characteristics of a Register, <https://gds.blog.gov.uk/2015/10/13/the-characteristics-of-a-register>

28. Gartner – Top 10 Government Technology Trends for 2023 <https://www.gartner.com/en/newsroom/press-releases/2023-04-17-gartner-announces-the-top-10-government-technology-trends-for-2023>

29. OECD, Good Practice Principles for Data Ethics in the Public Sector, <https://www.oecd.org/gov/digital-government/good-practice-principles-for-data-ethics-in-the-public-sector.pdf>

Target Operating Model (TOM)

The authors propose a TOM for registers based on our outlined statement of best practice for registers. It is the authors' view that the Current Operating Model (COM) for most registers has changed very little over the decades. Furthermore, many transformation efforts within registry domains are simply technical refreshes, redesigned user interfaces, or replacement projects for legacy systems, which are redundant, and these projects typically do not have a TOM as part of their overall design.

We view the TOM as the target of the transformation model derived right from the beginning of the strategic model as per the following, where the best practice statement defines the target³⁰:

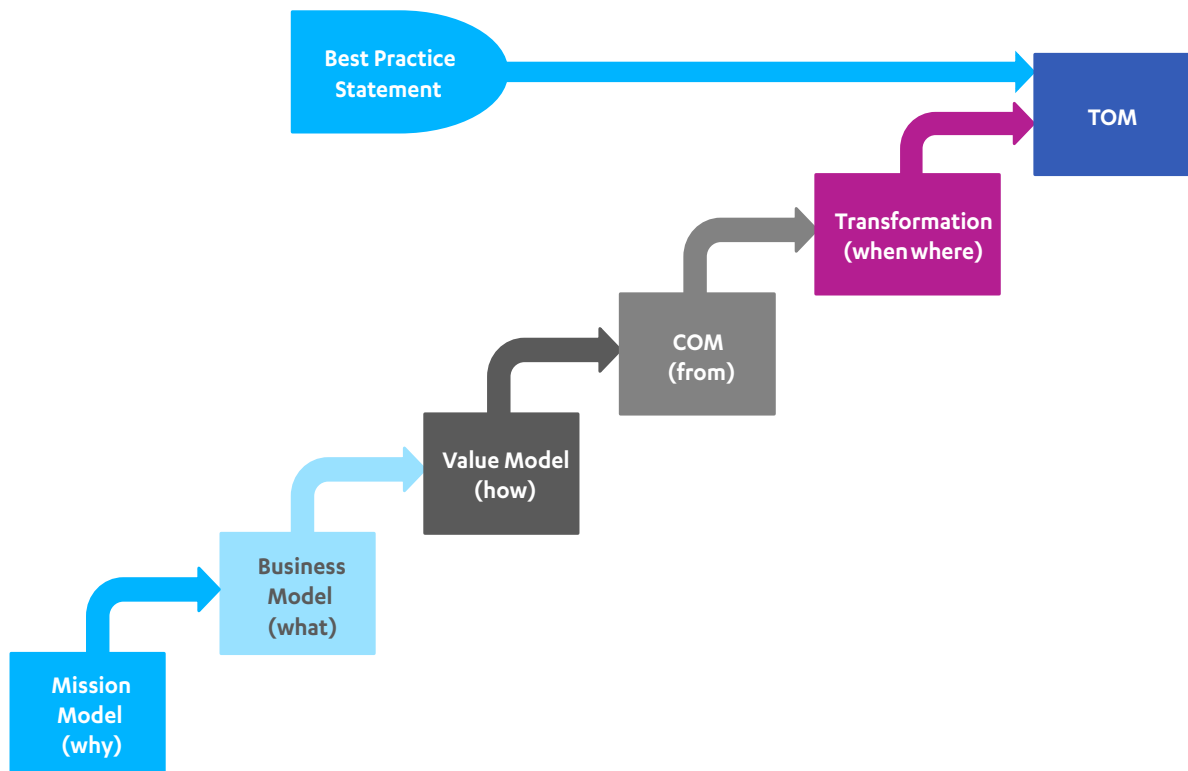


Figure 1: Deriving our Target Operating Model

30. THE STRATEGY JOURNEY: How to transform your business operating model in the digital age with value-driven, customer co-created and network-connected services, 2020, Julie Choo and Graham Christian

Periods of transformation

The following describes the significant transformation efforts by registers in broad strokes over the last number of decades:

