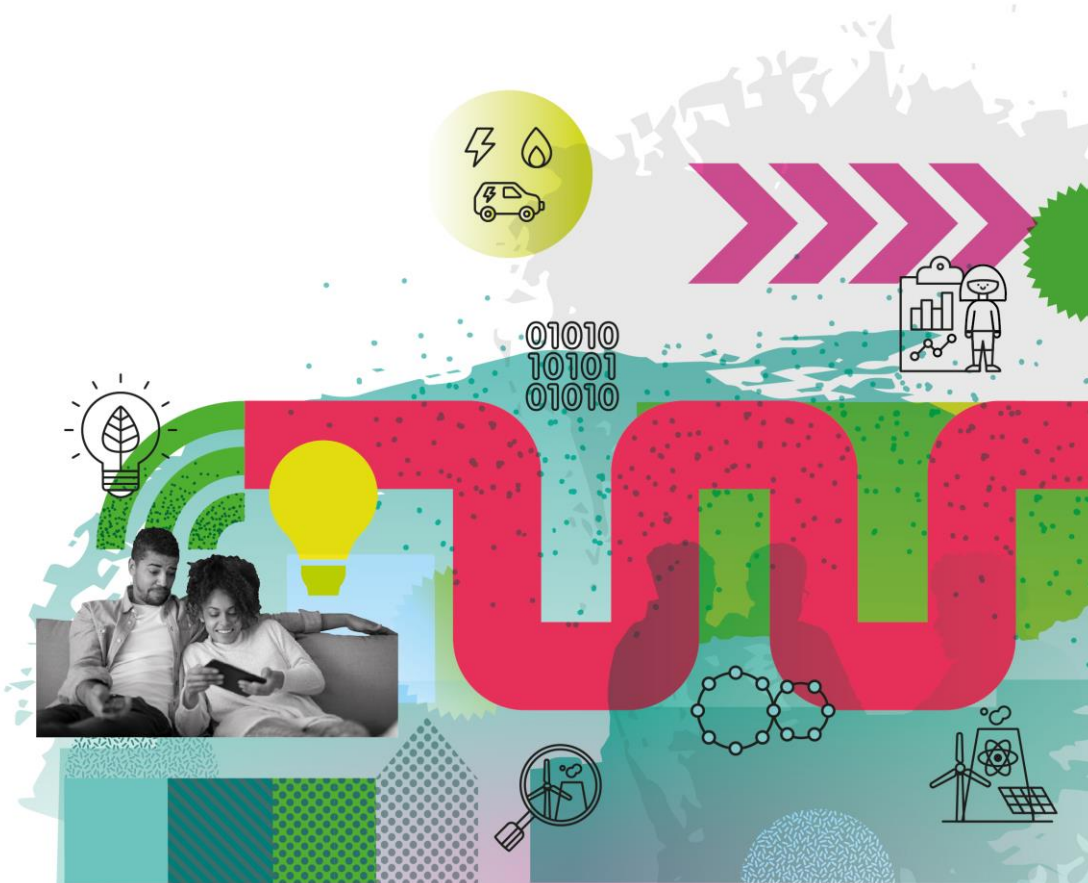
Asset Registration Strategy

Energy Data Taskforce Appendix 3

Energy Data Taskforce

13/06/2019



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Recommendation 4: Coordination of Asset Registration

An Asset Registration Strategy should be established to coordinate registration of energy assets, simplifying the experience for consumers through a user-friendly interface in order to increase registration compliance, improve the reliability of data and improve the efficiency of data collection.

The number and variety of asset connecting with the energy system is increasing. At the same time the relationship of the assets with the system is becoming increasingly more complex as new markets are developing and new modes of system operation are proposed.

There are many cases of asset registered in multiple places for different registration purposes. Different information is collected each time to suit the specific data requirements of each registration portal; there is currently no strategy for asset registration which prioritises consumer experience and overall system benefits.

From the perspectives of consumer, system operators and regulators, co-ordinating the registration of energy systems assets will be a significant step in achieving a **Digitalised System** that is **Secure and Resilient**.

A single, consolidated point of entry should be established to enable asset owners, managers and installers to register an asset once but enable it across a range of services, markets and export tariffs. This will help to address the confusion and overhead associated with registering Energy System assets and assuring information is reliable for the benefit of consumers, asset owners and system operators.

