Department for Business, Innovation, Science and Trade

Smart Data Challenge Prize

Significant insights and outcomes

September 2026

Foreword

The UK is entering a new era of growth powered by innovation and data. With £36 million of planned investment and the Data (Use and Access) Act now law, we are unlocking Smart Data at scale, putting consumers and businesses firmly in control of their information and unleashing a wave of productivity, innovation, and opportunity.

Our mission is to unlock data at pace, scale innovation, and make Smart Data a cornerstone of our Industrial Strategy. The UK led on Open Banking, which benefited over 18 million users in February 2026, and we will lead again by building the world's first Smart Data economy.

The finalists in this Challenge Prize are showing us how cross-sector data can solve systemic inefficiencies, empower consumers, and accelerate progress towards Net Zero. Their work sets the stage for a thriving Smart Data ecosystem and provides vital insights to guide secondary legislation and data sharing standards under the Data (Use and Access) Act.

To the ten innovative finalists, one Smart Data fellow, and all the experts who have contributed, I would like to express my gratitude. I particularly thank Nesta Challenge Works and the Open Data Institute, who have worked with the Department for Business, Innovation, Science and Trade to make this programme a success.

Our Smart Data Strategy builds on this momentum. We will work closely with industry to shape a vibrant ecosystem, including through the Smart Data Council. Collaboration with academia and international partners will be central to our approach.

Together, we will create a world-leading Smart Data economy that drives innovation, empowers consumers, and strengthens the UK's position on the global stage. Innovation and growth shape the future, and we've taken the first steps toward it.

Baroness Lloyd of Effra CBE
Minister for Space, Cyber and Regulatory Reform
Department for Business, Innovation, Science and Trade

Note: These insights were prepared by the finalists and fellows of the Smart Data Challenge Prize in collaboration with the Open Data Institute (ODI). Any figures quoted and links provided originate from their contributions, not from the UK Government. We have applied consistency and style edits to ensure clarity, without altering the original message or content.

Executive Summary

Smart Data is a growth opportunity, not just data reform. Done well, it can unlock new markets, reduce costs for households and businesses, and support innovation across the UK economy. Current analysis suggests Smart Data could deliver over £70 billion in long-term economic value and up to £9.6 billion a year in GDP contributions across key sectors[1]

The UK has already shown what's possible. Open Banking now has more than 18 million users in the UK, supporting a fast-growing ecosystem of services that help people manage money, make payments and access better products. This is no longer a niche reform; it is part of everyday economic infrastructure.[2]

The next step is to go further. With new powers under the Data (Use and Access) Act 2025 and at least £36 million investment in Smart Data, the UK is now moving to extend these principles across sectors such as energy, transport, property and retail.[3]

The Smart Data Challenge Prize was designed to test how this works in practice. It asked a simple question: if people and businesses could share their data securely, what better services could appear? The answers are practical and immediate. Finalists developed solutions to help households manage energy and reduce bills, support small businesses with costs and reporting, simplify homebuying, and make complex markets easier to navigate. These are not abstract use cases; they respond to everyday problems people face now.

The evidence is clear on the direction of travel. For consumers, Smart Data could mean lower costs, better choices, and services that reflect real circumstances rather than generic assumptions. For businesses, particularly SMEs, it could reduce administrative burden and unlock productivity. For industry, it creates the basis for new services, new competition, and sustained innovation built on trusted data sharing.

The Challenge also highlights what needs to be fixed. Progress is currently constrained by inconsistent data access, limited interoperability, and uncertainty around standards. While the sandbox enabled rapid testing, it also showed that prototypes cannot reach scale without access to real data and live systems.

This report brings those insights together. It sets out what innovators are building, what benefits they see, and what barriers still stand in the way. The message is simple: Smart Data is no longer theoretical. The opportunity is real, the use cases are credible, and the UK now has the policy framework to move from testing to delivery. The task ahead is to turn that potential into a functioning system that works at scale for consumers, businesses, and growth.

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[1] DBT (March 2026): *Potential economic impact of future Smart Data use cases*. Scaled to scheme level, four Smart Data schemes could generate £71.2 billion in social net present value (2028–2043), with annual GDP contributions reaching £9.6 billion by 2043.
[2] Open Banking Limited (July 2026): Open Banking surpasses one billion payments and 100 billion API calls.
[3] DBT (March 2026): *Smart Data 2035: The UK's Smart Data Strategy*.

Introduction

Context, provenance and evidential status

This report presents insights generated through the Smart Data Challenge Prize. It brings together analysis prepared by participating innovators, alongside overarching observations from the Department for Business, Innovation, Science, and Trade (BIST).

All figures, estimates and supporting material in the finalists' report sections originate from participating innovators' submissions. BIST has applied editorial standardisation for clarity and consistency but has not independently validated these claims. The report should therefore be read as an evidence pack: it describes proposed use cases, finalist experiences and indicative estimates of impact, rather than a formal BIST's assessment of outcomes.

Unless explicitly stated, the views set out in finalists' sections do not represent the position of BIST or the UK government.

Programme context

The Smart Data Challenge Prize forms part of a phased programme to build evidence on the development of Smart Data schemes.

Phase One - Discovery Challenge (October 2023 to March 2024) - identified potential use cases, barriers and delivery enablers across sectors. This phase informed the design of a second-stage prize focused on testing propositions in a more controlled environment.

Second Phase - the Smart Data Challenge Prize moved from idea generation to prototype-level testing. It was delivered by Challenge Works (Nesta), in partnership with the Open Data Institute (ODI) and the Smart Data Foundry, on behalf of BIST.

Ten finalists were selected to develop and test Smart Data-enabled propositions within a synthetic data environment, supported by grant funding and structured non-financial support. A Smart Data Fellow, an innovator supported to develop a proposition alongside the ten finalists, also contributed.

Purpose of the report

This report captures two distinct forms of output from the programme:

- Insights from Smart Data use cases, based on finalists' submissions and testing activity
- Learning from the Challenge model itself, including delivery conditions, data constraints and support structures

The report is structured to distinguish clearly between these elements and between finalists' analysis and BIST interpretation.

Nature and limits of the evidence

The Challenge Prize was designed to test feasibility rather than deliver full market-ready solutions, the resulting evidence should be regarded as indicative, with important limitations to bear in mind.

Testing was conducted within a synthetic data environment, which enabled rapid prototyping and comparability across finalists. However, this environment does not fully replicate real-world conditions.

Finalists consistently identified constraints relating to:

- the representativeness and diversity of synthetic datasets;
- the scope and flexibility of available APIs; and,
- limited access to live operational data.

These factors affect the extent to which performance, scalability and consumer outcomes can be evidenced. The findings should therefore be interpreted as exploratory and directional, rather than definitive.

Policy context

The programme supports the government's wider ambition to unlock the value of data to drive growth, innovation and consumer benefit. It contributes to the development of Smart Data policy, including future standards and legislative implementation under the Data (Use and Access) Act 2025.

The use cases explored in the Challenge span multiple sectors and reflect common policy priorities, including improving outcomes for consumers and small businesses, strengthening competition, and supporting the transition to Net Zero.

What follows

The remainder of this report is divided into:

- **Learning from Smart Data schemes in the Challenge**, which includes a BIST summary of key themes followed by finalist submissions
- **Learning about the Challenge Prize**, which sets out delivery and programme-level insights.

Part 1: Learning from Smart Data schemes in the Challenge

The Smart Data Challenge Prize tested a simple idea: people and businesses should be able to use data that already exists about them to receive better services, provided that sharing is secure, consent-based and properly governed. The use cases in this section show what that could mean in practice across areas such as energy, property, transport, retail, financial services, carbon reporting, personal administration and the gig economy.

A clear theme across the Challenge is that Smart Data becomes most useful when it joins up information that is currently scattered across different systems. Energy use can be more valuable when combined with tariff, property and weather data. Homebuying can become easier when property, identity, finance, and environmental information can be trusted and reused. Grocery services can become more personal when product information is combined with shopping history and dietary needs. Gig workers can make better decisions when earning data from different apps is brought together. In each case, the value is not in one dataset alone, but in connecting trusted information allowing people to make better choices and avoid unnecessary friction.

The Challenge also showed that Smart Data implementation and success depend on trust. These innovative services only work if people understand what they are sharing, who they are sharing it with, and why. That means consent must be clear, access must be secure, and people must be able to control or withdraw permissions easily. It also means data needs to be interoperable, so that it can be reused in consistent, machine-readable formats. Finalists repeatedly found that promising services become harder to scale when data is held in different formats, accessed through different routes, or governed by different rules. Common APIs, shared identifiers, consistent product and usage data, and clear rules on consent would make it easier for new services to enter the market and for consumers and businesses to move between them.

The use cases point to clear potential benefits but also show that sectors are at different stages of readiness. For consumers, finalists focused on clearer choices, lower costs, less administration, and more personalised support. For small businesses, they pointed to simpler compliance, better energy management, easier reporting, and productivity gains. For industry, the opportunity is to build new services on trusted data infrastructure rather than slow, one-off integrations. Areas close to Open Banking or energy data appear closer to delivery, while property, transport, retail and platform earnings remain more fragmented and may need further work on standards, governance and the role of public data holders and regulated private-sector data holders.

The individual reports that follow are finalist submissions. Their figures, estimates and views have not been independently validated by BIST and should not be read as UK Government impact assessments or policy commitments. The Challenge tested feasibility and surfaced practical learning about delivery; it did not prove national-scale outcomes. Its value lies in showing what kinds of Smart Data services innovators are seeking to build, what data they would need, and what barriers would need to be addressed before those services could operate at scale.

Moverly[4] (Smart Data Challenge Prize Winner)

1. Moverly's Smart Data use case

Moverly's use case explores how Smart Data could improve the homebuying, selling and mortgage process by giving consumers access to a reusable digital property pack. The pack would bring together verified property, energy and financial data at the start of a transaction, allowing buyers, sellers and professionals to use trusted information earlier and more consistently.

The use case responds to a well-known problem in the UK property market. Information needed to make informed decisions is often unavailable when consumers, estate agents, lenders, surveyors and conveyancers need it. Important data may be surfaced late in the process, leading to duplicated checks, delays, additional costs and, in some cases, failed transactions. Moverly links this to wider work on modernising the homebuying journey and developing a Smart Data economy.

Moverly's proposition is to turn the current document-led process into a data-led one. Rather than relying on sellers to interpret and provide complex property information manually, the digital property pack would be populated with verified data from official or trusted sources. The consumer could then share that data with relevant parties during the transaction.

The use case is based on the Open Property Data Association standards framework. Moverly's view is that a common standards-based approach can help create a trusted property data ecosystem, where data is not repeatedly requested, manually checked and re-keyed at each stage. Instead, data would carry provenance, making it easier for different parties to trust and reuse it.

Moverly also argues that digital property packs could improve consumer confidence. Buyers and sellers would have earlier visibility of information that affects property value, mortgage suitability, conveyancing risk, energy performance and completion timelines. This could help people make better-informed decisions about one of the largest purchases they are likely to make.

2. Data needed to make the use case work

Moverly's use case depends on bringing together property, identity, energy, financial and transaction data from multiple public and private sources. The winner identifies the following types of data as particularly important:

- title and ownership data;
- planning and local authority search data;
- property characteristics and material information;

[4] Challenge Works (2025): SDCP Innovators: Digital Property Pack by Moverly and OPDA on Vimeo

- Energy Performance Certificate data and energy performance information;
- environmental and flood-risk data;
- council tax and local authority data;
- identity and verification data for buyers and sellers;
- financial data relevant to source of funds, affordability and mortgage applications;
- mortgage, valuation and conveyancing data;
- transaction status and completion data.

The value of the digital property pack comes from combining these sources into a reusable and trusted record. Property data on its own may help describe the asset. Financial data may help support mortgage decisions. Identity data may help verify the parties. Energy data may help buyers understand running costs or retrofit needs. The Smart Data opportunity is to link these sources so that the transaction starts with better evidence and fewer duplicated checks.

Moverly's model depends heavily on data provenance. Each data element needs to be traceable to its source so that buyers, sellers, estate agents, brokers, lenders, surveyors and conveyancers can rely on it. Without provenance, the transaction remains dependent on repeated manual verification.

The winner also identifies public-sector data as central to the model. Data from HM Land Registry, local authorities, EPC records and other government or regulated sources would need to be digitised, standardised and made available in ways that support trusted reuse. This is a key difference between property and some other Smart Data sectors: public data is not peripheral to the use case; it is part of the core transaction infrastructure.

3. How consent, access and sharing would operate

Moverly's model is based on consumers being able to access and share their own property, energy and financial data securely. Buyers and sellers would give permission for relevant data to be brought into the digital property pack and then shared with the professionals involved in the transaction.

The use case involves several parties: buyers, sellers, estate agents, mortgage brokers, lenders, surveyors and conveyancers. Each may need access to different data at different points. A core requirement is therefore a framework that controls who can access what information, for what purpose, and with what level of assurance.

The Property Data Trust Framework is presented by Moverly as the mechanism for this.[5] It uses digital identity and credential standards to wrap each data claim with source

[5] OPDA (September 2025): *Property Data Trust Framework (v3.5)*

provenance and a digital signature. These claims can then be aggregated into a digital property pack, allowing different parties to rely on the same trusted information.

The aim is not to expose raw data unnecessarily, but to allow verified claims to move safely through the transaction. For example, a buyer, lender or conveyancer may not need to repeat an identity, ownership or property check if the relevant data has already been verified by a trusted issuer and shared under an agreed framework.

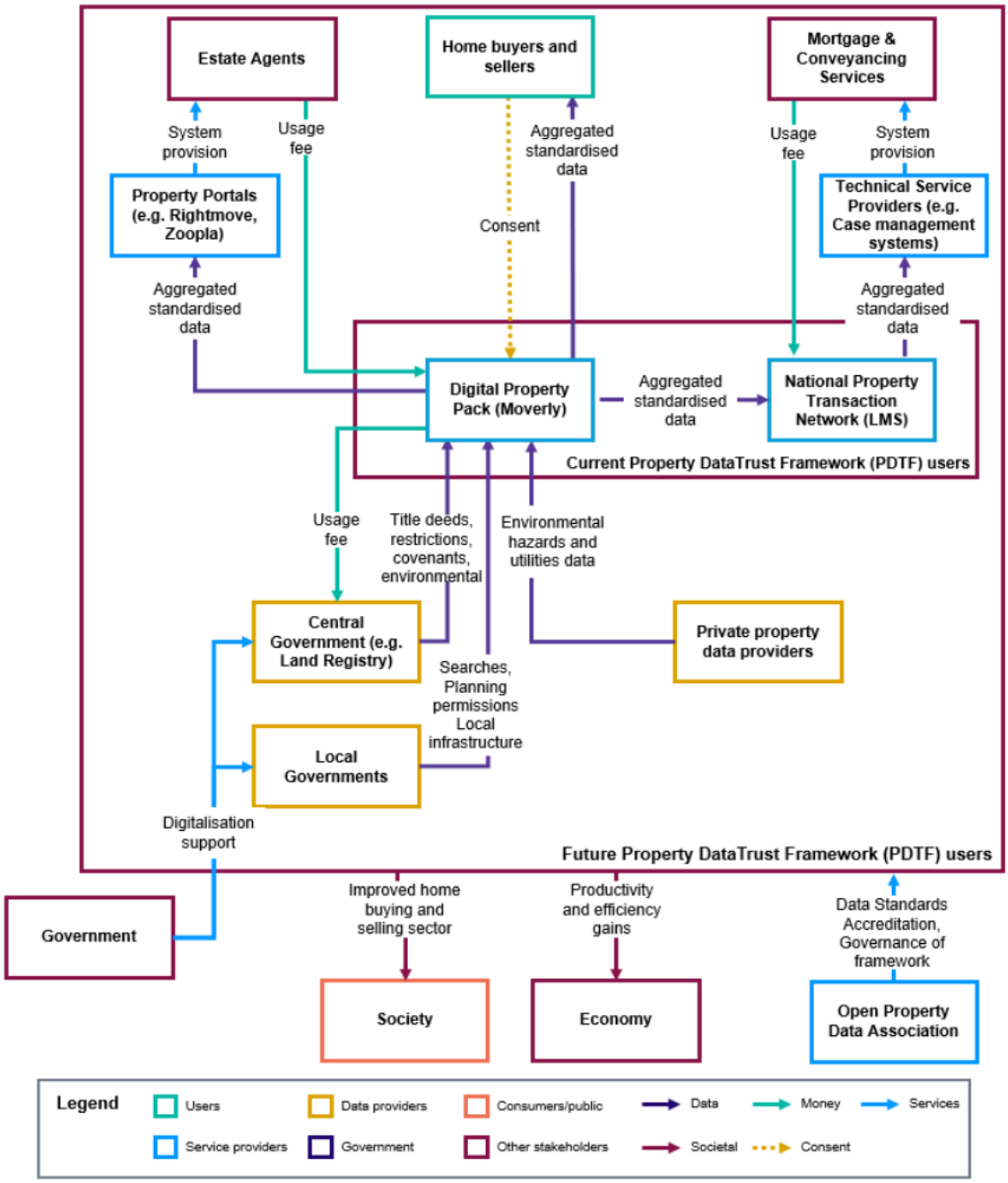

Figure 1: Moverly data ecosystem map

4. What the Challenge tested

Moverly's prototype tested how a digital property pack could bring together trusted data at the start of the homebuying process and make it reusable across the transaction. The prototype demonstrated the model from initial material information through to conveyancer engagement, with planned extensions into lending and completion.

The Challenge tested the principle that property data can be structured, verified and shared in a way that supports multiple users in the transaction. This included consideration of material information for listings, identity and ownership data, property attributes, conveyancing data and information relevant to lenders.

The winner also used the Challenge to explore how the Property Data Trust Framework could support provenance, consent and reuse. This included how data claims could be wrapped with digital signatures, how different schemas could support regulatory or professional requirements, and how participation and consent could be modelled across the ecosystem.