Decades	Label	Characterised by
1980-1990s	Digitisation	Document and Image Management Systems; Disaster Recovery; Scanning and Web Site Deployment.
1990-2000s	Digitalisation	Electronic Form Filing; ICR/OCR; Redaction; XML; Web Services and API.
2000- 2010s	Standardisation	Payload standards; XBRL; Form Configuration; Rules Engine; Syndication; BPR; Digital Signatures; Digital Payments; Electronic Certificates and One Stop Shops (OSS).
2010 – 2020s	Transformation	New Register Types; Cloud Hosting; Extensibility; Technology Refreshes; UX; Web 2.0; KYC and AML.
2020s - Current	Automation	Artificial Intelligence (AI); Automation (RPA); Identity Validation/ Biometrics; Data Integrity and Regulatory Compliance.

A TOM's primary purpose is to enable the application of a corporate strategy or vision to a business or operation. It is a high-level representation of how a register authority can be best organised to deliver and execute the Register's strategy more efficiently and effectively. A TOM allows the Register to be more adaptive and retain a resilient operating model concerning future changes within their domain. It is the destination of where the transformation efforts of a register should lead to. The authors note that a TOM is mainly absent from many register transformation projects.

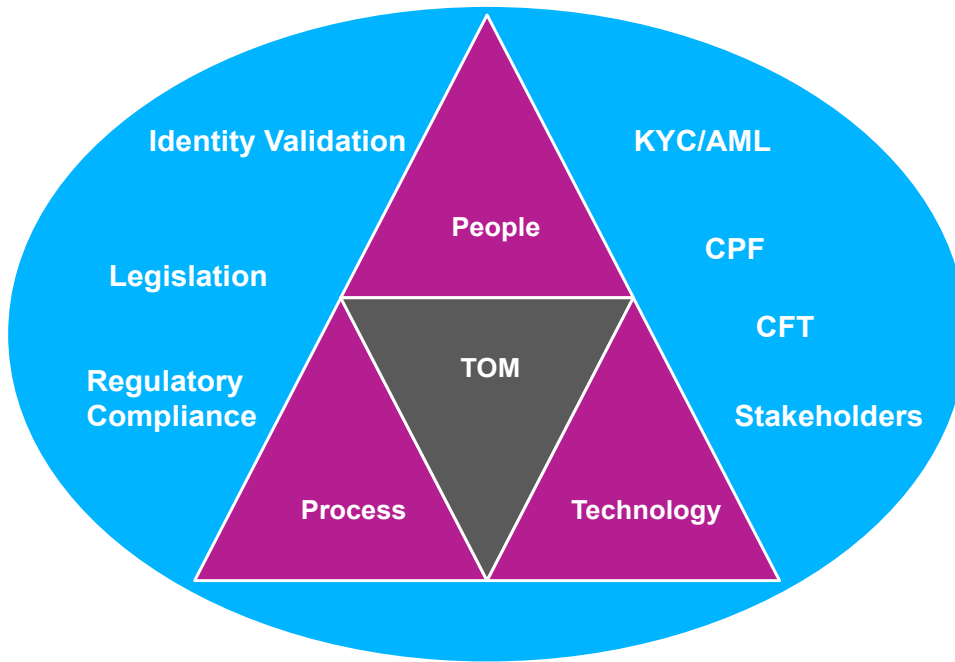


Figure 2: Register TOM Environment

A TOM for a register domain should reflect the following:

1. Strategic Objectives:
 - a. Increase efficiency and accuracy of register services and the data that is persisted.
 - b. Improve customer satisfaction through better service design and better support of those services.
 - c. Enhance data security and privacy for customers.
2. Operating Model Components:
 - a. Process Improvement: Implement streamlined register services with clear guidelines and procedures for staff to follow regarding manual interventions. Conduct regular process audits and reviews to identify and address any bottlenecks or inefficiencies, as many of these processes and reporting such processes should be automated.
 - b. Customer Service and Support: Establish a dedicated customer service team to handle inquiries and support customers. Develop a knowledge base and provide training to customer service representatives to ensure they are equipped to assist customers effectively. Have a feedback loop from Customer Service to the Service Design Team.
 - c. Data Security and Privacy: Implement robust data security measures, including regular security audits, staff training, and compliance with relevant data protection regulations. Establish precise data collection, storage, and sharing guidelines to protect customer privacy.