A registration strategy helps to provide clarity to those registering assets and ensures the data is **Discoverable, Searchable, and Understandable** for system operators and asset owners.

For asset owners, the strategy helps to focus where information is submitted and consent is given for its use, allowing data to be managed in accordance with the **Presumed Open** principle**.**

For system operators, the strategy serves as a reliable consistent source of information with improved data quality and compliance. **Standards, Interfaces and Structures** will need to be defined in collaboration with industry to ensure the correct data is collected and shared with relevant actors.

2. Today's Energy System

2.1. The problem

The current approach of multiple registration portals neither puts the consumer nor the system managers at the heart of the design and makes data interoperability and system visibility more complex.

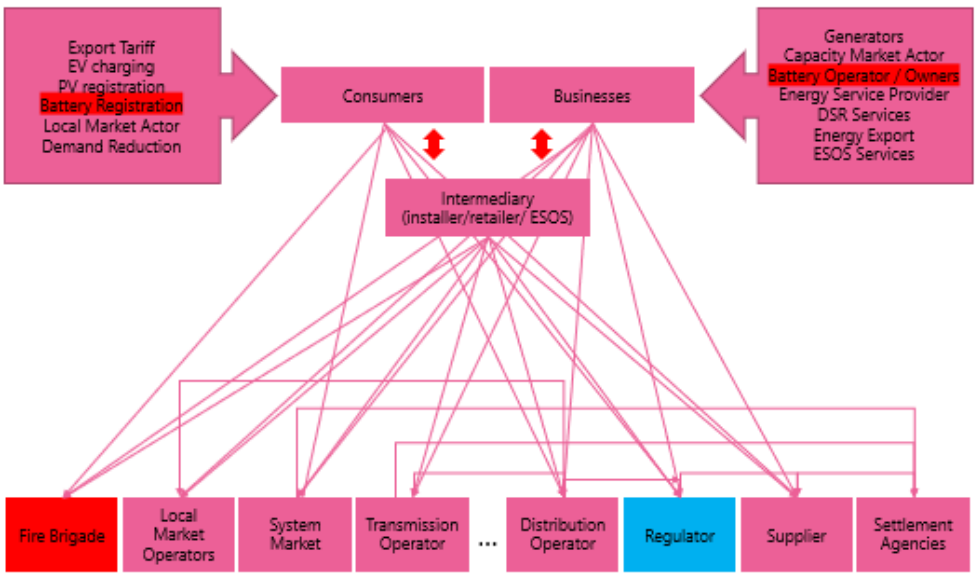
As has been highlighted throughout the main report, there is very little visibility of smaller decentralised assets on the system today. In order to capture what and where these assets are, there are many systems to register these assets. The current strategy of multiple registration platforms will greatly reduce the utilisation, impact and value of this data and, in the taskforce's, view may fail to create the incentives to register at all.

As some people will be required to register in more than one place, the burden placed on consumers, small businesses and intermediaries aggregating assets, will be onerous and can reduce real registration. As new assets are developed there will be emerging needs to register with more organisations, as outlined in the diagram below.

There is no streamlined method to ensure this important information is passed on to the relevant authorities. For example, the Fire Brigade is a key stakeholder to be notified when batteries are installed at a home or an EV has purchased, as this can present a significant fire risk.

The lack of interoperability between current registration platforms mean data cannot easily be shared between system actors; data is collected solely for the specific purpose of the registration. Furthermore, as there is no simple way to register and amend registration information, those who do register may be deterred to update records across all registers. This can impact data quality.

There are significant gaps in the coverage of assets captured by registration systems that exists today. This presents real risks for energy system planning and operation, as system operators and regulators have little oversight over the assets connected to their system. As the installation of decentralised energy assets, including EVs and solar PV, becomes more prevalant, the problem will only become worse.



2.2. Existing asset registers and their functions

There are numerous asset registers capturing information from energy system assets, from generation assets on the distribution network and EVs to administrative information for subsidy compliance. The list below highlights the breadth of registers various actors, including asset owners, face when interacting with the energy system and it is not exhaustive.