The testing showed the potential for a standards-based route to a trusted Smart Property Data ecosystem. However, it did not resolve all implementation challenges. Wider deployment would depend on public and private data holders digitising source data, implementing common standards, adopting trusted endpoints and agreeing governance arrangements across the property market.

5. Winner-claimed benefits

Moverly argues that Smart Data-enabled digital property packs could improve the homebuying process for consumers, industry and the wider economy. The claimed benefits come from making verified information available earlier, reducing duplication and allowing participants to make decisions with greater confidence.

For consumers, the claimed benefits include greater transparency, more control over the information used in the transaction and fewer avoidable delays. Moverly refers to Open Property Data Association survey findings that 82% of recent home movers believed digital property packs were a good idea, and 77% would have used one if available.[6]

For listings and seller onboarding, Moverly's analysis suggests that digital processes could save around 1.7 million hours of effort per year and remove around 2.4 million days of document-related delays.

[6] Open Property Data Association (OPDA) (2025): *The Future of Homebuying: Consumer Expectations and the Path to Digital Transformation*.

No. Homes Sold	Average 2020 - 2024	1.2m
Estate agent listing		
Seller's onboarding form	1 per property x 45 mins	53.5m
ID check	1 per property x 15 mins	17.8m
Time to return form	Avg. 3 days	3.5m
Time spent on form - seller	Avg. 60 mins per form	71.4m
Time spent on form - agent	Avg. 10 mins per form	11.9m
Time spent on form - admin	Avg. 30 mins per form	35.6m
Totals - seller, agent, admin	Avg. mins per form	119.0m
Digital seller onboarding incl. ID	Avg. 15 mins, same day	17.8m
Expected time saving	Minutes per year	101m
Expected time saving	Hours per year	1.7m
Expected delay saving	Days per year	2.4m

Table 1: Time saved listing a property digitally

For mortgage applications, the winner claims that digitisation could save lenders more than 8.9 million days of processing delays, more than 1 million hours of manual processing time, and remove more than 300,000 redundant queries each year.

No. Homes Sold	Average 2020 - 2024	1.2m
Mortgage application to complete		
Application packaging wait time	1 day	1.2m
Application review time	15 mins	17.8m
Physical valuation wait time	4.5 days	5.5m
Valuation review wait time	2 days	2.4m
Post valuation queries (conveyancer)	1.5 per application	1.8m
Certificate of Title	9 mins	10.7m
Completion	10 mins	11.9m

Redundant queries	20% of queries	0.3m
11th hour queries (poor cx)	10-15% of queries	0.3m
Total wait time	Days per year	8.9m
Total processing time	Minutes per year	64.2m
Total processing time	Hours per year	1.1m
Underwriting to offer time	5 days	5.9m

Table 2: Winner-claimed benefits of digitisation for mortgage applications

Moverly also cites early pilot results showing a 43% drop in cancellations and a 35% reduction in the period from Sold Subject to Contract to exchange for conveyancers.[7] These findings are presented as winner-provided evidence and have not been independently validated by BIST.

At a wider level, Moverly argues that a Smart Data-enabled property pack could affect around 1.2 million annual property transactions, improving the process for 2.4 million to 4.8 million people, with potential to create 4 million days of industry productivity and £231 million in annual cost savings[8]. These figures should be treated as winner estimates.

Moverly also refers to wider evidence on the property market, including average transaction times, failure rates and a Santander estimate that flaws in the UK housing system cost the economy over £1.5 billion each year.[9] These figures provide context for the scale of the problem; they should not be read as outcomes directly attributable to Moverly.

Taken together, Moverly's claimed benefits depend on Smart Data doing three things: making verified information available earlier, allowing consumers to share it securely, and enabling professionals to reuse trusted data rather than repeating checks. The claimed savings and productivity benefits are indicative and depend on adoption, standards, data availability and market-wide implementation.

6. Barriers, dependencies and limits

Moverly's use case depends on digitised, standardised and trusted property data. The most important dependency is access to source data from public and private bodies, including HM Land Registry, local authorities, EPC records, environmental data holders, identity providers, lenders and other participants in the property transaction.

[7] LMS (2025): LMS Pilot Achieves 43% Drop in Cancellations and Cuts Completion Times by 35%
[8] Unpublished TPXImpact research commissioned by MHCLG, some of which is published in: DPMSG (2025): Data Standards & Interoperability
[9] Santander (2025): Fixing the broken supply chain

A second dependency is the adoption of common standards. Without a shared framework, each participant in the transaction may continue to carry out its own checks, request its own documents and use its own format. This would limit the ability of consumers to reuse data and would reduce the value of a digital property pack.

A third dependency is trust and provenance. Property transactions involve high-value assets and significant legal and financial risk. Data therefore needs to be traceable, digitally signed where appropriate, and accepted by professionals across the transaction. Moverly identifies the Property Data Trust Framework as a route to this, but wider adoption would require coordination across industry and government.

A fourth barrier is public-sector digitisation. Moverly points to related public-sector digitisation examples, including the Local Land Charges project which created circa £2 million of economic benefit and reduced average search times by 12.5 days, and that all local authorities are expected to be live by 2028.[10]

Moverly also refers to HMLR pilot evidence on reducing avoidable requisitions, with estimated annual savings of £3.2 million to £19.1 million and an average 15-day reduction. These examples illustrate the importance of digitising source data, but they do not by themselves prove the full benefits of a market-wide digital property pack.

The assessment is also limited by the Challenge setting. Moverly's prototype demonstrated a feasible model and provided useful evidence from industry engagement, but national-scale benefits would depend on widespread adoption by data holders, professional users, regulators and consumers. The figures presented should therefore be treated as winner-claimed and indicative, not as BIST-validated impact.

[10] HM Land Registry (2024): Local land charges achieve a century

BelowZero[11]

1. BelowZero's Smart Data use case

BelowZero's use case explores how Smart Data could help households and small businesses manage energy use more intelligently. The central idea is that consumers should be able to share relevant energy, property and tariff data securely, with consent, so that services can provide personalised advice on how to reduce bills, lower carbon emissions and make better use of flexible energy tariffs.

The use case responds to a practical problem. The UK energy system is becoming more decentralised and more dependent on low-carbon generation. This creates opportunities for households to use, store, or export energy, but it also makes energy choices more complicated. Consumers may need to understand tariffs, smart meter data, solar generation, batteries, electric vehicles, heat pumps, and changing carbon intensity. For many households, this is too complex to manage manually.

BelowZero's proposition is to use Smart Data to simplify that complexity. The platform combines half-hourly smart meter data with property information, electricity tariffs, weather forecasts, carbon intensity, and wholesale energy prices. It then uses an AI tool to generate recommendations on when to use electricity, when to store it, when to export it, and whether a different tariff or low-carbon investment could produce better outcomes.

In practical terms, the service is intended to act as a household energy assistant. It would help users understand their energy position without requiring them to interpret raw technical data. For households with low-carbon assets, such as solar panels, batteries, electric vehicles or heat pumps, it could suggest when to charge, discharge, export or shift demand. For households without those assets, it could still support tariff optimisation and clearer choices based on actual consumption patterns rather than annual averages.

Feature	Traditional solutions	BelowZero's AI-driven model
System adaptability	Rule-based or manual; limited ability to respond to real-time conditions	Forecasts optimal energy sourcing for the next 24 hours using wholesale pricing, weather forecasts, solar generation forecasts, and consumption patterns. Dynamically adapts to grid conditions, user behaviour, and external data in real time.
Energy usage timing	Manual user input or static schedules	Automatically suggests energy-intensive tasks (e.g., preheating properties, charging electric vehicles (EVs)) when low-cost, low-carbon electricity is available - recalculating continuously based on live environmental and market conditions.

[11] Challenge Works (2025): SDCP Innovators: BelowZero

Battery and appliance management	Requires manual settings and monitoring	Optimises battery charging and discharging and appliance operation based on both real-time and forecasted wholesale pricing, carbon intensity, and consumer needs - when integrated with compatible devices.
Exporting green energy	Exports often occur regardless of grid demand	Maximises exports when surplus low-carbon electricity is expected, supporting grid balance and decarbonisation
Support for low-efficiency homes	One-size-fits-all advice, limited personalisation	Provides tailored efficiency recommendations and tariff options for homes with poor Energy Performance Certificate (EPC) ratings.
Tariff optimisation	Compares only aggregate annual usage against a limited set of tariffs.	Uses half-hourly smart meter data to model potential savings across all available tariffs, including dynamic and time-of-use options, based on actual historical usage patterns.
User experience	Technical, data-heavy interfaces that require prior energy knowledge.	Clear, engaging, and plain-language dashboards that visualise savings, carbon reduction, and personalised recommendations that help all users, regardless of expertise.
Scalability & interoperability	Often tied to specific hardware, limiting compatibility.	Hardware-agnostic and interoperable with multiple suppliers, tariffs, and devices, enabling wide use and integration across the energy ecosystem.

Table 3: BelowZero's Comparative table of energy switching services

2. Data required to make the use case work

BelowZero's use case depends on bringing together several types of data that are currently held in different places. The finalist identified the following as particularly important:

- half-hourly smart meter consumption data;
- current tariff and billing data;
- available tariff data, including time-of-use and dynamic tariffs;
- property information, including property type and Energy Performance Certificate rating;
- weather forecast data;
- carbon intensity data;
- wholesale energy price data;
- information about relevant household energy assets, such as solar panels, batteries, heat pumps and electric vehicles; and,
- where relevant, data on solar generation, battery performance and export arrangements.

BelowZero's view is that the value of the service comes from combining these datasets. Smart meter data on its own can show how much energy a household uses. Tariff data on its own can show available prices. Property data on its own can describe the building. The Smart Data opportunity is to connect these sources so that the consumer receives advice based on their actual home, actual usage and actual market conditions.

The use case also highlights the difference between generic comparison tools and Smart Data-enabled services. Traditional tariff-switching tools often rely on annual or averaged consumption data. BelowZero's approach uses more granular data, including half-hourly usage, to model how different tariffs or energy decisions could affect a household in practice.

3. How consent, access and sharing would operate

The use case assumes that households would give explicit consent for relevant data holders to share their data with BelowZero or a similar authorised third-party provider. This could include consent to access smart meter data, tariffs, billing information, and property-related data.

BelowZero's model is based on permissioned data sharing. Consumers would need to understand what data is being shared, why it is needed, and how it will be used. The service would then use that data to generate recommendations. In some cases, households could choose to implement those recommendations manually. In future, where compatible devices and appropriate permissions exist, some instructions could potentially be automated, for example, for battery charging or other energy management functions.

Because detailed energy data can reveal patterns about household behaviour, privacy and security are central to the proposition. The finalist identifies the need for clear consent mechanisms, data minimisation, secure storage, encryption and the ability for users to revoke access. BelowZero also states that users should be able to update information about their energy assets, such as installing a larger battery, and withdrawing smart meter data access or deleting their account.

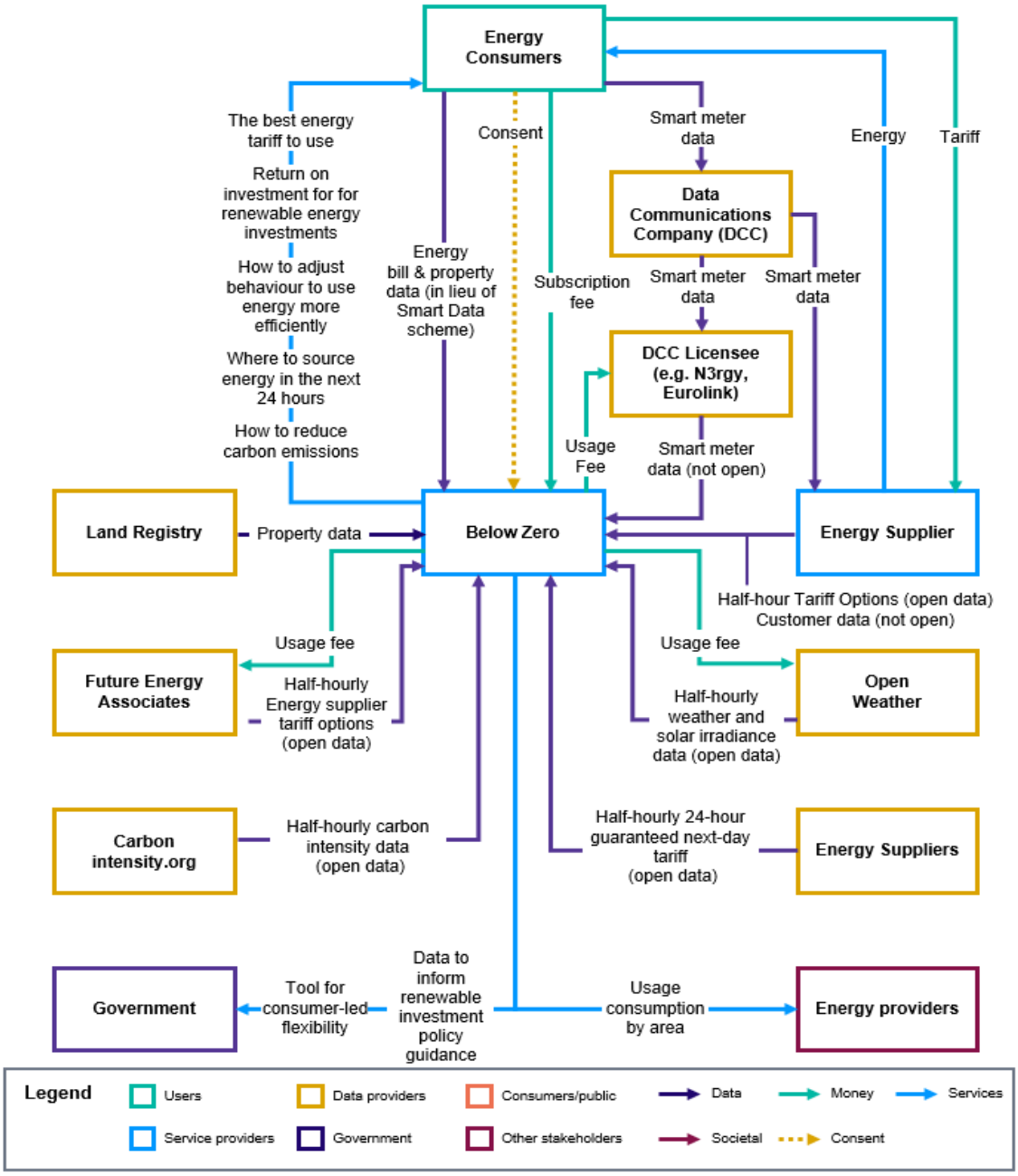

Figure 2: BelowZero data ecosystem map

4. What the Challenge tested

BelowZero's minimum viable product, developed through the Smart Data Challenge Prize, focused on tariff optimisation and modelling the potential return from low-carbon household energy assets. The prototype used synthetic data to test how different energy choices could affect household costs, carbon emissions, and payback periods.

The synthetic data included information such as household location, property type, EPC rating, smart meter data, energy supplier, tariff, and bills. This allowed BelowZero to model

what households might have paid under alternative tariffs and how low-carbon investments could affect bills and emissions. The finalist also used the prototype to generate optimised instruction sets, showing how a household might use grid energy, solar generation, or battery storage more effectively.

The Challenge therefore tested the logic of the service rather than full live deployment. It demonstrated how Smart Data could be used to produce personalised energy recommendations, but it did not prove performance under live market conditions. In particular, the use case did not fully test real-time access to live smart meter, tariff, property or asset performance data across the energy market.

5. Finalist-claimed benefits

BelowZero's analysis suggests that Smart Data-enabled energy optimisation could deliver savings for households and small businesses by improving tariff selection and supporting better use of low-carbon assets. BelowZero's initial user research, based on several households in South-West England, suggested tariff-switching savings of 12% to 36%. The finalist also modelled scenarios across 2,800 properties using synthetic data created by bigspark (a data-engineering firm that generated synthetic datasets for the Challenge).

Scenario	Description	Savings (%)	Savings (£)
Tariff switching only	BelowZero analysed smart meter data to identify the most suitable tariff. No change in behaviour was required.	12% – 36%	£233 annually[12]
Low-carbon investment	BelowZero modelled households investing in low-carbon infrastructure such as batteries or solar panels	22% – 51%	£365 – £3,284 annually

Table 4: Benefits of the BelowZero service

BelowZero identified two broad benefit routes. The first is tariff switching, where the service analyses actual smart meter data to identify a more suitable tariff without requiring changes in household behaviour. The second is low-carbon investment optimisation, where the service models how batteries, solar panels or other assets could be used more effectively.

[12] DESNZ (2025): Clean Flexibility Roadmap, Government's vision for flexibility, pp.8-9

Benefit	Results from trials
Energy bills	**51% reduction** resulting in a saving of approx. **£3,284**
Carbon emissions	Up to **50% lower**
Grid dependency	**17% less** reliance
Payback on renewables	**61% faster** return on investment

Table 5: BelowZero's modelled energy and carbon outcomes

In one example, BelowZero reported that optimised daily energy decisions could reduce energy bills by around 51%, lower carbon emissions by up to 50%, reduce grid dependency by 17%, and shorten the payback period on renewables by 61%. These figures are finalist estimates and should be treated as indicative modelling rather than independently verified outcomes.

At a wider level, BelowZero argues that services of this type could support consumer-led flexibility by helping households shift demand, use stored energy at better times, and respond to price or carbon signals. This could contribute to wider energy system flexibility, provided that the necessary Smart Data schemes, tariff data, technical standards, and consumer protections are in place.

6. Barriers, dependencies and limits

BelowZero's use case depends on access to timely, accurate and interoperable energy data. The finalist identified several barriers that could limit real-world deployment.

The first is access to half-hourly smart meter data. BelowZero's model relies on granular consumption data to provide personalised recommendations. Without this, services can offer only broad estimates rather than precise advice based on actual household behaviour.

The second is access to tariff and billing data in standardised formats. To compare tariffs properly, the service needs reliable information about current and available tariffs, including dynamic and time-of-use options. If tariff data is incomplete, inconsistent or not machine-readable, automated comparison becomes harder.