3. Technology and Infrastructure:

- a. **Systems and Tools:** Invest in a modern registration system that is user-friendly, efficient, adaptive, and scalable. This system should handle high volumes of register services and integrate with other systems and tools as needed. This system should also allow the Register Authority to add new registers as legislative requirements change.
- b. **Data Management:** Implement a robust data management system that allows for easy retrieval and analysis of customer data. Ensure that this system complies with relevant data protection regulations and is regularly audited and maintained to ensure data accuracy and security.
- c. **Infrastructure:** Ensure that the necessary infrastructure is in place to support the register services, including reliable internet connectivity, secure servers, and backup systems to ensure continuity of service in the event of system failures or other disruptions.

4. People and Culture:

- a. **Skills and Training:** Provide staff with the necessary skills and training to operate the new registration system and deliver high-quality customer service. Encourage ongoing professional development and provide opportunities for staff to develop their skills and knowledge towards future innovations.
- b. **Communication and Collaboration:** Foster a culture of open communication and collaboration within the registration team and the broader organisation. Encourage staff to share ideas and feedback to drive continuous improvement in the registration process and customer service.

5. Performance Management:

- a. **Metrics and KPIs:** Establish clear performance metrics and KPIs to measure the success of the new operating model. Monitor progress against these metrics and adjust as needed to ensure that objectives are being met.
- b. **Performance Reviews:** Conduct regular performance reviews with staff to provide performance feedback and identify improvement opportunities. Use these reviews to establish goals and development plans that align with the overall strategic objectives of the register domain.

6. Governance and Compliance

- a. Ensure that the target operating model includes strong governance and compliance processes to ensure that the data held in the registers are accurate, secure, and compliant with relevant regulations and legislation.
- b. Include processes for data quality checks, data security protocols and data retention policies.

A TOM should incorporate the following vital threads. It is hoped that registers will assess their operations against such a framework:

Data Integrity: As a custodian of a register, it is essential that Register makes and is seen to make every effort to ensure the accuracy of registry records. The data integrity of the Register directly reflects on the reputation of the custodian of the Register. Recent events with the instantiation of beneficial ownership registers and their accuracy have demanded legislative changes when the accuracy of the data in the Register is questioned.

Ensure Data Security and Privacy: Most registers contain sensitive information, so it is crucial to keep it secure and protect the privacy of the natural persons and other entities on the Register. This includes limiting access to authorised personnel only and implementing appropriate security measures to prevent unauthorised access. There is a delicate balance to be sought between privacy requirements and the transparency of the Register. Register continues the practice of providing extracts of their registers to third-party intermediaries under a contract which contravenes the right of the Register to retain personal information but not distribute it.

Regular Audits: Reviewing and auditing the register records can help ensure their accuracy and relevance. With the advent of fully automated registers, sampling register records to ensure compliance with the underlying legislation is essential.

Provide easy and intuitive access to the Register³¹: Ensure it is easily accessible to those who need it, including government agencies, businesses, and the public. Enable bulk access to the Register through APIs or web services, open data services and other interfaces—the greater the Register’s scrutiny, the greater the Register’s accuracy in return.

Compliance with relevant laws and regulations: Ensure the Register complies with all relevant laws and regulations, including data protection and privacy regulations. This includes obtaining the proper consent from legal entities before entering their information on the Register and allowing them to remove their information if requested.

Maintain Transparency and Accountability³²: Be transparent about the purpose of the Register and how the information will be used. Also, ensure that the Register is accountable to the public and other stakeholders by providing regular updates and reporting on its activities.

Educate Stakeholders: Provide education, training, and engagement with all stakeholders about the purpose of the Register, how to access it, and how their information will be used. This can help ensure that stakeholders understand the importance of the Register and its role in promoting transparency and accountability in the community.

31. Open Ownership, Guide to implementing beneficial ownership transparency, 2021, <https://openownershiporgprod-1b54.kxcdn.com/media/documents/oo-guidance-implementation-guide-2021-07.pdf>

32. United Kingdom, Companies House, Corporate Transparency and Companies House Register Reform- Impact Assessment, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057767/corporate-transparency-and-register-reform-white-paper-impact-assessment.pdf

Collaboration: Collaborating with other government agencies, stakeholders, and users to improve the quality and usefulness of the Register in its jurisdictional context. The authors’ previous paper on the importance of interoperability of the Register within a connected landscape is appropriate here.