Name	Owner	Data Inputer	Scope
Microgeneration Certification Scheme	Microgeneration Certification Scheme Services Company	Installer	• Required if installing certain microgeneration assets (solar and wind, but not batteries) • Registration requirement through installer for participation in Renewable Heat Initiative/ Feed in Tariff (approved by Ofgem and BEIS) • Certifies products and installers
DCC Smart Meter Register	DCC	Energy Provider	• Registration is a 5-step process with rigorous technical entry criteria for new smart meter installations • Private register • Registration and subscription required to access information
DNO Asset Register	Individual DNOs	Installer	• DNOs holding their own asset registers on their networks in different formats • Not all DNOs contributing to ENA register
Renewables and CHP Register	Ofgem	Installer	• Contains information from: FiT register, Renewables Obligation, Renewable Energy Guarantee of Origin, Climate Change Levy exemption for Renewables • Private register • RHI excluded
Feed in Tariff Register	Ofgem	Consumer	• Scheme now closed to new registrants • Feed in tariff requires its own registration, • Registration from Microgeneration Certification Scheme is a prerequisite
Renewable Heat Incentive Register	Ofgem	Installer	• Provides portal to log on to manage individual application as a domestic and non-domestic consumer • The product installed must be HEATAS or MCS approved • The installer must be HEATAS or MCS approved
National Grid Transmission Entry Capacity Register	National Grid	Asset Owner	• Publicly available register • Information on all generators connected to the transmission network

National Grid Embedded Register	National Grid	Asset Owner	• Publicly available register • Includes information on Embedded Generator's with BELLA's, Relevant Medium Power Stations and Relevant Small Power Stations that are connected on the distribution network
Contracts for Difference Register	Low Carbon Contracts Company	Asset Owner	• Asset information and agreed strike price for all assets allocated CfD • Map of generation assets with CfD allocation
CHP Quality Assurance Register	BEIS	Installer	• Monitor, assess and improve the quality of UK Combined Heat and Power installations • Voluntary registration • Self-assessment • Different forms for different sizes and complexity of CHP system • Supports applications for Renewable Obligation Certificates, Renewable Heat Incentive, Carbon Price Floor (heat) relief, Climate Change Levy exemption, Enhanced Capital Allowances and preferential Business Rates
National Chargepoint Registry	Cenex	Installer	• Focus on public chargepoints • Data provided by chargepoint operators on chargepoints' location, compatibility, and hours of operation • Free and publicly available database available in XML, CSV and JSON formats • Provides data to mapping tools through API
Electric Vehicle Homecharge Scheme Register	OLEV	Consumer	• £500 grant towards the installation of a domestic, off-street EV charger • Some data shared with DNOs and 3rd parties for research

3. The Solution – Asset registration strategy

The Taskforce recommends that a sector wide Asset Registration Strategy should be developed and adopted to curtail the proliferation of standalone registration platforms. This should simplify the registration process for consumers, businesses and intermediaries alike, reduce the collection of duplicate data and create a more reliable asset dataset which can be used to stimulate innovation.

A consolidated strategy should be established to enable asset owners, managers and installers to register an asset once but enable it across a range of services, markets and export tariffs. This will help to address the confusion and overhead associated with registering Energy System assets and assuring information is reliable for the benefit of consumers, asset owners and system operators.

The recommendation draws on examples from HMRC, the Food Standards Agency and the German Marktstammdatenregister, where a strategy for centralised registration has been adopted to promote efficiencies for those requiring information and to improve consumer experience. The scope and benefits of these examples is detailed in Section 4.

Some possible options for consolidating the asset registration process include:

- Central registration platform
- Registration platform with single customer interface, integrating with multiple back end registers
- Interoperable, separate registers
- Distributed Ledger

Incentives beyond the simple obligation to register may be an effective driver for registration and ensure this delivers value to consumers. As such, an asset registration strategy should consider a mechanism by which export, or demand side value and payments could be delivered to consumers. This will ensure asset owners gain real and intrinsic value to consumers.

Information from the registration process can be fed into the Digital System Map (Appendix 4) recommended by the Taskforce. A tool that can support in the development of new business models and local markets by providing a better picture of the state of the energy system.

3.1. Benefits to the energy system

The registration strategy can help to improve the level of compliance for registration by streamlining the process by delivering benefits to all those who interact with it.

3.1.1. Benefits to Consumers and Energy Asset Owners

The customer wants things to be easy and efficient. A consolidated registration strategy would enable them to register multiple assets in one place and manage their information and who can access it in one place. This is contrary to the existing registration landscape where one asset must register in many places independently for subsidies and market access.

The registration strategy can help to provide asset owners with clarity over which energy system actors have access to their data and the purpose for their use. It gives asset owners the power to provide and withdraw consent for the use of their data.