The third is access to relevant property and asset data. BelowZero's model uses property type, EPC rating, and information about technologies such as batteries, solar panels, electric vehicles and heat pumps. These datasets are held across different organisations and are not always easy to connect.

The fourth is the difference between synthetic testing and live operation. The prototype showed that the service logic could work in a controlled environment, but live deployment would require access to operational data, clear data-sharing routes, and integration with real systems. BelowZero also identified API flexibility, data quality and compatibility between energy systems as practical constraints.

BelowZero also identified regulatory and institutional barriers from the finalist perspective. These included the complexity and cost of accessing smart meter data through existing routes, and the need for more standardised tariff data. These points should be read as BelowZero's -identified barriers rather than BIST or HMG policy positions.

The assessment of benefits is therefore limited. The savings figures presented by BelowZero are based on finalist modelling, user research, and synthetic data testing. They illustrate the potential value of the use case, but they do not constitute a BIST-validated impact assessment or evidence of national-scale outcomes.

Beyond Encryption (Nigel)[13] (Joint Runner Up)

1. Beyond Encryption / Nigel's Smart Data use case

Beyond Encryption's use case explores how Smart Data could help people manage everyday administration more easily. Many people hold important information across multiple portals, inboxes, apps and paper records. The finalist notes that an individual's personal information can be spread across more than 100 online accounts, while many essential documents, such as bank statements, utility bills, insurance policies and pension correspondence, may still arrive in paper form. [14]

This fragmentation can make ordinary life administration difficult and time-consuming. It can also mean people miss renewal dates, remain on outdated contracts, pay for duplicate services, or fail to claim support to which they may be entitled. Citizens Advice estimated in 2022 that the "loyalty penalty", where existing customers pay more than new customers, cost consumers around £1.3 billion each year in sectors such as mortgages, broadband and mobile.[15]

Nigel, which stands for "Now I've Got Everything Labelled", is Beyond Encryption's proposed Smart Data-enabled personal administration tool. It has two main components. The first is a secure digital vault where users can store and organise personal information. This could include digital documents, information shared directly by providers, and paper records converted into digital form using Optical Character Recognition. The second is an AI-enabled assistant that operates only with the user's explicit permission and helps turn stored information into practical actions.

The finalist describes Nigel as sector-agnostic. Rather than focusing on one market, such as insurance, energy or pensions, it is designed to bring together information from different sectors and make it usable in one place. For example, Nigel could help a user compare insurance information with MOT mileage, review home insurance against property information, check energy use against tariffs, identify duplicate payments, or remind people about deadlines. In the finalist's view, this would allow routine administration to become clearer, safer and less burdensome.

Nigel is also designed to support people who may find digital administration difficult. The finalist identifies features that would allow trusted family members, carers or advisers to help with specific tasks, subject to consent and appropriate safeguards. Beyond Encryption also refers to educational resources developed with the financial education charity Money Ready, intended to help users understand their data and how it can be used.[16]

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13 Challenge Works (2025): SDCP Innovators: Nigel by Beyond Encryption
14 Beyond Encryption (2024): UK consumers have 119 logins & digital accounts
15 Citizen's Advice (2022): One-in-seven customers still paying the loyalty penalty despite cost-of-living crisis
16 (Accessed March 2026): Money Ready. Money Ready is a financial education charity working across the UK, collaborating with bodies aligned with Money & Pensions Service (MaPS) objectives.

2. Data needed to make the use case work

Nigel depends on bringing together personal administrative data that is currently held across many different organisations and formats. The finalist identifies a broad range of relevant data sources, including:

- utility bills and tariff information;
- insurance policies and renewal information;
- pension statements;
- bank transactions and financial records;
- MOT and vehicle registration information;
- property information, including Land Registry and Energy Performance Certificate data;
- benefit and entitlement information;
- official records held by government departments; and,
- correspondence issued by regulated providers and communication bureaux.

Nigel would also draw on trusted public and regulatory sources, including Ofgem, the Financial Conduct Authority, the Driver and Vehicle Licensing Agency, HM Land Registry and the Energy Performance Certificate Register, to check or contextualise user information.

The Smart Data value comes from connecting information that is currently fragmented. A bill or policy document may be useful on its own, but its value increases when it can be compared with other records, market information or eligibility rules. For example, a household may only understand whether it is overpaying if tariff data, usage data and provider information can be brought together. A vulnerable user may only receive appropriate support if relevant information can be shared safely with a trusted person or service.

Beyond Encryption's view is that these datasets should be converted into standardised Smart Data formats where possible. This would make it easier for information to be reused across different sectors, rather than requiring each provider, regulator or service to create a separate access route.

3. How consent, access and sharing would operate

Nigel is based on permissioned data sharing. Users would decide what information is held in their personal data vault and what Nigel is allowed to do with it. Documents could enter the vault in two main ways: directly from providers through Smart Data schemes with the user's consent, or from paper documents uploaded and digitised by the user.

Once the information is in the vault, Nigel would use "Smart Skills" such as finding, filing, reminding, preparing, sharing and comparing. These functions are intended to help users turn information into timely actions, such as checking a renewal, identifying a duplicate payment, preparing a document, or comparing a tariff.

The use case places particular emphasis on controlled sharing for people who need support. A user could permit a trusted family member, carer or adviser to help with defined administrative tasks. Such access would need to be time-limited, task-specific, logged and auditable, with appropriate safeguards where a user lacks capacity, including use of a Lasting Power of Attorney where relevant.[17]

Beyond Encryption also states that Nigel is intended to operate without commission or advertising. This is relevant because the Smart Data proposition depends on user trust. The model described is one where recommendations are based on user data and trusted reference sources, rather than advertising or commission-led incentives.

Nigel is built on privacy-by-design principles and aligned with UK GDPR[18] and the Data (Use and Access) Act 2025.[19] The finalist also refers to a human-in-the-loop approach, intended to provide oversight and reduce the risk of poor or unfair automated outcomes.[20]

[17] FCA (2025): Delivering good outcomes for customers in vulnerable circumstances – good practice and areas for improvement
[18] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016: (General Data Protection Regulation) (as retained in UK law ("*UK GDPR*"))
[19] *Data (Use and Access) Act 2025 (c. 18)*
[20] Faculty (2021): What is 'human-in-the-loop'? And why is it more important than ever?

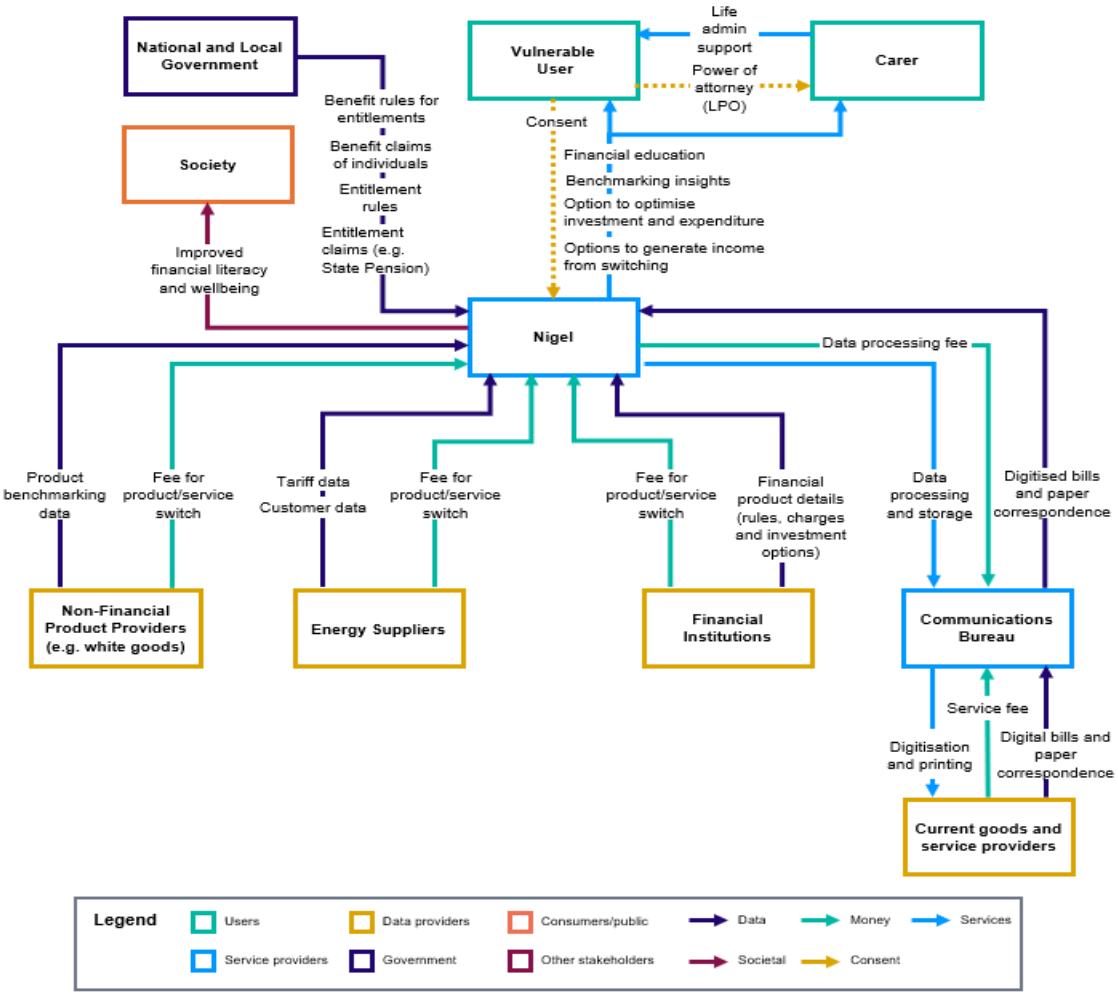

Figure 3: Nigel data ecosystem map

4. What the Challenge tested

Nigel's minimum viable product, developed through the Smart Data Challenge Prize, tested how a personal data vault and AI-enabled assistant could help users organise administrative information and receive tailored prompts or recommendations.

The prototype demonstrated how documents and data from different sources could be brought into one place, standardised and used to generate actions. This included information from paper records, provider-held information and simulated cross-sector datasets. The prototype drew on insurance and motoring datasets, supported by household information from trusted registers.

The Challenge therefore tested the logic of a cross-sector Smart Data hub. It explored whether personal documents and administrative data could be organised, compared and turned into useful prompts for users. It also showed where further development would be needed to support live access to regulated data sources and wider cross-sector interoperability.

The prototype did not, however, prove full national deployment. It relied on a controlled testing environment and did not resolve all the live data access, regulatory, consent or interoperability issues that would be needed for Nigel to operate at scale across sectors.

5. Finalist-claimed benefits

Beyond Encryption argues that Nigel could help households save money and reduce the day-to-day burden of managing "life admin", by bringing key documents and account information into one place and turning them into timely prompts and actions. Their estimate is that Smart Data-enabled optimisation across areas such as energy, insurance, telecoms and benefits could generate average savings of over £1,200 per household per year.[21] These estimates are based on finalist modelling and should be treated as indicative rather than independently validated outcomes.

The finalist also links the proposition to consumer support and financial education. They refer to work with the charity Money Ready and cite outcomes from that organisation, including a reported 60% reduction in youth debt.[22] This is evidence about Money Ready's work, rather than an outcome demonstrated by Nigel itself. Beyond Encryption further frames Nigel as a tool that could help address known problems such as the "poverty premium", which they cite as affecting 14 million people[23] and note estimates that eliminating it could save a low-income household around £444 a year.[24]

Beyond Encryption also claims wider efficiency gains for employers and public services. They cite estimates of productivity losses linked to stress and time spent managing life administration £2.5 billion in absenteeism and £3.7 billion in presenteeism, £6.2 billion in total each year.[25] They also point to digitisation examples that, in their view, illustrate the potential system-wide benefits of moving away from paper processes, including an estimate that HMRC's digital-first approach could reduce print and mailing costs by up to £50 million a year.[26] Beyond Encryption reports a further example from Aegon's use of secure email, reporting around 270 tonnes of CO_2 savings through digitised communications.[27] These examples provide context on the kinds of savings digitisation can enable; they are not outcomes directly evidenced by Nigel.

At a national level, Beyond Encryption suggests that improving administrative efficiency could deliver over £30 billion in annual consumer benefits, but only where households have the tools and support to bring their administrative data together and act on it. They also

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[21] Beyond Encryption (2025): Nigel Savings Indicative Calculations
[22] Money Ready's programmes have achieved an average 60% reduction in personal debt among young adults following participation demonstrating the tangible impact of financial education on real-world financial resilience.
[23] The poverty premium is the extra cost that people on low incomes end up paying for essential goods and services compared with those who are better off.Fair By Design (2025): What is Poverty Premium
[24] Fair By Design (2025): What is Poverty Premium/
[25] CEBR (2022): Financial Wellbeing Report
[26] Printweek (2025): HMRC plans massive reduction in printed comms, 2025
[27] Beyond Encryption Carbon Impact Estimator

reference wider estimates on the costs associated with poor mental health and financial stress and present a scenario that even small reductions could yield material economy-wide gains.[28]

6. Barriers, dependencies and limits

Nigel's use case depends on the development of cross-sector Smart Data schemes that allow personal administrative data to be shared securely, consistently and with user consent. The finalist identifies this as central to the model. Without clear Smart Data standards, Nigel would need to rely on fragmented provider integrations, document uploads and OCR, which may limit scale and consistency.

A key dependency is access to regulated data sources across government and industry: DVSA, DVLA, DWP, HMRC, energy providers, pension schemes, insurers, financial services firms, communication bureaux, Land Registry and the EPC Register. These data sources are not all at the same stage of readiness. The finalist notes that energy is relatively advanced because tariff APIs and Smart Data work are already developing, while insurance and other sectors may be less standardised.

Another dependency is common data standards. Nigel would require consistent identifiers, common formats and a clear consent mechanism so that information can move safely between data holders, the user and authorised third parties. Without this, services risk remaining fragmented and difficult for users to manage.

The finalist also identifies the need for appropriate safeguards for vulnerable users. This includes clear rules on delegated access, consent, time-limited permissions, audit trails and capacity. Any proposal for a central vulnerability risk register would require careful consideration of privacy, governance, data minimisation, lawful basis and user control. It should be understood as a finalist-identified dependency, rather than a BIST position.

[28] These wider figures are included as contextual evidence of the scale of underlying pressures; they should not be read as impacts attributable to this use case. The Challenge tested feasibility and helped develop the proposition, but it did not independently validate the estimated savings, health impacts, productivity impacts or public sector cost reductions.

Debit Score®[29]

1. Debit Score®'s Smart Data use case

Debit Score® explores how Smart Data could provide a more accurate and timelier view of an individual's financial position. The use case is designed as a personal financial assistant that helps consumers identify better-value products, avoid unnecessary costs, build savings and make decisions based on their actual financial behaviour rather than historic or partial data.

The use case responds to a common problem. Many households struggle to switch products, access affordable credit or build financial resilience because relevant information is fragmented across accounts, providers and sectors. Debit Score® points to evidence that up to 11 million working-age UK adults have less than £1,000 in savings, leaving them more exposed to unexpected costs and high-cost borrowing. [30] It also refers to FCA evidence that 1 in 10 adults have no cash savings at all. [31] In addition, the finalist cites estimates that millions of consumers struggle to access affordable credit because they have thin or non-standard credit files. [32]

Existing tools only partly address this problem. Traditional credit scores tend to focus on historic borrowing behaviour, while price comparison websites usually depend on the consumer knowing what they need, when to search and what information to provide. Debit Score® is intended to work differently. It would use Open Banking and emerging Smart Data schemes to bring together real-time information on income, expenditure, savings patterns, commitments, product usage and renewal dates. The aim is to turn this information into practical prompts, such as identifying when a mortgage, insurance policy or broadband contract is nearing renewal, highlighting potential savings opportunities, or encouraging users to build savings buffers.

The service builds on Cheddar, an existing consumer app which the finalist says is already used by more than 100,000 people.[33] Debit Score® would extend that foundation by incorporating Smart Data from additional sectors as new schemes develop. In the finalist's view, this creates a shift from static financial scoring towards a more active model of financial decision-making: one that helps consumers act at the right moment, using their own data, rather than relying on generic offers or delayed information.

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29 Challenge Works (2025): SDCP Innovators: Debit Score®
30 Resolution Foundation (2024): Families need help in rising to the 'triple savings challenge' of saving more for rainy days, bigger life events and retirement
31 FCA (2025): Financial Lives 2024
32 Clearscore (2024): Building a non-prime lending market that delivers for UK consumers; Money and Pensions Service (2023): One in five UK adults declined for credit in a year; Abrdn (2024): How can the UK close its saving and investing gap?
33 (Accessed March 2026) Cheddar is a UK fintech app that gives users instant cashback and discounts when they shop at hundreds of retailers.

2. Data needed to make the use case work

Debit Score® depends on combining financial, product and usage data from several markets. The finalist identifies the following as particularly important:

- current account transaction data, accessed through Open Banking;
- income, expenditure, savings and commitment data;
- product-level data, such as interest rates, premiums, tariffs, fees and rewards;
- renewal or expiry dates for mortgages, insurance, broadband and other products;
- usage data, including energy consumption or telecoms usage where relevant;
- credit and affordability information; and,
- future datasets such as pensions, student loan debt and investment information, where appropriate.

The central requirement identified by the finalist is **customer-level pricing and renewal data**. This means the actual rate, premium or tariff an individual is paying, when that product expires, and how it compares with alternatives. The finalist argues that generic open product listings are not enough. To identify whether a consumer is paying a loyalty penalty or missing a better-value product, the service needs to understand the customer's actual position, not only the offers available in the market.