Standardisation: Adherence to relevant standards or domain models by the Register ensures its interoperability with other registers and affords the Register better service design. To ensure that a TOM is effective, it is essential to review and update it as needed regularly.

This may involve identifying areas for improvement, implementing new processes or technologies, and continually monitoring and evaluating performance to ensure that the model delivers the desired outcomes.

When we receive feedback or consensus on our best practice statement, the authors intend to refine our TOM and create a maturity assessment model for registers to suggest a more efficient operating model. The authors will also describe the architectural principles of a register system in terms of the technology element of the PPT framework in future papers derived from our statement of best practice.

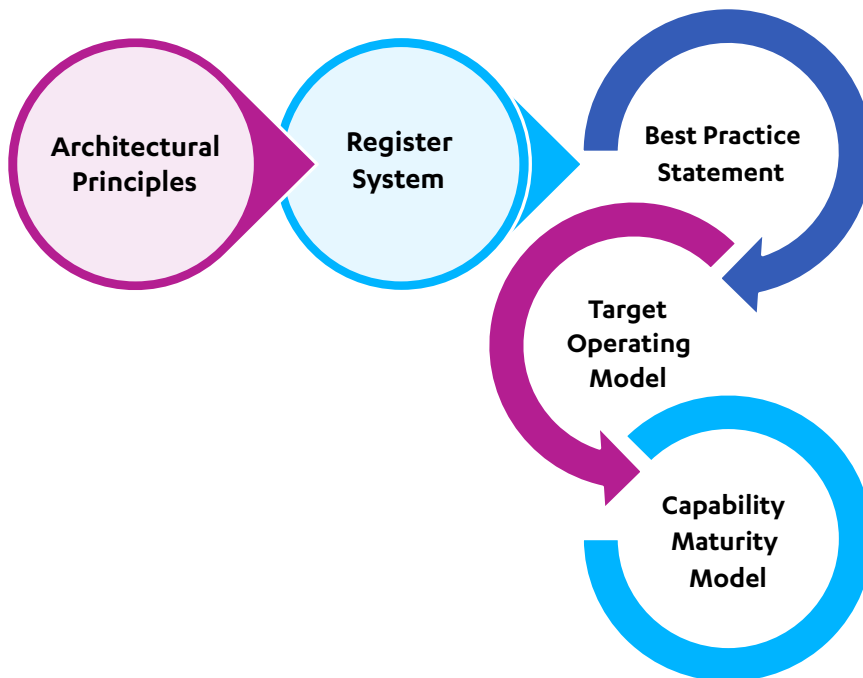


Figure 3: Intended Scope of Future Paper

Towards a Capability Maturity Model (CMM) for Registers

A CMM will be drafted by us once we have received feedback on our statement of best practice, from which we will then derive a TOM, we do include here the following as reference for the operators/custodians of registers to critically appraise their operations:

1. People

- a. Are your people organised into section/divisions?
- b. Are your people trained specifically for different registration types?
- c. Do your people transition/alternate to different parts of the organisation on a designated basis?
- d. Do you maintain public offices or representation offices to assist customers?
- e. Do you operate a contact centre with personnel trained to the same level as registration personnel?
- f. How large is your customer support with respect to the total organisation size?
- g. How many of your staff undertake risk profiling, KYC, enforcement of your register?
- h. Are staff authorised to make decisions to help customers without requiring approval from management on every occasion?
- i. Do you have teams organized for agile ways of working (e.g., cross-functional, rapid prototyping, continuous improvement)?

2. Process

- a. Are your current processes accurately documented?
- b. Have your processes undergone a review in the recent past in terms of a Business Process Reengineering (BPR) exercise?
- c. Have you identified any processes for redesign?
- d. Do you consider that all your current processes can be automated?
- e. Are processes consistent with the legislation?
- f. Have you implemented a continual improvement process that includes regular review and evaluation of performance, to ensure the register meets evolving user needs and policy requirements.
- g. Do you structure your workflows around outcomes or tasks?
- h. Do you capture information once and at source?
- i. Do you undertake relationship reconciliation across your registers on a continual basis?
- j. Do you triangulate the data on your registers against available data sources within your jurisdiction or externally?
- k. Do you prioritise risk profiling, KYC, enforcement of your register?
- l. Have you codified your legislation into a set of processing rules that are configurable?
- m. Is business continuity factored into all processes?
- n. Are processes subject to quality assurance and or consistent with ISO quality standards?