The Taskforce believes that registration should be mandatory for all those wishing to interact with the energy system. The asset registration strategy could form the basis for subsidies or market payments to be made. This would mean registration would be essential to gain market access and export value.

Future developments of the strategy could also allow consumers to present their assets for utilisation by the market, allowing market actors to 'auction' for the assets.

3.1.2. Benefits to System Operators

As the asset registration process is simpler for asset owners, improving registration compliance, System Operators will get a better overview of assets, services and export actors across the system.

From this data, System Operators can be assessed and forecast the impact of the energy assets connected to their network to develop resilient reinforcement and constraint management plans.

Better understanding of the energy assets connected to the network can provide the opportunity to build local markets to reflect the needs of the system, for example where network constraints are present. This is being reflected in the development of flexibility trading platforms, where value based on asset location and functionality is being captured and traded.

3.1.3. Benefits to Regulators

The registration strategy has the potential to provide Ofgem with greater oversight of the assets registered on the system, its development over time and its future potential. Registration information can provide a solid evidence base to direct the development of future policies and regulation for the energy system.

In addition, the registration strategy can provide a simple method to execute policies and regulation for managing registration, subsidies and market participation for energy system assets that are becoming more prolific, such as domestic batteries and EVs.

3.2. The Case for Intervention

Creating an Asset Registration Strategy can deliver a number of benefits to the sector as described above. However, it is unlikely that a solution such as this would be spontaneously created by the market without external leadership for the following reasons:

1. **Leadership**: There is no obvious industry organisation which has enough independence and mandate to lead the development of a coordinated asset registration strategy.
2. **Commercial Interests**: Organisations that currently register assets do so for a range of different reasons, an industry led approach could create fear that their commercial interests would be undermined.
3. **Risk**: By increasing the interoperability of asset registration data organisations may worry that their asset base may be less secure (more likely to leave for another service provider).
4. **Power Imbalance**: There are a number of small and large organisations currently registering assets. The smaller organisations may be concerned that a strategy led my a more dominant organisation would result is a less favourable outcome for smaller organisations.

External intervention is required to unlock the benefits a data catalogue can provide.

3.3. Challenges for development

The Taskforce recognises there are significant challenges to developing an asset registration strategy for such a complex system with multiple actors.

Aligning stakeholder requirements to create standardised interfaces to ensure the right data is extracted and submitted will be challenging. However, this is a necessary step in a registration landscape that is becoming more disparate in an energy system ecosystem that needs to become more interoperable.

Service design of the selected asset registration strategy will also create challenges to ensure the user experience for consumers and businesses is streamlined. However, in spite the complexity of the system, these issues have been met and overcome in similar projects, as outlined in Section 4.

A value-based approach must therefore be adopted to ensure real benefits can be delivered to the parties that register and use registration information. This will help to provide real justification for the effort that will be required to deliver this asset registration strategy.

4. Example Registration Strategies

The strategy for energy system asset registration draws on similar government approaches by HMRC, Food Standards Agency and Marktstammdatenregister. These projects are outlined below in more detail. In addition, the RecoDER register is currently being developed to understand how blockchain technology could be utilised in managing an energy system asset register, the aims and progress of this project are also outlined below.

4.1. German Marktstammdatenregister

Germany recently launched a core energy market data register[1] (Marktstammdatenregister) on 31st January 2019, which functions as the official register of the electricity and gas market, owned by the Federal Network Agency – the German energy market regulator.

The project to develop the portal began in June 2015 in consultation with industry. The scope of the register includes generation assets, from microgeneration to large generators, as well as licensed actors, such as energy suppliers and network operators. The main aims of the portal were to improve visibility and reliability of data for the operation and planning for the energy system.

Since the portal has launched, all energy system actors have been legally required to re-register through the portal through an amendment to the German Renewable Energy Act 2017. They have further incentivised registration by ensuring all subsidy payments only made to those assets registered through the portal.

Data entered into the portal for generation and storage assets is automatically shared with network and system operators; the data in the register is also publicly available, with some information redacted to ensure privacy for domestic generation asset owners.

[1] https://www.marktstammdatenregister.de/MaStRHilfe/subpages/zieleKonzepte.html

4.2. HMRC Multi-Channel Digital Tax Platform

The HMRC developed the Multi-Channel Digital Tax Platform (MDTP) as a one-size all portal for individuals, companies and third parties that integrated their six core functions triaging the input through one user friendly portal. The portal was developed in response to the need for a scalable cloud-based architecture to support rapid development, while integrating with legacy systems and maintaining strict security controls.[2] Figure 3 outlines the overall architecture of the software solution.