This distinction is important for the Smart Data argument. Open Banking can show how money moves through a current account, but it does not necessarily show the full terms of a mortgage, insurance policy, energy tariff or broadband contract. Debit Score® therefore depends on future Smart Data schemes making customer-level product data available in standardised, interoperable and permissioned formats. The finalist links this to the Data (Use and Access) Act 2025 and to the CMA's work on Smart Data and price transparency. [34]

In the finalist's view, wider access to this data would allow consumers to use their own information to compare products more accurately, switch at the right time and receive more tailored support. It would also allow firms to improve onboarding, affordability assessment and product matching, provided that the data is shared securely and with clear user consent.

3. How consent, access and sharing would operate

The Debit Score® model is based on permissioned data sharing. Users would consent to share their financial and product data through Open Banking and, where available, Smart Data APIs in other sectors. That data would then be analysed by the Debit Score® algorithm to generate personalised insights and recommendations.

In practice, this could mean a user connecting their current account, allowing the service to understand income and spending patterns, and then adding product or renewal information from sectors such as energy, insurance, telecoms or mortgages. The service could then

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[34] CMA (2025): Smart data and price transparency schemes: discussion paper

identify relevant prompts, such as a renewal date approaching, a better-value tariff becoming available, or a savings target that would reduce reliance on high-cost borrowing.

The use case assumes that Smart Data schemes will provide standardised, interoperable access to customer-level product and pricing data across sectors. This would allow consumers to use their own data to compare products and switch more easily. Debit Score® emphasises that clear consent mechanisms, transparency and user control are essential for adoption.

The finalist also highlights accessibility and inclusion as part of the consent journey. Cheddar intends to gather app-specific accessibility requirements through user research, including with people who have low digital skills, and to evaluate the service against WCAG 2.2 AA and Apple/Google accessibility guidance. Early improvements would focus on core journeys such as sign-up, account connection and switching, including screen reader support, keyboard navigation, text size, contrast and plain-language summaries.

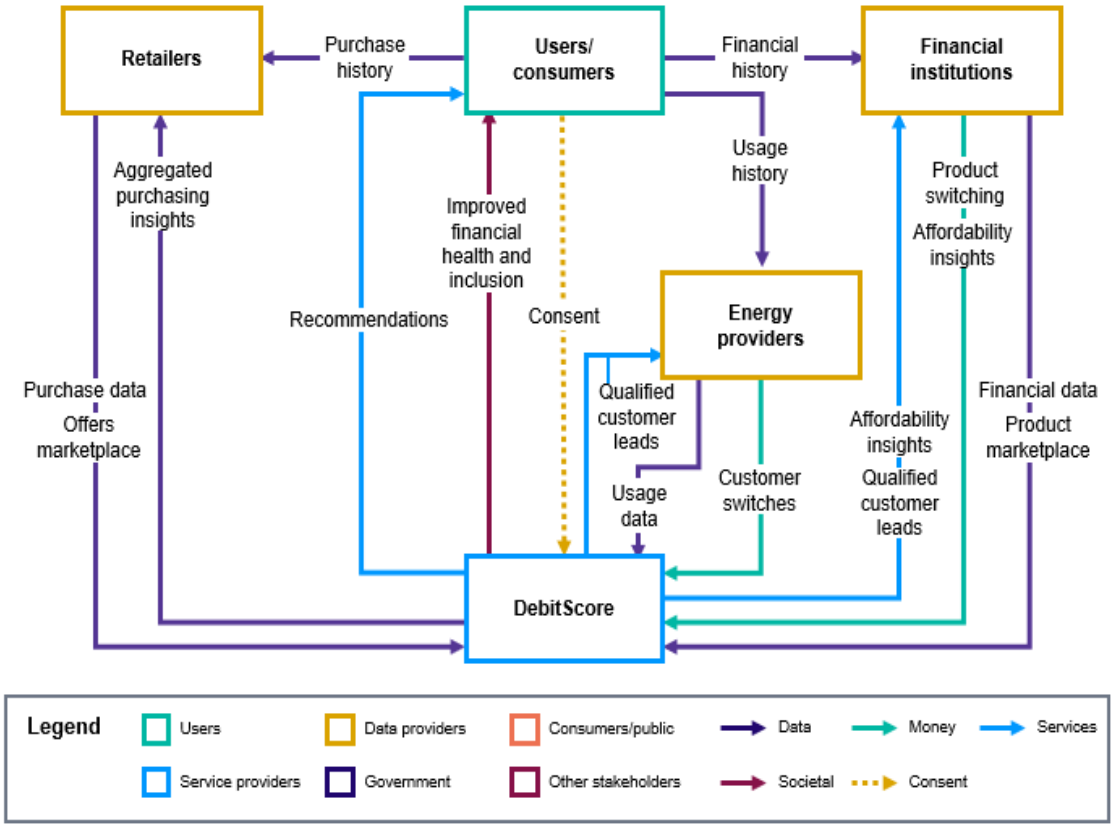

Figure 4: Debit Score® data ecosystem map

4. What the Challenge tested

The Debit Score® minimum viable product combined Open Banking transaction data with synthetic datasets provided through the Smart Data Challenge Prize. This allowed the finalist

to test how financial and product data could be brought together to generate a cross-sector financial health score and identify possible savings opportunities.

The prototype tested the service logic rather than full live deployment. It explored how transaction data could support an assessment of financial behaviour, and how additional datasets — such as product-level pricing, renewal dates or sector-specific usage data could improve the relevance of recommendations. Debit Score® also used the Challenge to consider how future datasets, including pensions, student loan debt and investment information, could strengthen the model over time.

The testing highlighted a central dependency: customer-level pricing and renewal data was not fully available in the testing environment. As a result, the prototype could show how the model might work, but it could not fully replicate live switching, real-world product comparison or consumer behaviour across all sectors. This matters because the most valuable recommendations depend on knowing not only what a consumer spends, but what they are paying for specific products and when they are able to act.

The Challenge therefore helped demonstrate feasibility and clarify data requirements, but it did not prove national-scale impact or full operational performance. Debit Score®'s benefit estimates remain indicative and depend on wider implementation of Smart Data schemes, including standards, consent frameworks and access to customer-level product data.

5. Finalist-claimed benefits

Debit Score® is presented by the finalist as offering tangible financial benefits to consumers by helping them identify better-value products, avoid unnecessary costs and make more timely financial decisions. Drawing on its modelling and early analysis, the finalist estimates that the service could deliver average benefits of over £500 per user per year, driven by improved switching behaviour, avoided fees, better savings decisions and more efficient use of financial products.[35]

A core element of this value lies in helping consumers avoid the loyalty penalty or inertia that can keep them on poor-value products. Debit Score® highlights examples such as mortgage switching, where acting at the right time could save more than £500 per year, and energy tariffs, where the difference between the cheapest tariffs and the price cap is estimated at around £140 a year. [36] These figures illustrate how better timing and access to relevant data can materially affect household costs.

Beyond direct savings, the finalist positions Debit Score® as supporting financial resilience. For example, it suggests that using savings rather than carrying a £1,000 credit card balance at 39.9% APR could avoid around £229 in interest, while holding £1,000 in a 4% savings account could generate around £40 annually. These examples are illustrative, but they show

[35] Debit Score detailed analysis
[36] Ofgem (2025): State of the market report

the type of behavioural prompt the finalist believes Smart Data could support: helping users move from reactive borrowing towards better planning and saving.

The finalist also emphasises a potential role in improving financial inclusion. They refer to estimates that around 5 million people have little or no credit history, and that up to 16 million consumers have thin or non-standard credit files.[37] By using real-time income, expenditure and behavioural data, Debit Score® aims to provide a more representative view of financial circumstances, which the finalist argues could support fairer access to credit and other products.

For businesses, the finalist identifies operational benefits from using permissioned data to support onboarding and affordability checks. It cites evidence that more than one in five applicants abandon loan applications because of manual steps, and that 78% of lenders see reducing friction as important to competitive advantage.[38] In the finalist's view, pre-filled applications and real-time affordability insights could reduce drop-off, improve completion rates and support more accurate decisions.

At a wider market level, Debit Score® suggests that Smart Data-enabled comparison and switching could increase competitive pressure. It refers to the CMA's Digital Comparison Tools study, which concluded that comparison tools can make it easier for consumers to shop around and can support lower prices, higher quality, innovation and efficiency.[39] In the finalist's view, Debit Score® could extend this principle by using personalised data to surface the right action at the right time.

Debit Score® also provides broader estimates of potential national benefit, including a scenario in which reaching around 1 million users over two to three years could produce £35–50 million in annual household savings. These estimates should be read as finalist modelling, not as validated outcomes. They depend on adoption, access to the necessary data, consumer behaviour and the development of wider Smart Data schemes.

Taken together, Debit Score®'s analysis suggests that Smart Data could help translate existing consumer data into practical financial benefits. However, the figures above are based on modelling and assumptions rather than observed national outcomes. They should be interpreted as indicative of the potential scale of benefit, not as BIST-validated impact.

6. Barriers, dependencies and limits

The Debit Score® use case depends on the availability of consistent, interoperable Smart Data across sectors. The finalist identifies customer-level pricing and renewal data as the

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[37] Experian (2022): Meet the 5 million credit invisible brits still at risk of exclusion from the financial system; ClearScore (2024): Building a non-prime lending market that delivers for UK consumers
[38] Tink (2024): Younger borrowers bring access to loans in question as 78% see applications rejected
[39] CMA (2017): Digital comparison tools market study

most important dependency. While Open Banking already provides access to current account transaction data, equivalent access to product-specific pricing, renewal and usage data is not yet consistently available across energy, telecoms, insurance, mortgages or other relevant markets.

Without this data, the finalist argues, services can provide only partial recommendations. A consumer's transaction history may show that they pay an energy supplier or insurer, but not necessarily whether their tariff, premium or renewal terms are competitive. This limits the ability to identify loyalty penalties, trigger timely switching prompts or provide personalised comparisons.

A second barrier is inconsistency in data standards and access routes. Some sectors are more advanced than others, and the finalist notes that emerging Smart Data schemes will need common standards, identifiers and consent mechanisms if cross-sector services are to work at scale. Without this, innovators may need to build separate integrations market by market, increasing cost and complexity.

The use case also depends on consumer trust. Because Debit Score® would handle sensitive financial information and generate recommendations that may influence financial decisions, users need clear explanations, accessible design, control over consent and confidence that recommendations are not biased or driven by inappropriate commercial incentives. The finalist's proposed accessibility work and fairness checks are relevant to this, but they would need to be tested further in live conditions.

Finally, the assessment is limited by the nature of the Challenge. The MVP tested the logic of combining Open Banking and synthetic Smart Data datasets, but it did not test full-scale operation across live markets. Debit Score®'s benefit estimates are therefore indicative and depend on wider conditions being met, including regulatory frameworks, standards, data access, partner adoption and consumer uptake.

GlowTrack[40]

1. GlowTrack's Smart Data use case

GlowTrack explores how Smart Data could help identify and support households at risk of fuel poverty or winter heating vulnerability. The use case responds to a serious and persistent problem: millions of UK households face fuel poverty, with low-income households, older people, medically at-risk groups and people living in poorly insulated homes particularly exposed to rising energy costs and cold homes.[41]

At present, the data needed to identify risk is often fragmented across different organisations. Councils, energy suppliers, the NHS and charities may each hold part of the picture, but no single dataset is enough to show which households are most at risk, what support they need, and when intervention would be most effective.

GlowTrack's proposition is to bring together energy, housing, financial, environmental and, where appropriate, health-related data into a single Vulnerability Index. This index would generate a household-level risk score to help identify people most at risk of fuel poverty, underheating or related hardship. The aim is to move support from a broad and reactive model to a more targeted, preventative one.

In practical terms, the service could help councils prioritise retrofit and grant support, help suppliers identify customers at risk of disconnection, support more automated access to available schemes, and provide clearer information to households about energy support. The finalist also identifies potential uses for local authorities, energy suppliers, the NHS, charities, SMEs, and regulators, where better data could support earlier and more efficient interventions.

GlowTrack's core Smart Data argument is that fuel poverty is a cross-sector problem and cannot be understood through one dataset alone. Energy use, housing conditions, income vulnerability, weather exposure and health risk all affect whether a household can keep warm safely and affordably. The value of the use case lies in linking those sources securely and responsibly so that support can be directed to where it is most needed.

2. Data needed to make the use case work

GlowTrack depends on bringing together data that is currently held across energy, housing, finance, health and local public services. The finalist identifies the following datasets as particularly important:

- smart meter and energy consumption data;
- gas and electricity usage patterns;

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[40] Challenge Works (2025): SDCP Innovators: GlowTrack
[41] End Fuel Poverty Coalition (2023): Excess winter deaths from cold homes 2022/23; National Energy Action (2021): Warm Homes, Healthy People - The Social and Economic Case for Action

- property information, including EPC ratings, property size, heating requirements and insulation levels;
- local authority and housing association data on housing quality and eligibility for support;
- financial vulnerability indicators, including affordability or income-related data;
- weather and environmental data;
- social care or vulnerability indicators, where lawfully and appropriately available;
- health outcome data for evaluation, subject to appropriate safeguards; and,
- information on grants, retrofit schemes and support programmes.

The finalist's view is that these datasets are valuable because they show different aspects of household risk. Energy consumption data can indicate whether a household is underheating. Property data can show whether a home is inefficient or costly to heat. Financial data can help identify affordability pressures. Health and social care indicators may help identify where cold homes could worsen existing vulnerabilities. Combined, these sources could provide a more accurate picture than any one dataset in isolation.

Sector	Data required	Purpose
Financial Services	Savings, banking, investments, pensions, insurance, credit products	Helps assess the individual's financial situation to determine their eligibility and priority for this lower cost energy support
Energy	Electricity and gas consumption, smart meter data	To estimate the amount of heating support needed for each household
Residential	Property details e.g., occupancy, heating requirements, property size, insulation level	To ensure efficient and fair distribution of support

Table 6: Data requirements for the GlowTrack Vulnerability Index

GlowTrack also identifies the need for a trusted data catalogue. In the finalist's model, this would help standardise metadata, access rules and data discovery so that relevant datasets can be used consistently and safely. This is particularly important because the use case depends on combining sensitive data across sectors.

3. How consent, access and sharing would operate

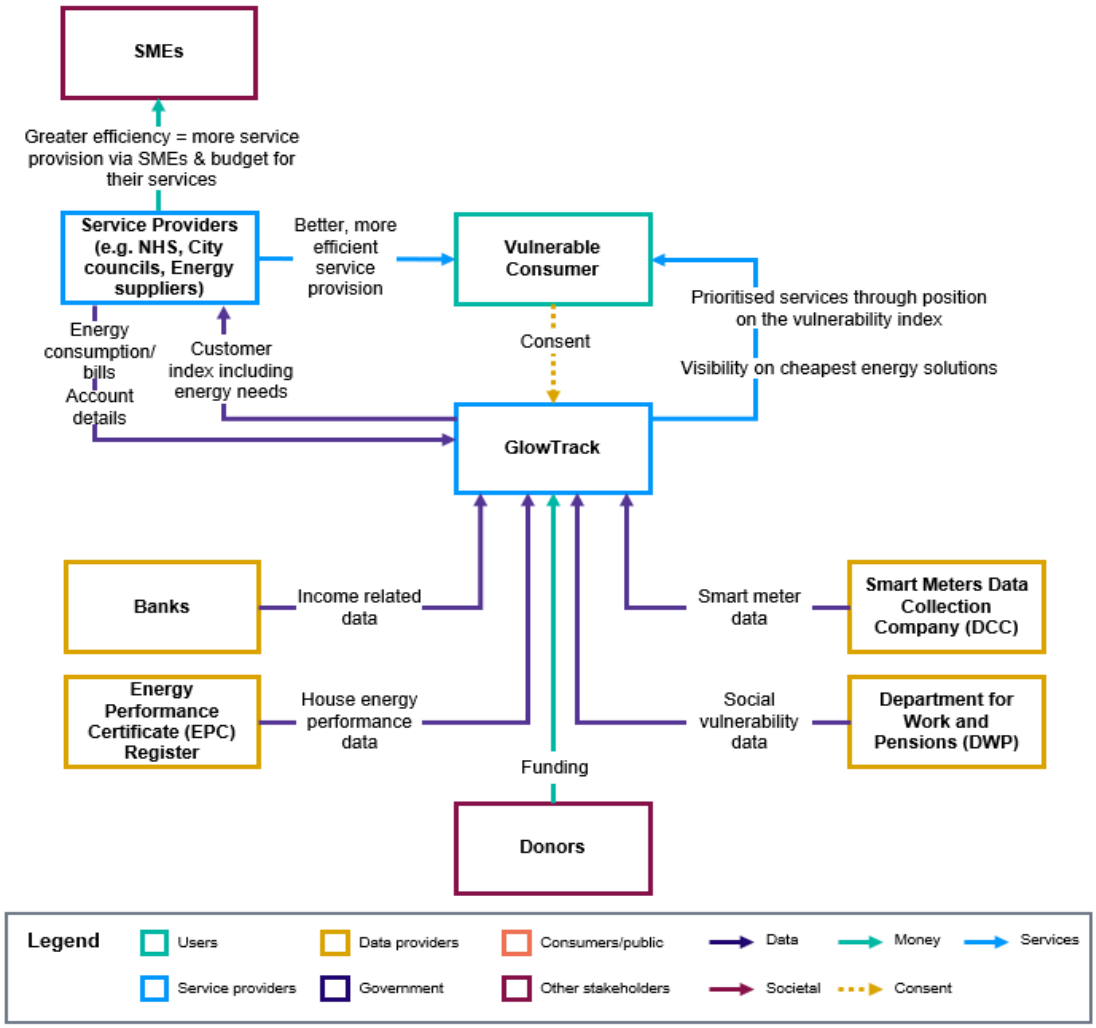
GlowTrack's model is based on secure and permissioned data sharing. Where household-level data is used, individuals would need clear information about what data is being accessed, why it is needed, who will use it, and what support or intervention it may inform.

The use case assumes that data would be accessed through secure APIs, scheduled transfers or trusted data environments, depending on the sensitivity of the dataset. Energy suppliers, Smart DCC, local authorities, housing associations, financial data providers and,

where appropriate, health bodies could each provide relevant data under agreed governance arrangements.