3. Technology

- a. Is your current technical platform legacy?
- b. Is your platform custom built for your organisation?
- c. Is your platform/system cloud-hosted? Can they be moved easily to another infrastructure provider?
- d. Do you have a roadmap or even a view of how your registry platform will be improved or enhanced over time, or make use of the latest technology trends?
- e. Have you built and extended new applications to meet legislative requirements?
- f. Can non-developers make form changes without recourse to your consultants or in-house IT?
- g. Is it easy to configure and add new register (support new legislation)?
- h. Have you ever started a 'transformation' project without a TOM defined?
- i. Is a technology refresh the sum ambition of any transformation initiatives?
- j. Can you onboard customers using real time Identity verification software?
- k. Does or will AI/RPA form part of your current or future vision?
- l. Is information cascaded through your registers (e.g., addresses) or are they entered multiple times?
- m. What percentage of your processes are manual?
- n. Have you adopted "standards" across your organisation where applicable (e.g., Beneficial Ownership Data Standards (BODS))?

4. Legislation

- a. When was the last time your legislation was updated?
- b. Does your legislation restrict what you do operationally?
- c. Is your legislation consistent with modern technology trends?
- d. Does your legislation name statutory prescribed forms?
- e. Does your legislation provide for certificates, seals, and any other physical type constructs?
- f. Do you have any parts of your legislation that has been written, or changed, to enable for more efficient registry operations?
- g. Is your legislation and policies publicly available from your website?

5. Data Management

- a. Do you undertake regular audits or sampling of the data in your register?
- b. Do you know the completeness, integrity, accuracy of your register records?
- c. Do you use KYC/Triangulation processes to validate your data?
- d. Do you have a centralized data repository on a registry for easy sharing and collaborations across departments and agencies?
- e. Do you prioritize data privacy through appropriate policies and procedures for handling personal information (e.g. implemented any privacy-by-design principles)?
- f. Do you manually correct anomalies on your register?
- g. Do you have data governance framework in place defining roles and responsibilities for data management for regular updating, cleansing and maintaining data?
- h. Do you have an accurate data dictionary of your current register?
- i. Do you implement standardisation of data elements with respect to other registers in your jurisdiction?

6. Regulatory Compliance

- a. Do you consistently review and enforce registry requirements?
- b. Do you publish and engage with stakeholders to actively promote regulatory compliance?
- c. Do you publicly report on your compliance rates across filing types?
- d. Do you name and shame?

7. Stakeholders

- a. Do you undertake regular stakeholder engagement?
- b. Do you utilise a Net Promoter Score (NPS) or similar survey of stakeholder satisfaction with your services?
- c. Do you interoperate with another jurisdiction? Multiple other jurisdictions?
- d. Do you have open APIs?
- e. Do you publish your data on Open Data initiatives?

8. Outcomes

- a. Do you benchmark your processing outcomes?
- b. Do the results form part of your annual report?
- c. Do you outline how these results will be improved and how?
- d. Do you have the appropriate tools and resources to support data analytics and reporting across the registry?
- e. Do you actively manage risks across the organization?

9. Transparency

- a. Do you publish policies to assist compliance?
- b. Do you publish statistics relating to transactions, compliance and other indicators of registry activity in a timely way.

10. International

- a. Is your organisation a member of any national or international registry association?
- b. Do you comply with international accessibility and useability standards (i.e. WAC3 Accessibility Guidelines)?

Conclusions

The lack of a definitive best practice statement for register domains does not promote an optimal operating model for registers. Our opinion is that the modest and incremental improvements in registers and their services over the last few decades result from a lack of a definitive and shared target operating model for registers, which their policymakers could strive towards. Other service-based organisations have changed fundamentally over the same period.

Notwithstanding that most legislative bases upon which registers are premised on a non-digital world, the variance of operating models for registers, even of the same type, is quite staggering. We believe that even within a single jurisdiction, registers deploy different operating models and seek to resolve the same problems with different solutions. Despite a standard set of functionalities required to deploy a register, irrespective of type or legislation/regulation, a universal or generalised definition of a good operating model has not emerged from any register domain.