This Digital Platform uses a common set of interfaces with HMRC's legacy systems, and supports core functions for customers using the services, while also offering the HMRC a common way to implement digital services. It is secure, reliable, flexible and scalable, allowing HMRC to develop new services quickly.

The HMRC MDTP has a structure where the platform is managed separately from the individual micro-services that the customers and HMRC departments interface with. The benefit of managing the infrastructure for the platform independently of the micro-services is that it ensures the functionality of one micro-service isn't prioritised above another, creating a structure that is flexible and scalable. This allows HMRC to develop and integrate new services quickly without significant interoperability issues.

The development of MDTP enabled a service re-design for some of the tax registration services, including the Self-Assessment process, to provide a more seamless customer experience. Furthermore, developing new micro-service APIs in collaboration with 3rd party software platforms has led to an overall experience improvement for customers; areas where the 3rd party platforms weren't prioritising for development for their customers were identified and improved by front facing Digital service teams.

The result has been a sustained saving of £717million and 55% reduced phone and post contact.[3] Overall this has reduced the size of each of its agencies due to the ease of engagement while making the experience seamless for the 5 million business customers and 45 million individuals using the Digital Platform.

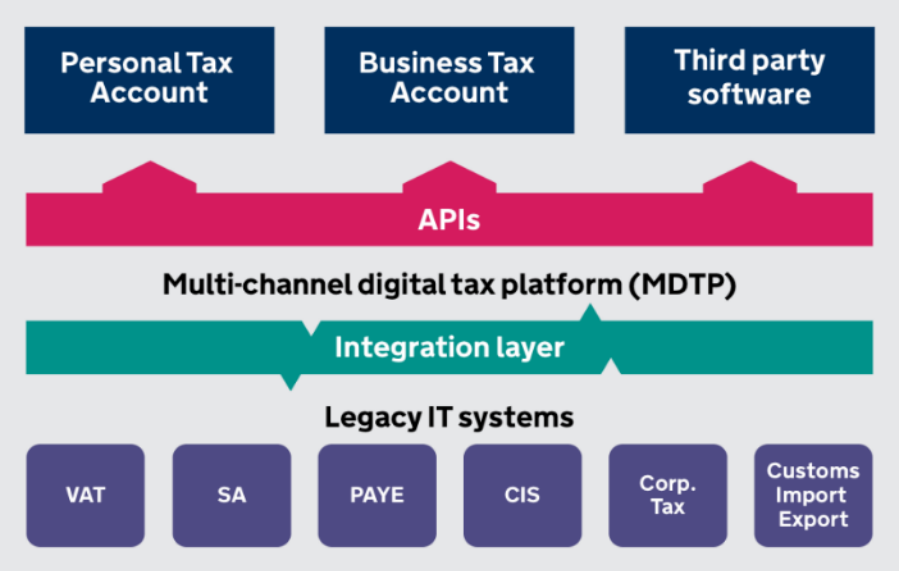


Figure 1 Architecture of the HMRC Multi-Channel Digital Platform (Source: https://www.gov.uk/government/publications/hmrc-third-party-tax-software-and-api-strategy/hmrc-third-party-tax-software-and-application-programming-interface-api-strategy)

[2] https://www.bcs.org/content/ConWebDoc/56913
[3] https://www.bcs.org/upload/pdf/srowlands-081216.pdf

4.3. The Food Standards Agency

The Food Standard Agency undertook a study to understand the barriers for food business registration. There are around 650,000 registered food businesses in England, Wales and Northern Ireland. There are about 130,000 new applications a year. [4]

However, their study found that food businesses are most likely not to register with local authorities and only 1 in 50 will register a significant change to business even though it's a legal requirement.[5]

The response to these findings was to create a platform for registering food businesses that adapt to apply to a small café as well as the company the size of Tesco. The concept for the platform is shown in Figure 4. The process for the smallest businesses is taking only 5-6 minutes and the data flows from that registration process to the appropriate partner or regulatory body providing visibility of the business to the local authority and maintains regulatory surveillance by the FSA.