Because the use case involves vulnerable households and potentially sensitive information, safeguards are central. The finalist states that GlowTrack would use GDPR-compliant data pipelines, encryption, audit trails and privacy-preserving methods. Where health or biometric data is involved, the finalist identifies the need for a Trusted Research Environment to reduce re-identification risk and support controlled analysis.[42]

The service would then provide authorised users, such as councils or suppliers, with prioritised insights rather than unrestricted access to raw personal data. This distinction matters. The Smart Data value comes from turning complex data into targeted, actionable support while limiting unnecessary exposure of sensitive information.



[42] To keep data safe when it is used for research, data controllers often store public sector data in secure locations known as Trusted Research Environments (TREs): secure physical or digital environments which can only be accessed by approved researchers

Figure 5: GlowTrack data ecosystem map

4. What the Challenge tested

GlowTrack's minimum viable proposition focused on the Vulnerability Index. The Challenge allowed the finalist to test how different datasets could be combined to identify households at greater risk of fuel poverty or winter heating vulnerability.

The MVP explored how energy, housing, financial and environmental data could be brought together to generate a prioritised risk score. The aim was to test whether fragmented data could be transformed into practical insights for councils, energy suppliers and other partners, supporting better targeting grants, retrofit measures, energy support and early outreach.

The Challenge also helped GlowTrack test the concept of a shared data ecosystem. This included considering the role of local authorities, Smart DCC, energy suppliers, the EPC Register, financial data providers, and potential health partners. The finalist also identified future enhancements, including use of real-time smart meter data to detect disconnection risk, local authority pilots for retrofit and grant prioritisation, and richer health-related data to support evaluation or early intervention.

However, the testing did not prove full national deployment. It did not provide live access to all relevant datasets, nor did it fully test how health, financial, housing and energy data would operate together under live governance conditions. The Challenge demonstrated the logic and potential value of the Vulnerability Index, but not its full operational performance at scale.

5. Finalist-claimed benefits

GlowTrack's analysis suggests that Smart Data could help make energy support more targeted, timely, and efficient. The finalist argues that by identifying households most at risk, the Vulnerability Index could help direct support before problems escalate into debt, disconnection, ill health or emergency intervention.

For households, the claimed benefit is earlier and more personalised support. This could include better targeting of retrofit grants, automated or simplified access to energy support schemes, alerts where smart meter patterns suggest potential underheating or disconnection risk, and tailored advice for households struggling to heat their homes.

For councils, the finalist argues that GlowTrack could reduce manual effort in identifying eligible households and prioritising retrofit or grant programmes. For energy suppliers, the claimed benefits include earlier identification of vulnerability, reduced arrears, fewer emergency credit situations, and improved support for customers in difficulty. For the NHS,

the finalist suggests that better targeting warm-home support could help reduce cold-related health pressures, particularly during winter.[43]

GlowTrack also refers to estimates from the End Fuel Poverty Coalition on excess winter deaths linked to cold homes, including figures for winter 2022/23 and winter 2020/21.[44] These figures should be treated as contextual evidence of the wider problem.

The table below presents GlowTrack's scenario analysis across short-, medium- and longer-term stages, including claimed benefits from co-funded pilots, scaling and potential national deployment.

Time	Benefits
Short term (Year 1 - 2) Foundations and Co-funded Pilots	Reduced overdue debt for suppliers, better retrofit and grant targeting, fewer crisis interventions by councils, NHS savings
Medium term (Year 2 - 3) Scaling & Subscriptions	Scale targeted support benefits and efficiencies for councils, suppliers and NHS, create commercial opportunities for SMEs Demonstrable return on investment for local authorities and NHS trusts
Long term (Year 3 - 5) National Scale	System-level savings through reduced fuel poverty, measurable reduction in excess winter deaths, improved vulnerable customers serving efficiency throughout councils, energy suppliers, and NHS, saving tangible cost across the UK which can be reinvested to further tackling fuel poverty

Table 7: Finalist-claimed benefits over the next five years

The finalist cites a return-on-investment assumption that £1 invested in proactive energy support could save £3–£4 in downstream healthcare, arrears and emergency costs. This is a finalist-cited estimate and has not been independently validated by BIST.

At a wider level, GlowTrack argues that targeted energy support could generate benefits for SMEs and the wider ecosystem. Retrofit firms, energy service providers, and financial technology providers could use better targeting to reach households at the right time with appropriate support. The finalist also links the use case to Net Zero by identifying homes where retrofit or heating improvements could reduce emissions.

Taken together, GlowTrack's claimed benefits depend on Smart Data doing three things: identifying risk earlier, targeting support more accurately, and reducing waste across the

[43] National Energy Action (2021): Warm Homes, Healthy People - The Social and Economic Case for Action
[44] End Fuel Poverty Coalition (2023): Excess winter deaths from cold homes 2022/23; National Energy Action (2021): Warm Homes, Healthy People - The Social and Economic Case for Action

energy-support system. The claims are indicative and depend on access to relevant data, trusted governance, effective partnerships and successful live pilots.

6. Barriers, dependencies and limits

GlowTrack's use case depends on access to sensitive and cross-sector data. The most important dependency is the ability to link energy, housing, financial, environmental, and vulnerability data in a lawful, secure, and interoperable way. Without this, the Vulnerability Index would either be incomplete or rely on manual uploads and partial evidence.

A second dependency is data quality and coverage. If smart meter data, EPC data, local authority records, or financial vulnerability indicators are incomplete, outdated, or inconsistent, the risk score may be less accurate. This matters because the use case is intended to prioritise support for households in vulnerable circumstances. Poor data could lead to missed households or misdirected support.

A third dependency is governance. GlowTrack will need clear rules on consent, lawful basis, data minimisation, auditability, access controls and onward sharing. The finalist states that governance would need to align with FCA and Ofgem vulnerability guidance, ICO expectations and wider Smart Data principles.[45] It also identifies links with the Smart Energy Data Service and trusted research environments where sensitive health data is involved.

A fourth barrier is operational coordination. GlowTrack's model depends on councils, suppliers, health partners, charities, and SMEs acting on the insights generated. The value of the index depends not only on producing a risk score, but on having support pathways ready: grants, retrofit programmes, debt support, warm-home interventions, supplier outreach or community support.

The assessment is also limited by the Challenge setting. The prototype tested the logic of combining datasets and generating vulnerability insights, but did not prove national-scale delivery, live operational performance, health outcomes, or the full cost-benefit case. GlowTrack's estimates should therefore be treated as finalist-claimed and indicative, not as BIST-validated impact.

[45] FCA (2021): FG21/1 Guidance for firms on fair treatment of vulnerable customers; Energy Systems Catapult & University of Oxford (2025): Smart Energy Data Service (SENSE) – secure access to energy, network, EV and meter data for research

Mealia[46] (Smart Data Fellow)

1. Mealia's Smart Data use case

Mealia explores how Smart Data could help households plan meals and shop for groceries in ways that are cheaper, healthier and more sustainable. The use case is built around an AI-powered grocery assistant that generates personalised meal plans and automatically builds supermarket baskets based on a household's budget, dietary needs, preferences and available products.

The problem Mealia seeks to address is practical and familiar. Planning affordable, healthy meals requires people to compare prices, check ingredients, manage dietary requirements, avoid waste, assess promotions and make trade-offs between cost, nutrition and sustainability. This can be time-consuming, particularly for households managing tight budgets, specialist diets or limited time.

Mealia's proposition is to use Smart Data to simplify this process. A user would enter their needs and available resources for the week, select their preferred supermarket or retailers, and receive a tailored meal plan and optimised grocery basket. The service is designed to support specialist dietary needs, including diabetic, gluten-free and allergy-specific diets, while helping households reduce costs and food waste.

The Smart Data opportunity lies in moving beyond generic recipe apps or single-retailer loyalty schemes. Mealia's model depends on secure and standardised access to product, pricing, promotion, nutritional, sustainability and shopping-history data. This would allow recommendations to reflect what is available to the household, what it costs, and what best fits their needs.

In practice, Mealia aims to turn a fragmented grocery-shopping process into a simpler consumer journey. Instead of expecting households to search manually across products, compare offers and build a basket themselves, the service would use data to generate options that balance affordability, health, dietary needs and sustainability.

2. Data needed to make the use case work

Mealia depends on access to detailed and timely grocery and household data. The fellow identifies the following datasets as particularly important:

- supermarket product catalogues;
- real-time pricing data;
- promotional offers and discounts;
- stock availability;
- nutritional information;
- allergen and dietary information;

[46] Challenge Works (2025) SDCP Innovators: Mealia

- sustainability or carbon-impact data;
- household preferences and dietary requirements;
- user budget and weekly resources; and,
- shopping history or loyalty-card data, where shared with consent

The central requirement is access to reliable supermarket item data. This includes not only the name of a product, but its price, size, nutritional content, dietary characteristics, availability, promotions and sustainability attributes. Without these data points, the service can generate only generic recommendations rather than a basket that reflects the user's real choices.

The use case also depends on consented access to household shopping history. With this information, Mealia could understand what a household typically buys, what it avoids, how it responds to price changes, and what substitutions may be acceptable. This is what allows the service to move from generic meal planning to genuinely personalised support.

Mealia argues that current data access is fragmented. Product and pricing data is often held separately by individual retailers, and independent providers may need to rely on technically complex workarounds. A Smart Data framework could create a more consistent and secure route for accessing this information, allowing services like Mealia to operate across retailers rather than being limited to one supermarket ecosystem.

3. How consent, access and sharing would operate

Mealia's model is based on user permission. Users would provide information about their household needs, budget, dietary requirements and preferences. Where shopping history or loyalty-card data is used, this would need to be accessed with explicit consent.

The service would also require access to retailer-held data, including product catalogues, prices, promotions and availability. In a mature Smart Data ecosystem, this could be provided through standardised APIs, allowing Mealia and similar services to compare products across retailers in a consistent way.

The purpose of the data sharing would be clear: to generate meal plans and grocery baskets that better reflect the user's circumstances. For example, a household could choose to optimise for lower cost, healthier meals, reduced carbon impact, greater variety or specific dietary requirements.

Privacy and trust are central to the proposition. The Smart Data Fellow states that Mealia would collect only the minimum data required to generate personalised recommendations, use explicit consent flows, and rely on secure and transparent data-sharing mechanisms. This would provide a more reliable alternative to fragmented or manual access to retailer information.

Accessibility is also part of the user journey. Mealia is being designed with features such as screen-reader compatibility, clear iconography, simplified navigation and support for

specialist dietary needs. These design choices are relevant because the use case is intended to help a broad range of households, including those managing health conditions or constrained budgets.

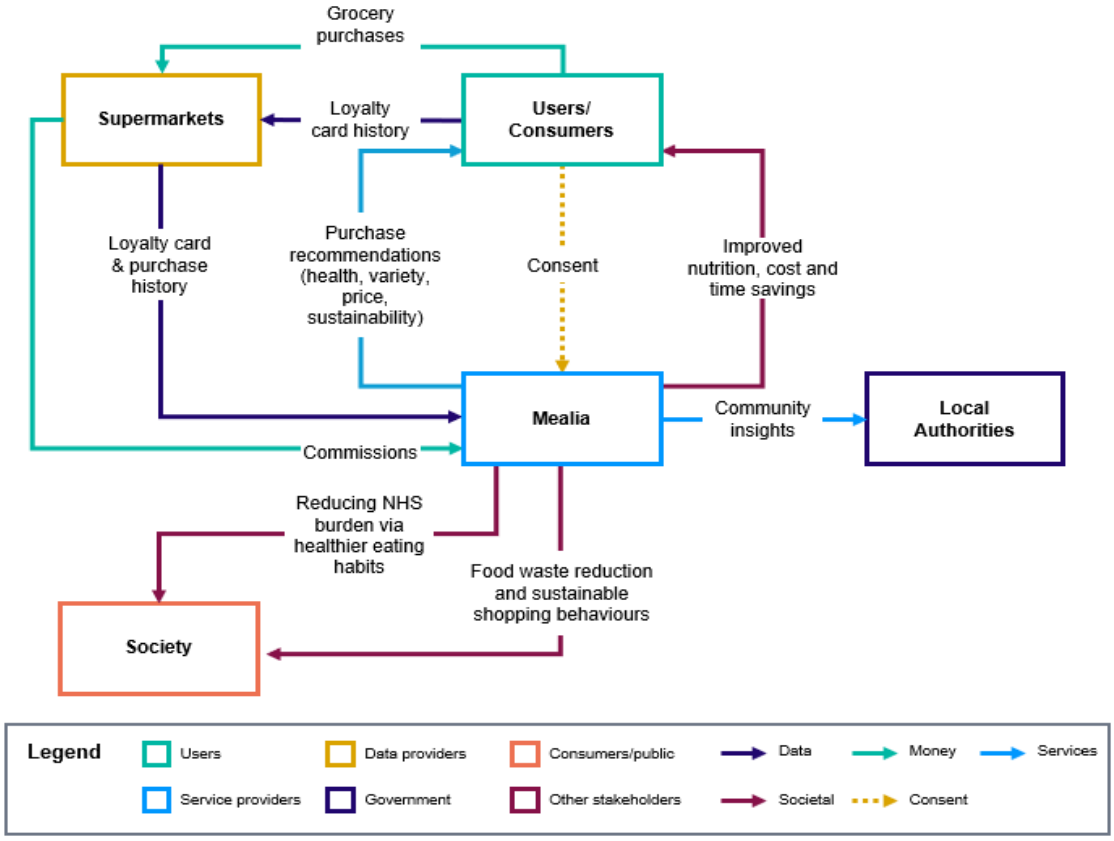


Figure 6: Mealia data ecosystem map

4. What the Challenge tested

Mealia's prototype explored whether supermarket and household data could be combined to generate personalised meal plans and grocery baskets quickly. The service tested how different inputs, including price, dietary needs, nutritional information and sustainability metrics, could be used to optimise a basket for the household.

The Smart Data Fellow reports early results suggesting potential reductions in grocery bills, carbon footprint and planning time. These findings should be treated as fellow-reported results and not independently validated outcomes.

The Challenge also helped Mealia define the technical foundations needed for a Smart Data ecosystem in grocery. This included the need for standardised APIs, interoperable data models, real-time feeds for pricing and promotions, user-centred consent flows and governance arrangements for data sharing between retailers and third-party services.

However, the Smart Data Fellow notes that the sandbox had limited practical value for this use case because the available datasets were generic and oversimplified. As a result,

Mealia relied mainly on real-world supermarket data available through its existing integrations. The Challenge therefore helped frame the Smart Data opportunity and policy case but did not materially test the full technical model using rich sandbox data.

5. Fellow-claimed benefits

Mealia's analysis suggests that Smart Data-enabled grocery optimisation could deliver benefits for households, retailers and wider public policy. For households, the claimed benefits are lower food costs, reduced planning time, healthier diets and more sustainable choices.

The fellow reports indicative results showing up to 20% lower grocery bills, an 85% reduction in time spent planning and shopping, and a 30% reduction in grocery-related carbon impact. These figures are based on Mealia's analysis and should be treated as indicative rather than independently validated.

Variables	Before Mealia	After Mealia	Reduction
Cost per meal[47]	£1.80	£1.44	20%
Time to plan & shop[48]	85mins	12mins	85%
Grocery Shopping CO2e[49]	50kg CO2e	35kg CO2e	30%

Table 8: Savings calculated through using the Mealia app

The wider opportunity is significant because grocery spending is a major part of household expenditure. The Smart Data Fellow cites the UK grocery market as being worth more than £200 billion.[50] In this context, even modest improvements in basket optimisation, waste reduction or healthier purchasing could have wider consumer and market relevance.

Mealia also links its use case to health and environmental outcomes. Mealia's submission refers to the cost of obesity and cardiovascular disease to the NHS[51], and to the contribution of household food waste to UK waste.[52] These figures are useful in showing the scale of the wider challenge but should not be read as outcomes directly attributable to Mealia.

For retailers, the Smart Data Fellow argues that Mealia could provide better insight into consumer intent: not only what people buy, but what meals they want to prepare and how they make trade-offs between cost, health and sustainability. This could support demand

[47] 'Cost per meal' calculated by surveying users on their average weekly grocery budget before using Mealia and tracking changes over four weeks.
[48] 'Time to plan & shop' calculated by comparing users' reported time spent on meal planning and grocery shopping before using Mealia and over four subsequent weeks.
[49] 'Grocery Shopping CO_2e' estimated by calculating the average CO_2e of users' weekly Mealia baskets and comparing it with the national average.
[50] IGD (2022): Growth forecast across all retail channels
[51] Public Health England (2019): Health matters: preventing cardiovascular disease
[52] House of Lords library (2021): Food waste in the UK

forecasting, stock planning, waste reduction and customer retention. These benefits are presented by the Smart Data Fellow and would need to be tested through commercial pilots.

At a wider level, the use case suggests that Smart Data could support competition by enabling transparent, consent-led comparison across retailers. It could also support innovation by allowing third-party services to build on supermarket data in the same way that Open Banking enabled new services in financial markets.

Taken together, Mealia's claimed benefits depend on Smart Data making grocery data more accessible, consistent and usable. The figures are indicative and depend on retailer participation, user adoption, live data quality and successful integration with supermarket systems.

6. Barriers, dependencies and limits

Mealia's use case depends heavily on retailer participation and access to high-quality product data. The most important dependency is standardised access to real-time or near-real-time data on pricing, promotions, stock availability, product attributes, nutritional information and sustainability metrics.

A second dependency is consented access to shopping-history or loyalty-card data. Without this, the service can still generate generic meal plans, but it cannot fully personalise recommendations around household preferences, habits, dietary restrictions or acceptable substitutions.

A third barrier is data consistency across retailers. If each supermarket provides product data in different formats, with different definitions and update cycles, cross-retailer comparison becomes difficult. This could limit both consumer benefit and wider market innovation.