The benefits of a statement of best practice for registers:

1. Provide significant support to registries to comply with international standards.
2. Would promote cooperation and interoperability between registers that would improve public service design.
3. Help smaller registers to define how best to operate that do not have the resources of larger registers.
4. Would promote standardisation across the register domains.
5. Help policymakers seek change and appropriately define the business case for transformation projects and funding.
6. Would inform operational policy and the drafting of legislation to reflect the realities for registers better.
7. Would promote better services that are demanded in a context for registers.
8. Improve the enforcement of economic transparency to prevent fraud and abuse of registers.
9. Would help promote innovation by providing guidance on adopting new technologies, emerging trends, approaches and methodologies.
10. Can help to promote international harmonisation, which can help facilitate cross-border transactions and cooperation supporting economic growth and development.
11. Would improve accountability by establishing clear guidelines and standards.
12. Would drive efficiency enabling registries to streamline operations, reduce redundancies and minimise costs.

The authors believe it is possible to create a statement of best practice for registers of all types, from which a TOM may be derived, that makes the above possible. It is also our contention that it would be possible to seek formal accreditation from ISO for a similar standard to the one approved for ISO 19135-1:2015 (geographic).

We invite feedback to our paper; we intend to approach several register domain fora to provide consensual feedback on our statement of best practice, and we will, as stated within this paper, derive a formalised TOM, a Capability Maturity Model (CMM), and derive a set of architectural principles for a register system, that support the agreed statement of best practice.



Foster Moore[®], a Teranet company – is a global leader and specialist registry software company focused on digital services for modernizing government. For two decades the team at Foster Moore has developed and maintained online business registry systems, and a host of other smaller electronic registries across the globe. Foster Moore’s registry solutions power business registries in twenty-one jurisdictions across the globe. We have implementations in North America, South East Asia, the Middle East, Africa, the Pacific and New Zealand.



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Glossary

- **Anti Money Laundering (AML)** – refers to laws and regulations intended to stop criminals from disguising illegally obtained funds as legitimate income.
- **Application Programming Interface (API)** – a means by which two or more computer programs can communicate with each other.
- **Artificial Intelligence (AI)** – leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.
- **Combating the Financing of Terrorism (CFT)** – refers to a set of standards and regulatory systems intended to prevent terrorist groups from laundering money.
- **Counter Proliferation Financing (CPF)** – refers to the actions of preventing proliferation financing which in turn is the act of providing funds or financial services for use, in whole or in part, in the manufacture, acquisition, development, export, trans-shipment, brokering, transport, transfer, stockpiling of, or otherwise in connection with the possession or use of, chemical, biological, radiological or nuclear (CBRN) weapons, including the provision of funds or financial services in connection with the means of delivery of such weapons and other CBRN-related goods and technology, in contravention of a relevant financial sanctions obligation.
- **Current Operating Model (COM)** – is the current operating model instituted in terms of the configuration of people, processes, and technology to achieve the organisation's objectives.
- **Electronic Collateral Register (ECR)** – an asset register defined under the Cape Town convention.
- **IETF** – Internet Engineering Taskforce.
- **Interoperability** – is the ability to share information and services or the ability of systems or components to exchange and use information or provide and receive services from other systems.
- **ISO** – International Standards Organisation.
- **Know Your Customer (KYC)** – is the aspect of due diligence that deals with the identity verification of customers' credentials.

Glossary

- **Machine Learning (ML)** – is an AI technique that teaches computers to learn from experience.
- **Open Data** – is defined as structured data that is machine-readable, freely shared, used and built on without restrictions.
- **Operator** – the custodian of a register.
- **People Process Technology (PPT)** – a framework that has been around since the 1960s that organisations use to assess and improve operational efficiency.
- **Register** – a statutory register that persists legal entity records within a legislative base.
- **Registry Domain** – a single grouping of similar legislative bases of register operators such as Land or Business.
- **Robotic Process Automation (RPA)** – is an optimisation method that uses AI, machine learning, or virtual bots to execute tasks humans would otherwise handle.
- **Target Operating Model (TOM)** – is a high-level blueprint that outlines how an organisation intends to operate in the future to achieve its strategic objectives.
- **XBRL** – an XML-based markup language used for standardised reporting of business information, especially that relating to a company’s financial performance.
- **XML** – stands for eXtensible Markup Language · XML is a markup language designed to store and transport data.

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