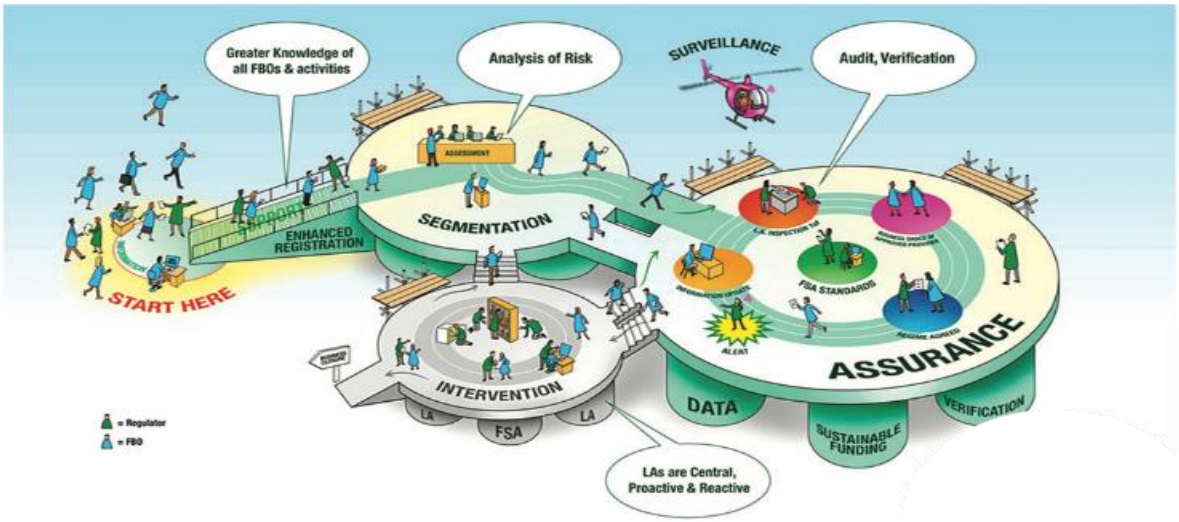


Figure 2 Food Standard Agency overall management concept, including registration platform with segmentation. (Source: http://www.assembly.wales/laid%20documents/agr-ld11663/agr-ld11663-e.pdf)

4.3.1. RecorDER

The ENA Open Networks Project is looking to develop the System Wide Resource Register under Workstream 2, Product 1. The scope of the register is to improve the visibility for distributed energy resources to network and system operators and to customers for visibility of reinforcement quotes.

The NIA RecorDER project has been proposed as a potential solution for the System Wide Resource Register. The project is a collaboration between National Grid, SP Energy, Electron and UK Power Networks. Utilising blockchain technology, the project aims to develop over the next year to deliver an MVP version of the register. The initial budget for the register development is £750k with a further £2.5million estimated to develop the register for national roll out.

The register aims to bring together TSO and DNO data of network assets, enable knowledge of generation, storage and demand for flexibility and attempts to co-ordinate distributed energy resources.

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[4] https://www.food.gov.uk/sites/default/files/media/document/register-a-food-business-service-assessement.pdf

[5] https://www.food.gov.uk/sites/default/files/media/document/register-a-food-business-service-assessement.pdf

5. Next Steps

The Taskforce recommends the owner of the registration platform would have to demonstrate the following characteristics to ensure its success:

- **Open** – demonstrates the core principles outlined by the taskforce
- **Independent** – will ensure all portal requirements are balanced
- **Empowered** – has ability to collect and balance the different requirements for users of the data
- **Experienced** – has the capability to support ongoing management and development

It is worth noting that the recently launched German Core Market Data Register was developed and now hosted by the German energy regulator – the Federal Network Agency. Therefore, **Ofgem** should be seriously considered for this role. This could present the opportunity to draw on best practice from wider Government and regulatory initiatives including the HMRC portal and the Food Standards Agency business registration process.

The Taskforce recommends that a programme be established to consider the strategic options including that of a unified Asset Registration Portal. A development plan should be prepared with the goal of delivering a Minimum Viable Product by mid-2020 that would demonstrate the use and benefits of a single Asset Registration Portal, should this approach be determined the best approach to implementing the Asset Registration Strategy. This will require the programme to work with existing registration owners to ensure all development decisions help to facilitate a coordinated portal.

Appendix 1 highlights implementation responsibility for this recommendation.

Intermediary stages to delivering this could include:

- Registration portal – register once and share with many organisations
- Back end simplification – towards standard data and process models
- Interoperable services – easy migration between service providers / procurers

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