The use case also depends on trust. Users need confidence that recommendations are based on their stated preferences and interests, not only on commercial incentives. Where supermarkets fund or commission the service, transparency will be important so that consumers understand how recommendations are generated and whether any commercial arrangements influence ranking or product selection.

Finally, the assessment is limited by the nature of the Challenge. The Smart Data Fellow states that sandbox data was too generic to test the most mature elements of the proposition. The strongest evidence appears to come from Mealia's existing integrations and internal analysis. The claimed benefits should therefore be treated as fellow-provided estimates and not as BIST-validated evidence of national-scale outcomes.

Mycelium[53]

1. Mycelium's Smart Data use case

Mycelium explores how Smart Data could automate and improve business carbon reporting. Its proposition is to use business smart meter data to produce verified carbon reports and, where the business agrees, publish the resulting emissions information through an open-access emissions database.

The use case responds to a practical problem for businesses. Carbon reporting is often manual, spreadsheet-based, and dependent on estimates or industry averages. Mycelium's model is intended to replace some of that manual reporting with verified energy-use data from gas and electricity smart meters, processed by a licensed carbon accountant and converted into emissions information.

Mycelium is an open-access emissions database built on Smart Data infrastructure. It focuses on Scope 1 and Scope 2 emissions data, which capture, respectively, an organisation's direct emissions from owned or controlled sources and indirect emissions from purchased electricity and energy.[54]

In practice, a business would consent to its energy data being shared. The data would be routed from business smart meters to a carbon accounting platform, converted into verified emissions data, and then, with the business's approval, added to the Mycelium platform. The data could then support benchmarking, transparency, and access by customers, investors, regulators, financial institutions, and other third parties.

The Smart Data value lies in making emissions report faster, more accurate, and more reusable. Rather than relying only on static reporting and approximate figures, the use case aims to create a more trusted and scalable way for businesses to evidence their emissions performance.

2. Data needed to make the use case work

Mycelium depends on access to business energy and emissions-related data. Mycelium identifies the following data sources and inputs as particularly important:

- gas and electricity smart meter data;
- half-hourly energy consumption data where available;
- grid carbon intensity data;
- company emissions disclosures;
- government greenhouse gas conversion factors;
- company metrics used for benchmarking;

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[53] Challenge Works (2025): SDCP Innovators: Mycelium Network

[54] Scope 1 and Scope 2 emissions data capture, respectively, an organisation's direct emissions from owned or controlled sources, and indirect emissions arising from its consumption of purchased electricity and energy.

- carbon accounting outputs;
- sector or Standard Industrial Classification data; and,
- consent and licence information governing data access and reuse.

The central dataset is business energy consumption data. This is needed to calculate a significant share of Scope 1 and Scope 2 emissions. Mycelium's prototype focuses on integrating Smart Energy Data into carbon disclosures, then processing that data through a carbon accounting platform so it can be added to the Mycelium database for benchmarking.

There are three external public data sources: the NESO API for grid carbon intensity; Streamlined Energy and Carbon Reporting disclosures from Companies House; and DESNZ greenhouse gas conversion factors for Scope 1 gas factors.

The finalist links this use case to the government-led Energy Digitalisation Taskforce report, which highlighted the need to measure carbon emissions from energy production, storage and delivery at source, with data reported and shared in a standard format.[55]

The use case is therefore not only about collecting data. It depends on standardised, trusted, and reusable data flows that can support automated reporting, comparison, and onward use by approved parties.

3. How consent, access and sharing would operate

Mycelium's model is based on business consent. Energy users' data would not be disclosed without permission. Businesses would control whether their smart meter data is shared, whether emissions information is processed, and whether verified outputs are published through the open-access platform.

Mycelium adapted Project Perseus to support legal compliance and trust. Project Perseus is a UK initiative led by Icebreaker One that enables trusted, automated sharing of energy and carbon data to reduce friction in green finance and climate disclosure.[56]

The framework is built around a scheme agreement between Mycelium and the business owner, supported by three data licences. The Energy Consumption Data Licence enables electricity and gas smart meter data transfer to the carbon accounting platform at the owner's request. The B2B Company Data Licence permits transfer of company metrics for benchmarking emissions. The Emissions Report Data Licence authorises the carbon accounting platform to share processed emissions data with Mycelium.

This consent and licensing model is important because the use case depends on both transparency and control. Businesses need confidence that their data is being used for

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55 Catapult Energy Systems (2021): Delivering a Digitalised Energy System

56 Project Perseus is a UK initiative led by Icebreaker One that enables trusted, automated sharing of energy and carbon data to reduce friction in green finance and climate disclosure. It provides common standards and trust services so businesses, lenders and data providers can exchange emissions data securely and at scale. See: icebreakerone.org/perseus.

agreed purposes, while users of the database need confidence that published emissions data has been processed through a trusted route.

Mycelium identifies the Smart Meter Energy Data Repository programme as an important infrastructure because it could create a central, secure location for energy meter readings accessible by approved third parties. In the absence of a standardised industry-wide method for business-to-business sharing of Smart Energy Data, Mycelium identifies the current landscape of third-party and supplier APIs as fragmented.

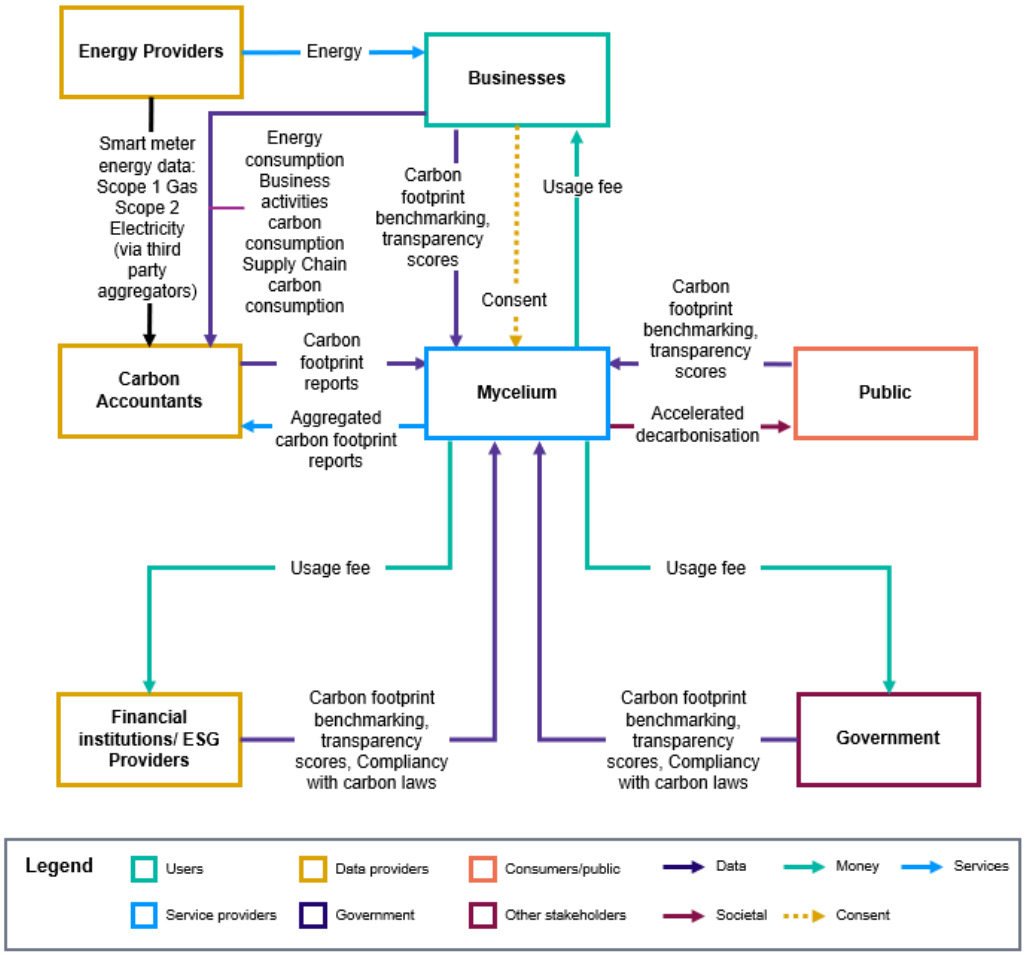

Figure 7: Mycelium data ecosystem map

4. What the Challenge tested

Mycelium's prototype tested how Smart Energy Data could be integrated into existing carbon disclosure processes. The prototype focused on automating part of the reporting process by using energy consumption data to support Scope 1 and Scope 2 emissions reporting.

The Challenge allowed Mycelium to build on its existing open-access emissions database and test how direct energy-use data could improve scoring, benchmarking and data

provenance. The finalist also used sandbox data to experiment with realistic datasets, link new types of information, and bring results closer to real-life values.

The work also helped Mycelium examine the legal and permissioning model needed to support trusted data sharing. This included adapting Project Perseus-style licences and considering how data could move from energy providers to carbon accountants and then to the Mycelium database with the business owner's consent.

However, the Challenge did not prove the full national deployment of the model. Wider adoption would depend on reliable access to business smart meter data, implementation of relevant energy data infrastructure, standardised APIs or repositories, and participation by data holders, carbon accountants and businesses.

5. Finalist-claimed benefits

Mycelium's submission argues that automated Smart Data-enabled carbon reporting could reduce the administrative burden on businesses and improve the quality of emissions information available in the market. These are finalist-claimed benefits and have not been independently validated by BIST.

For SECR-mandated businesses, the finalist estimates that a fully automated smart-meter-to-carbon reporting system could save around £1,120 per business per year, equivalent to a total UK saving of £12.65 million annually. SECR-mandated businesses are large UK-registered companies, and LLPs, that meet statutory size thresholds and are required to report annual energy use, Scope 1 and Scope 2 emissions, and energy efficiency actions.

Average time spent on data collection	Automation time saving	£ Saved per SECR company	Total £ Saved (SECR)
75%	50%	£800	£9,036,688
75%	70%	£1,120	£12,651,363
75%	90%	£1,439	£16,266,038

Table 9: Potential annual savings for SECR-mandated businesses

The finalist also provides scenario estimates for voluntary reporting by the wider business base. The submission suggests that if 3% of the wider business base engaged in reporting, automation could save around £37 million per year, rising to £126 million if 10% of UK businesses engaged. These figures are based on finalist assumptions and should be treated as indicative.

Voluntary %	Voluntary reporters (count)	Cost Savings per business	SME size adjustment	Total cost savings
1%	22600	£1,120	0.50	£12,656,000
3%	67800	£1,120	0.50	£37,968,000
10%	226000	£1,120	0.50	£126,560,000

Table 10: Potential annual savings for businesses who report voluntarily

The finalist argues that the larger opportunity is not only administrative savings but improved competitiveness. Simpler emissions reporting could help businesses demonstrate performance to customers, procurement teams, investors and lenders, particularly where carbon disclosure is becoming more important in supply chains and international markets. This is a finalist claim and would need further evidence before being presented as a proven economic effect.

Mycelium also argues that real-time automated carbon data could support more flexible energy use. By linking energy consumption patterns with carbon intensity, businesses may be able to shift usage towards periods of higher renewable generation. This potential benefit depends on the availability of timely data, appropriate incentives, and wider market arrangements.

6. Barriers, dependencies and limits

Mycelium's use case depends on access to reliable business smart meter data. The finalist identifies the Market-Wide Half-Hourly Settlement programme as an important dependency because a significant number of industrial and commercial electricity meters remain on non-half-hourly systems until that programme is implemented.

A second dependency is the availability of standardised data-sharing infrastructure. There is currently no standardised, industry-wide method for business-to-business sharing of Smart Energy Data. Data-sharing depends on a fragmented set of third-party and energy supplier APIs, which limits scalability and makes implementation more operationally complex.

A third dependency is governance and trust. Businesses need confidence that their energy data will not be shared without permission, and that any emissions outputs published through Mycelium are accurate, traceable and governed by clear licences. The adapted Project Perseus model is presented by the finalist as one route to this, but wider adoption would depend on sector acceptance and effective implementation.

A fourth limitation is that Mycelium's claimed savings rely on assumptions about the proportion of reporting costs that relate to data collection, the level of automation achieved,

and the number of businesses that participate. These estimates should therefore be treated as finalist-provided scenarios rather than BIST-validated impact analysis.

The use case also depends on the maturity of carbon accounting methodologies and the quality of data provenance. Smart meter data can improve the evidence base for Scope 1 and Scope 2 reporting, but it does not by itself solve all carbon reporting challenges, especially wider Scope 3 emissions.

Open Transport[57] (Joint Runner Up)

1. Open Transport's Smart Data use case

The Open Transport Initiative explores how Smart Data could make transport data more portable, interoperable, and useful for travellers, service providers and public bodies. Its proposal combines a transport dashboard with an AI travel concierge that can use consented data to help users understand their travel patterns, compare options, and receive personalised journey recommendations.

The use case responds to a common problem in transport. Data is often fragmented across rail, road, aviation, micromobility, Mobility-as-a-Service platforms, banks, mobile providers and other systems. Because that data is not always shared in standardised or portable ways, it can be difficult to combine information across providers. This limits the development of personalised services, makes journey planning less efficient, and reduces opportunities to understand cost, carbon and accessibility impacts across a whole journey.

Open Transport's proposition is to give users a clearer view of their transport activity by combining data from user-controlled sources, such as banking transactions, fuel purchases, location or movement data and travel provider records. With consent, this information can be brought into a dashboard and used by an AI agent to make journey suggestions based on cost, time, carbon impact, and personal needs.

Open Transport provided practical examples of how this could work. A user who needs regular access to toilets could plan journeys with better confidence because relevant facilities are shown along the route. A family could use the service to identify cheaper travel times, compare options, and make bookings. The wider Smart Data value is that users are not locked into one transport provider or platform, and innovators can build new services on top of portable, permissioned data.

[57] Challenge Works (2025): SDCP Innovators: Open Transport

	Mapping services	Journey planning apps	Transactional / hailing apps	Open transport
Journey times	Yes	Yes	Yes	Yes
Journey options	Yes	Yes	some	Yes
Transport purchase	No	No	Yes	Yes
Carbon footprint	No	some	some	Yes
Price information	No	some	Yes	Yes
Total travel-spend	No	No	No	Yes
Monthly cost optimisation advice	No	No	No	Yes
Detailed understanding of preferences and requirements	No	No	No	Yes
Monthly carbon footprint	No	No	Yes	Yes
Delay Minutes	Yes	Yes	Yes	Yes
Travel suggestions	Yes	Yes	Yes	Yes
Integrated phone notifications for travel time	some	some	some	Yes

Table 11: Comparative table of transport features by service type

The use case is therefore not only a journey-planning tool. It is a test case for applying Smart Data principles to a complex, multi-provider transport ecosystem, where data portability, consent, open APIs and common standards are necessary to make services work across sectors.

2. Data needed to make the use case work

The Open Transport use case depends on combining data from transport, financial, mobile, emissions, and public-sector sources. The finalist identifies the following data sources and inputs as particularly important:

- travel bookings and journey history;
- transport account data;
- ticket purchase and payment data;
- fuel purchases and related Open Banking data;
- smartphone location and movement data;
- transport operator data;

- Mobility-as-a-Service provider data;
- standardised transport mode codes;
- carbon conversion factors;
- service disruption and delay data;
- accessibility and user preference data; and,
- local and national government transport data.

The prototype used synthetic transport data, including journeys, Open Banking fuel data, and ticket purchases. It also referenced standardised transport modes and the UK government's 2024 greenhouse gas conversion factors to calculate carbon dioxide emissions.[58]

A core requirement is a customer account interface. The Customer Account API is a standard Smart Data interface that exposes a customer's account-level information in a consistent and permissioned way, so authorised third parties can read and use it on the customer's behalf.[59]

The use case also depends on data portability. In the finalist's model, users would need to transfer transport account data, travel-related financial data, and active travel data from mobile devices in a usable format. Without portability, transport data remains locked in individual provider systems, and third-party services cannot reliably build joined-up products.

The finalist also identifies a possible centralised operator in API directory to improve discoverability, alongside identifiers such as customer account IDs, transaction IDs and standardised transport mode codes mapped to government carbon categories.

3. How consent, access and sharing would operate

Open Transport's model is based on user consent. Travellers would choose whether to share relevant data from transport accounts, banking transactions, fuel purchases, mobile devices, or other providers. The dashboard would then bring this data together so that the user can review it and receive recommendations.

The AI travel concierge would use that consented data to make suggestions about journey options, cost, timing and carbon impact. Open Transport states that privacy and consent are central to the design, and that users should retain control over their personal travel data.

The use case would require APIs and standards that allow authorised third parties to access transport data securely. The finalist states that the system uses cloud infrastructure, relational databases, and a secure API layer. It also states that APIs are published under open licences and comply with GDPR and the Revised Payment Services Directive.
The model involves multiple participants. Transport operators and Mobility-as-a-Service providers supply journey data; banks and Open Banking providers verify transactions; government provides official carbon conversion factors; and organisations such as bigspark

[58] DESNZ (2024): Greenhouse gas reporting: conversion factors
[59] https://smartdata.challenges.org/smart-data-sandbox/

and NayaOne, a sandbox-infrastructure provider, provide synthetic datasets and sandbox support.

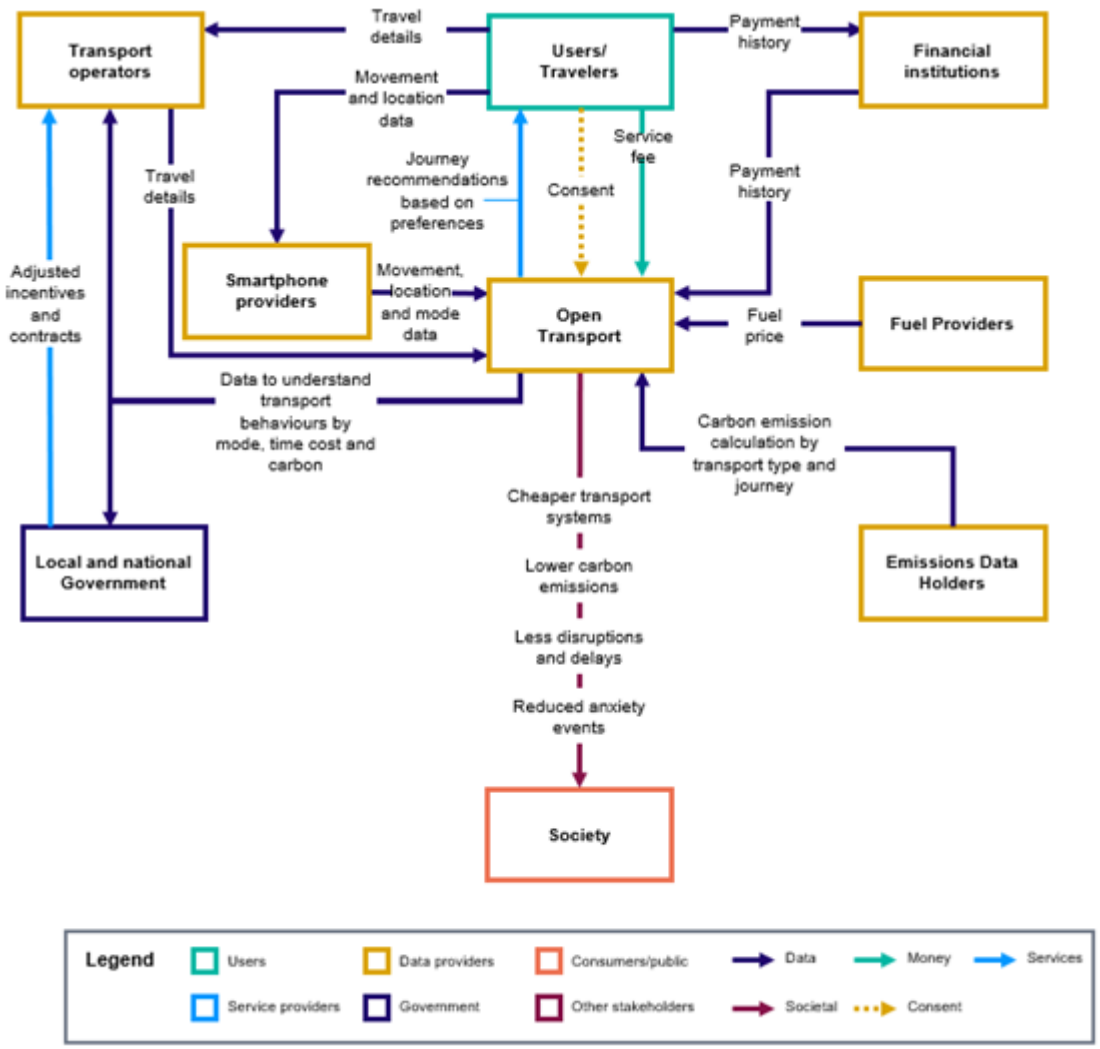

Figure 8: Open Transport data ecosystem map

Open Transport also identifies a steering group to support real-world adoption and impact, including the Crown Commercial Service, Rail Delivery Group, Transport API, Glasgow City Council and Icebreaker One.

4. What the Challenge tested

As part of the Smart Data Challenge Prize, the Open Transport Initiative developed a minimum viable product using synthetic transport data, Open Banking fuel data, and ticket purchase data.

The MVP tested whether cross-sector data could be combined to show an individual's multi-modal travel usage, spending, and personalised carbon footprint. It also tested the ability to

integrate the finalist's Customer Account API with the Smart Data Challenge Sandbox provided by NayaOne.[60]

The prototype used AI and machine learning to generate additional synthetic user data to test feasibility. It ran on cloud infrastructure and was built on established open data standards. Planned enhancements include live integration with transport operators, mobile phone data, Mobility-as-a-Service providers, automated compensation services such as Delay Repay, and personalised recommendations to encourage lower-carbon travel.

The Challenge therefore tested the feasibility of combining transport, banking, and carbon datasets in a user-centred dashboard. However, it did not prove full live deployment. Wider delivery would depend on access to real transport operator data, stronger portability standards, government or sector adoption of relevant APIs, and funding for further development.

5. Finalist-claimed benefits

The Open Transport submission argues that a consent-led transport dashboard and AI travel concierge could deliver consumer, economic, environmental, social and accessibility benefits. These are finalist-claimed benefits and have not been independently validated by BIST.

The finalist links transport efficiency to economic growth, citing wider literature on transport infrastructure and economic development.[61] In this use case, the claimed economic benefits come from better use of transport infrastructure, reduced time lost to delays, improved journey planning and more efficient use of traveller and operator data.

Benefit	Description	Estimated savings
Time savings	Combines all transport options in one app	2-4 hours saved per month for frequent travellers; even small delay reductions (~5%) save ~2 hours per year per traveller[62]

[60] This is the standard Smart Data interface that exposes a customer's account-level information in a consistent, permissioned way, so that authorised third parties can read and use it on the customer's behalf. Practically, it defines how account data, identity, account metadata, balances, activity, entitlements and consent status is structured and accessed, ensuring interoperability, strong consent controls and portability across providers, in the same architectural lineage as Open Banking account APIs, but applied to the relevant Smart Data sector rather than payments or banking. Smart Data Sandbox accessed March 2026.

[61] Shi, J., Bai, T., Zhao, Z. & Tan, H. (2024), Driving economic growth through transportation infrastructure: An in-depth spatial econometric analysis, Sustainability, 16(10), p. 4283; Sareen, N. & Aggarwal, M. (2024), Economic growth and transportation development: A literature review, IEJ – International Economics Journal, Vol. XVII, Issue 0

[62] DfT (2025): TAG data book (Calculations by Manchester Metropolitan University Transport Visiting research Fellow based on DfT data (https://www.gov.uk/government/publications/tag-data-book), best practise and input from OT team)

Cost savings	Avoids duplicate ticket purchases, finds cheaper routes, and claims Delay Repay automatically	£50–£200 saved per year per commuter [63]; Delay Repay on season tickets alone can exceed £80 annually[64]
Productivity gains	Reduces time spent on admin and delays, allowing more work to be completed	[65]Saving 3 hours per year per traveller, valued at £17/hour, totals ~£51 per user annually; across 1 million users, ~£51 million per year[66]
Reduced stress and confidence	Provides reliable travel information, reducing uncertainty and anxiety	If 20% of users feel less stressed, workplace productivity could increase, worth £20–£40 per person annually[67]
Health benefits	Encourages walking or cycling during journeys	1 in 20 users could add 30 mins of exercise per week, lowering cardiovascular risk. NHS could save £7–£17 per active person per year[68]
Social and accessibility impact	Unified dashboard and recommendation engine, with risk profiling, increases independence for travellers with physical disabilities	5% more people with physical disabilities making one additional trip per week equals 26m+ additional accessible journeys annually[69]
Environmental impact, Carbon reduction	Modal shift from car to walking/cycling. CO_2 dashboard nudges users toward lower-carbon modes of travel	A 2% shift of UK car passenger km to rail (~10.7bn km) saves ~1.6 CO_2/year[70]
Service efficiency	Efficiency improvements across all UK passenger transport modes	UK transport sector handles ~799bn passenger-km/year with an economic value of ~£100bn/year; a conservative 1% efficiency gain could save ~£1bn/year nationally[71]

[63] Transport Focus (2023): Transport User Voice December 2023 – Rail delays and compensation
[64] Transport Focus (2023): Transport User Voice December 2023 – Rail delays and compensation
[65] ONS (2024): Annual Survey of Hours and Earnings (ASHE)
[66] ONS (2024): Annual Survey of Hours and Earnings (ASHE)
[67] Mental Health Foundation (2024): Mental Health Statistics
[68] Public Health England (2020): Health Benefits of Physical Activity
[69] ONS (2024) Disability Prevalence Statistics
[70] Public Health England (2019) Health Matters: Physical Activity; DESNZ (2024): UK Greenhouse Gas Conversion Factors
[71] DfT (2024): Transport Statistics Great Britain: Modal Comparisons (TSGB01); ONS (2024): Gross Value Added (GVA)

Better use of public transport	Integrated journey options improve occupancy and farebox recovery	Off-peak occupancy could increase by 2–5%, reducing subsidy needs[72]
Transport authority cost savings	Reduced manual surveys and improved forecasting	Could save £2m–£5m/year for national and local authorities[73]

Table 12: Finalist-provided value propositions of the Open Transport service

For users, the benefits claimed include better journey information, reduced duplicate ticket purchases, cheaper route identification, automated compensation claims and more personalised accessibility support. For public bodies and operators, the claimed benefits include better insight into travel patterns, improved forecasting and potential reductions in manual surveys.

The finalist also argues that linking travel behaviour with carbon information could encourage lower-carbon choices, such as walking, cycling or public transport where appropriate. This potential benefit depends on user adoption, data quality, effective recommendations and wider transport availability.

The submission also sets out a proposed sustainability and revenue model, including a consumer-facing subscription service and a membership-funded data standards organisation. The revenue projections and cost estimates are finalist-provided and should not be presented as BIST-validated commercial forecasts.

Category	B2C – AI travel concierge	B2B – Open transport membership
Revenue streams	Subscriptions: £5/month per user Ticket commission: 2% on 80% of subscribers' tickets purchased via the platform Partner referrals: Affiliate fees from hotels, restaurants, shops, and events	Membership Fees: Covers operating costs. Year 1: £40,000/member (2 members), Year 5: £2,000/member (250 members)
Projected revenue/ scale	- 1% market penetration: ~£18m/year - 25% penetration: ~£456m/year	Fees decrease per member as the network grows; ensures sustainable funding for the data standard

[72] DfT (2024): Public Service Vehicle Statistics; ORR (2024): Passenger Rail Usage Statistics
[73] TFL (2025): Transport for London quarterly performance report

Benefit	Predictable consumer revenue; improves journey experience for users; supports on-demand services	Sustainable funding for the open data standard encourages operator participation, strengthens the ecosystem, and customer experience

Table 13: Finalist-provided details of proposed revenue channels

6. Barriers, dependencies and limits

The main dependency for Open Transport is data portability. The finalist states that the use case cannot be delivered without the ability to transfer data from one system, service or platform to another in a usable format. At present, the submission states that transport data is not portable in the way needed for the proposition.

A second dependency is standardisation. Transport data is spread across providers and modes, and different operators may use different data formats, systems and commercial models. Without common APIs, customer account standards and governance, third-party services will struggle to build interoperable products.

A third dependency is access to real data. The MVP relied on synthetic datasets and sandbox integrations. These were valuable for testing, but full deployment would require live data from transport operators, Mobility-as-a-Service providers, mobile providers, banks and other data holders.

A fourth dependency is governance and consent. The service would involve sensitive information about movement, payment and personal preferences. Users would need clear control over what data is shared, with whom and for what purpose. AI-driven recommendations would also need careful design to reduce bias and avoid excluding users in rural or less commercially viable areas.

Open Transport also identifies policy dependencies, including the use of open standards for personal travel data in government-funded and local authority transport services, and stronger enforcement of GDPR data portability rights.

These are finalist proposals, not BIST policy. The financial and operational estimates depend on assumptions about development costs, market penetration, member numbers, subscription uptake and data-holder participation. They should therefore be treated as finalist-provided scenarios rather than validated forecasts.

Rodeo[74]

1. Rodeo's Smart Data use case

There are more than 4 million gig workers in the UK engaged in gig and platform-based work. [75] Rodeo explores how Smart Data could help these workers access, understand and use their own earnings data. The use case focuses on workers who may work across several platforms, such as food delivery, ride-hailing or other app-based services, and who often have limited access to consistent information about pay, working time and job history.

Flexible gig work can benefit both businesses and workers, but the way gig work operates can make earnings harder to understand and less stable. [76] Gig workers often need to make work decisions quickly, with limited information about how long a task will take, how far they will need to travel, whether there will be waiting time, or how the fee has been calculated. Research has found that many gig workers earn below the legal minimum. [77] One study found that 52% of gig workers earned less than the minimum wage, and separate research has linked algorithmic pay changes with reductions in workers' real earnings.[78]

The problem is that earnings data is fragmented across individual platform accounts. Workers may be able to see some information in each app, but they do not usually have a single, standardised and portable record of their earnings across platforms. This makes it harder to compare pay rates, understand how income changes over time, prove income to lenders or landlords, manage tax, or make informed decisions about which work to accept.

Rodeo's proposition is that gig workers should be able to access their earnings data through a secure, consent-based Smart Earnings Data scheme. With permission, data from different gig platforms could be shared through standardised APIs and brought together in a single dashboard. This would give workers a clearer picture of what they earned per job, per hour and per mile, and how their income varied across platforms and over time.

Rodeo's earlier product showed demand for this type of service. Between 2022 and 2024, more than 10,000 workers used Rodeo to track and analyse over £100 million in earnings. The service was later withdrawn after some platforms introduced technical and legal barriers that made it difficult to continue.

A Smart Earnings Data scheme could give workers greater control over their data, support financial and tax services, and provide better evidence about earnings in the gig economy

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[74] Challenge Works (2025): SDCP Innovators: Rodeo on Vimeo
[75] TUC (2021): Insecure work
[76] Public First (2021): Freedom and Flexibility
[77] CIPP (2023): Gig workers earn below the current UK national living wage
[78] SSRN Electronic Journal (2023) Gig Rights & Gig Wrongs
arXiv (2025): Not Even Nice Work If You Can Get It; A Longitudinal Study of Uber's Algorithmic Pay and Pricing

2. Data needed to make the use case work

The Rodeo use case depends on access to granular earnings and work activity data generated by gig platforms. Every gig job generates data points that could help workers understand what they earned, how long work took, and how different platforms compare.

The key data needed includes:

- job or task identifiers;
- start and end timestamps;
- time spent waiting, travelling and completing work;
- distance travelled;
- location or route information, where appropriate and consented;
- platform name;
- fee paid for each job;
- bonuses, incentives, surcharges and deductions;
- payment dates;
- worker account identifiers; and,
- tax-relevant income records.

A Smart Earnings Data scheme would require common definitions, data structures, update frequencies and quality standards, together with a dependable right for workers to transfer the information from platform accounts to authorised services. Without these arrangements, workers and third parties could not reliably compare or reuse earnings data across platforms.

3. How consent, access and sharing would operate

Rodeo's model is based on worker consent. Gig workers would choose whether to grant access to their earnings data, which platforms could share it, and which third-party services could use it. Workers would also need to be able to revoke access.

The proposed model would use a permissioned API network. Platforms would provide standardised earnings data through secure APIs. Accredited third parties, such as Rodeo, financial services providers or accounting tools, could access the data only where the worker had given permission.

Rodeo's proposal draws on Open Banking-style patterns, including standardised APIs for platforms, a shared system for getting and managing consent, and a registry of accredited third-party providers. [79]

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[79] Open Banking Excellence (n.d.): Market First, Regulation Later? The American Open Banking Journey. RESTful APIs are standard interfaces that enable systems to exchange data over the internet. OAuth2 consent flows are a secure method for granting permission to share data without exposing user credentials. JSON (JavaScript Object Notation) is a structured, machine-readable format commonly used to transmit data such as pay, time, and job records

In technical terms, the model could use RESTful APIs, OAuth2 consent flows and structured JSON data for pay, time and job information.[80] These mechanisms would support permissioned access to earnings data without requiring workers to share platform login credentials directly with third parties.

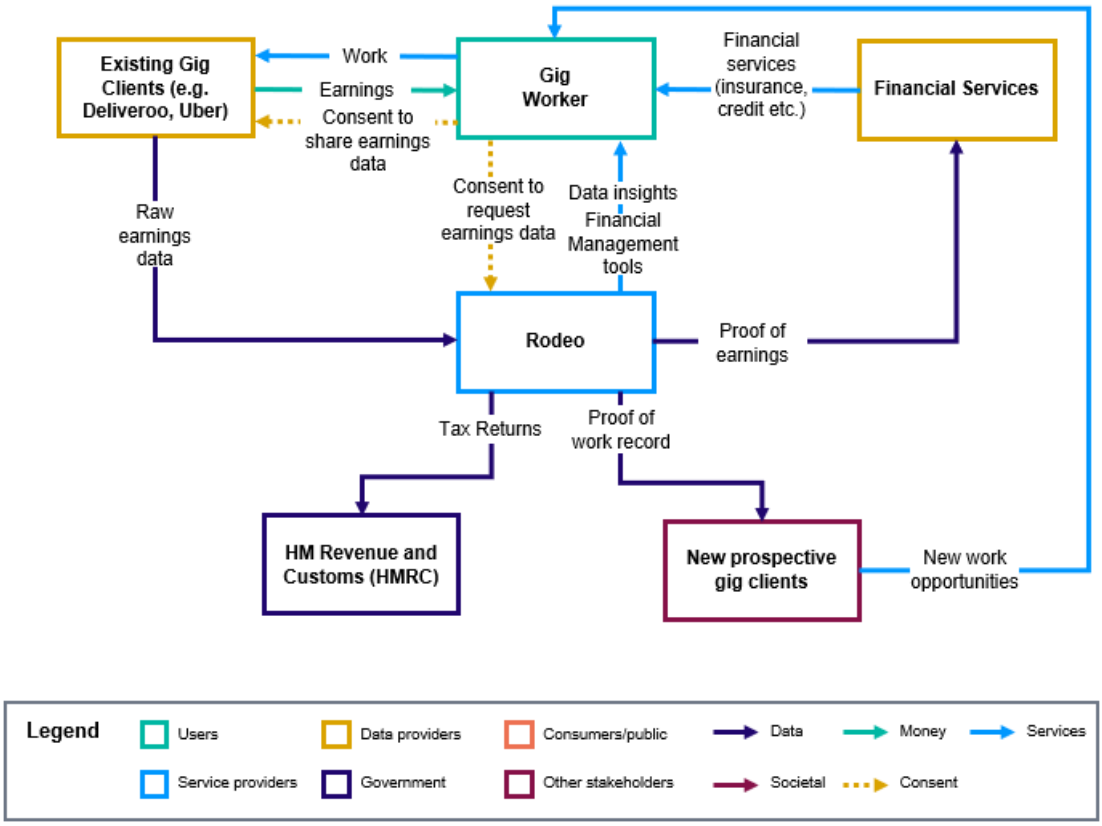

Figure 9: Rodeo data ecosystem map

Because earnings data can reveal sensitive information about income, work patterns and potentially location, the scheme would need strong privacy safeguards. Access should be limited to the data needed for the service being provided. Workers should receive clear explanations of how their data will be used, who will access it, and how long access will last.

The scheme would also need clear governance arrangements. These would include rules on accreditation, data protection, audit logs, consent management, dispute resolution and ongoing compliance. A central body or regulator would likely be needed to approve standards, oversee participants and make sure the scheme operates consistently.

[80] FCA (2025): Open Finance Sprint 2025 Outcomes report

4. What the Challenge tested

As part of the Smart Data Challenge Prize, Rodeo developed a minimum viable product using synthetic earnings data. The MVP tested whether earnings data, including job duration and pay, could be made available through a secure API and presented in a way that helped workers understand their income.

Drawing on its experience of operating a live service, Rodeo used the Challenge to test a standards-based alternative to access arrangements that platforms could restrict.
Rodeo also worked with the organisers to add a small amount of anonymised real user data to the sandbox, alongside synthetic data. This was used to build a simple dashboard showing how workers could aggregate their earnings data if a Smart Earnings Data scheme existed.

The Challenge therefore tested the feasibility of an API-based earnings portability model. It did not prove live deployment across gig platforms. Wider implementation would require platform participation, enforceable data-sharing obligations, common standards, governance arrangements and regulatory oversight.

5. Finalist-claimed benefits

Rodeo argues that a Smart Earnings Data scheme could deliver benefits for gig workers, financial services providers, HMRC and the wider economy. These are finalist-claimed benefits and should not be presented as BIST-validated impact analysis.

For workers, the claimed benefits include greater pay transparency, better ability to compare work opportunities, improved income forecasting and easier access to financial services. Verified earnings data could help workers evidence income when applying for credit, insurance, mortgages, rented accommodation or other services that rely on proof of earnings.

For service providers, standardised earnings data could support new products for gig workers, including credit, vehicle finance, insurance, pensions and accounting tools. This could improve financial inclusion for workers whose income does not fit traditional payslip-based assessment models.

For HMRC and government, Rodeo argues that standardised earnings data could support more accurate self-assessment, reduce manual reporting errors and improve visibility of income patterns in the gig economy. Aggregated and anonymised data could also help policymakers understand pay trends and market conditions, provided appropriate safeguards are in place. The scheme could also provide the new Fair Work Agency with reliable, comparable data from the gig economy. [81]

[81] DBT (2025): Fair Work Agency

Feature	Current gig economy	With Smart Earnings Data
Data access	Fragmented across apps; often incomplete and difficult to compare	Unified access through standardised, permissioned APIs
Pay transparency	Pay may be set through opaque platform processes	Workers can see structured information on fees, bonuses and deductions
Financial inclusion	Workers may struggle to evidence variable income	Verified earnings data can support fairer income assessment
Tax reporting	Self-assessment can be manual and error-prone	Earnings records could support more accurate tax reporting
Market efficiency	Workers make decisions with limited information	Data tools can help compare jobs, platforms and working patterns
Regulatory insight	Limited comparable data on gig economy earnings	Aggregated data could support better policy monitoring

Table 14: Finalist-provided comparison of the current gig economy and a Smart Earnings Data model

Rodeo proposes subscriptions for worker-facing analytics and charges to service providers accessing verified earnings data with workers' consent. The finalist estimates that these tools could increase effective hourly earnings by 10–15%, although this is based on unpublished research and was not tested through the Challenge.

6. Barriers, dependencies and limits

Live delivery would require dependable platform participation and common standards for working time, job duration, distance, fees, incentives, deductions and payment timing. Rodeo's previous experience suggests that voluntary access arrangements may be vulnerable to changes in platform technology or contractual terms, so a reliable scheme may require a clear legal or regulatory basis.

The scheme would also need rules on consent, accreditation, liability, dispute resolution, correction and onward sharing. These safeguards are important because earnings records may reveal income, location, working patterns and other personal circumstances.

The prototype demonstrated an API-based model in a test environment, not live integration with major platforms. A Smart Earnings Data scheme could improve transparency and worker control, but it would not resolve wider questions about employment status, pay, platform accountability or employment rights.

Smarter Contracts[82]

1. Smarter Contracts' Smart Data use case

Smarter Contracts' use case explores how Smart Data permissions and verified information could be managed through a single consumer-facing wallet. The central idea is that individuals should be able to see and control their permissions across different Smart Data services and reuse verified information without repeatedly submitting the same documents.

The use case responds to two related problems identified by Smarter Contracts. The first is permission friction. Current data-sharing journeys can require individuals to manage permissions through separate services and periodically reconnect accounts or renew consent. Smarter Contracts states that this contributes to customer drop-off rates of 40% to 60% in some Open Banking journeys.[83]

The second is data friction. Individuals may be required to provide the same information, such as proof of income or address, during each application. This can create repetitive processes for consumers and additional verification costs for businesses.

[82] Challenge Works (2025): SDCP Innovators: Smarter Contracts
[83] Open Banking Ltd (2025): Annual Economic Impact Report

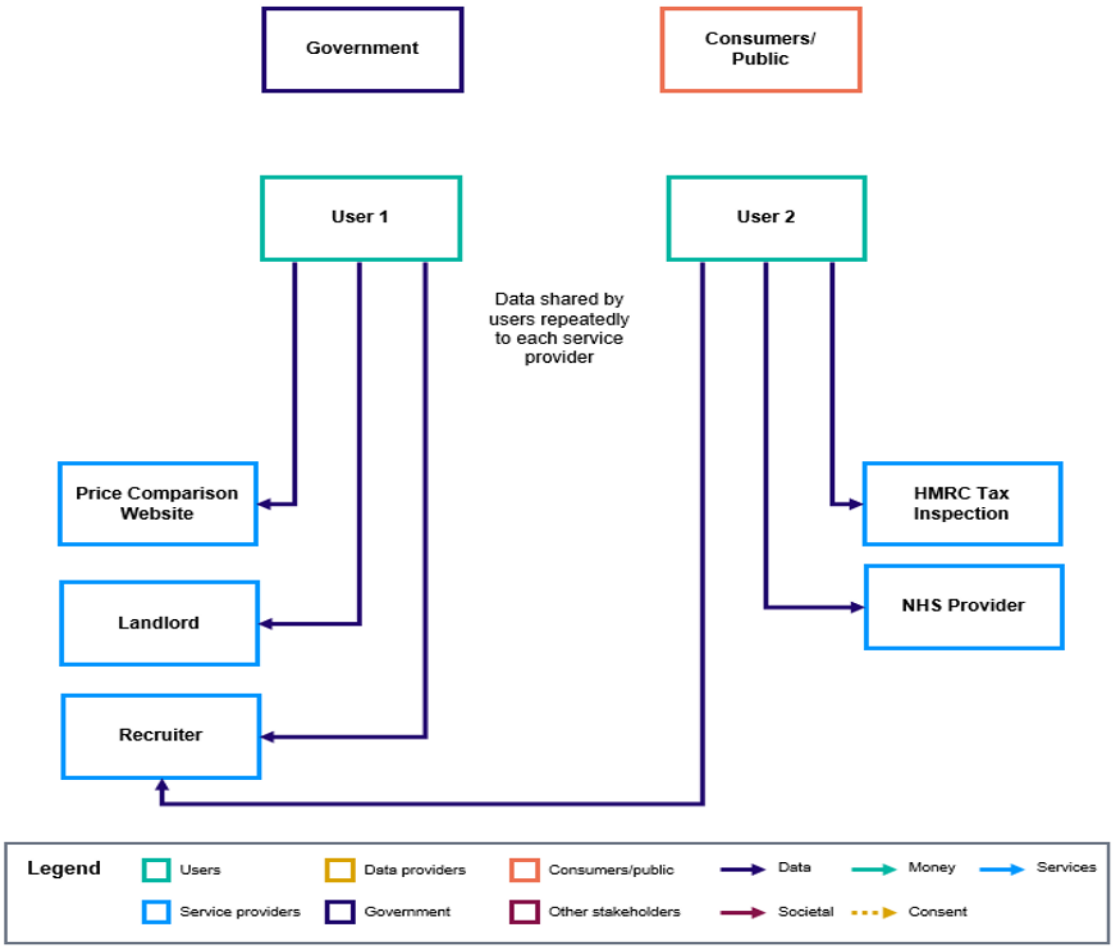

Figure 10: Smarter Contracts data ecosystem map - Current State

Smarter Contracts' proposition is Pulse+, a mobile wallet through which users could manage permissions and store reusable credentials, described by the finalist as Data Passports. For example, a user could share verified income information with a lender without resubmitting supporting documents. The associated permission would specify what information could be accessed, the purpose for which it could be used and the period for which access would remain valid.

Pulse+ is built around Smarter Contracts' Pulse Permissions Protocol®. The finalist describes the protocol as enabling permissions to become programmable objects that remain associated with the data they govern. The intention is to make permission records visible, auditable and capable of being updated or revoked as data moves between authorised participants.

In practical terms, the service is intended to provide a single place where a person could manage permissions covering more than one sector. Smarter Contracts has identified possible applications in financial services, energy, telecommunications, employment and services for vulnerable consumers. The same wallet infrastructure could therefore be used

for different types of verified information rather than requiring a separate system for each service.

The use case also explores the relationship between Smart Data and digital identity. Digital identity credentials can help establish who someone is, while Pulse+ is intended to help manage what information they permit an organisation to access and how it may be used. Smarter Contracts argues that combining verified credentials with clear permissions could make reusable digital identity services more useful across different transactions.[84]

2. Data required to make the use case work

Pulse+ would require access to verified data from participating organisations and Smart Data schemes. The types of data required would depend on the transaction but could include:

- income and affordability information;
- account and transaction data;
- proof of address;
- employment information;
- energy usage and account information;
- identity credentials; and
- where appropriate and subject to additional safeguards, information relating to consumer vulnerability.

The use case also depends on information about the permissions attached to each data item. This would include the identity of the recipient, the information being shared, the permitted purpose, the period of access and any restrictions on subsequent use.

Smarter Contracts' view is that value comes from combining verified information with a reusable permission record. A verified income credential, for example, could demonstrate relevant financial circumstances, while the associated permission would define how a lender could use it. The user could therefore share the information without repeating the full verification process for every application.

Pulse+ is designed to work with existing data formats and APIs, including those used in Open Banking. Smarter Contracts states that data holders would continue to provide information following an explicit instruction from the customer. Pulse+ would retrieve that information and package it into a reusable Data Passport with an associated permission record.

The use case also requires reliable records of where data originated and how permission was provided. Smarter Contracts argues that these provenance records could support

[84] UK Government (2025): New digital ID scheme to be rolled out across UK

regulatory audit and the governance of AI-enabled services by making it easier to establish whether data was obtained and used under an appropriate permission.[85]

3. How consent, access and sharing would operate

The use case assumes that individuals would give explicit permission for relevant data holders to share specified information through Pulse+. The user would be able to view permissions from a single dashboard, including what data had been shared, with whom, for what purpose and for how long.

Pulse+ is intended to associate the permission with the data being shared rather than retaining it only as a separate record within the organisation that originally collected the consent. Smarter Contracts describes this as allowing the permission to “travel” with the data. In practice, the receiving organisation would be able to verify both the information and the conditions governing its use.

The protocol is intended to support different permission periods according to the use case. A single identity or income check might require one-time access, while an affordability-monitoring service could require access over a longer period. Pulse+ is currently aligned with Open Banking’s 90-day reconfirmation arrangements, but Smarter Contracts argues that programmable permissions could support other durations where future standards and regulations allow them.

The architecture separates encrypted consent information from immutable proof records. Smarter Contracts states that this would allow an organisation to verify that an appropriate permission exists without unnecessarily exposing personal information. Users would also need to be able to review active permissions and revoke access.

The use of vulnerability-related information would require particularly careful safeguards. Smarter Contracts proposes a “tell it once” vulnerability passport through which a consumer could choose to share relevant requirements with more than one service provider. The finalist argues that this could reduce repeated disclosure and support firms in meeting the FCA’s Consumer Duty.[86] However, live implementation would require clear rules on what information could be included, who could access it, the permitted purposes and how withdrawal or changes would be handled.

[85] DSIT (2025): AI Opportunities Action Plan
[86] FCA (2023): Consumer Duty guidance and requirements

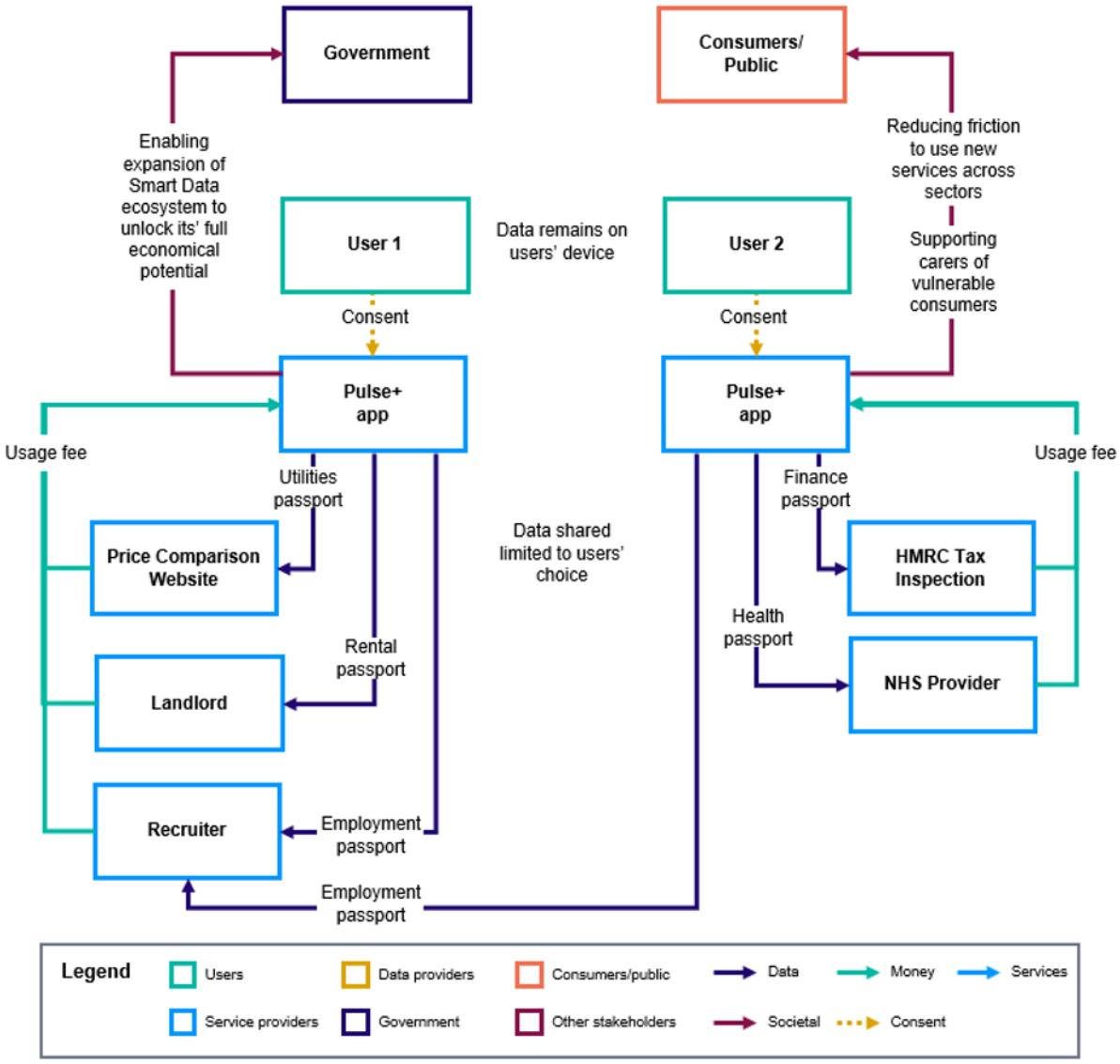

Figure 11: Smarter Contracts data ecosystem map - Future State

4. What the Challenge tested

Through the Smart Data Challenge Prize, Smarter Contracts developed a minimum viable product combining its existing Pulse Permissions Protocol® with a consumer-facing Pulse+ wallet. The finalist assessed the prototype at Technology Readiness Level 6.[87] The prototype tested whether users could manage permissions for more than one service through a single

[87] TRL 6 indicates that a technology has been demonstrated as a system prototype in a relevant operational environment, with key technical risks addressed but further development required for full deployment.

dashboard. It also demonstrated reusable financial Data Passports in which verified information related to a record of the permission governing its use.

The Challenge work tested the logic for turning static permission records into programmable objects that could remain connected with the relevant data. It explored how a receiving organisation could verify a Data Passport and its permission conditions without accessing unnecessary personal information.

Smarter Contracts also extended the protocol to include post-quantum cryptographic capabilities. The finalist states that this was intended to examine how the infrastructure could be protected against future computational threats.

The minimum viable product demonstrated the technical proposition in a controlled environment. It did not establish adoption across live Smart Data schemes or prove that Data Passports would be accepted by data holders, regulators and service providers at national scale. Proposed extensions, including employment and vulnerability passports, were not fully deployed through the Challenge.

5. Finalist-claimed benefits

Smarter Contracts argues that a single permissions wallet and reusable Data Passports could reduce the time and effort involved in data-sharing and verification journeys. The finalist cites research indicating that 72% of citizens do not feel they have full control over who accesses their data and that 67% are frustrated because they do not know where their data goes.[88]

The finalist's research also found that 89% of respondents would find Data Passports beneficial, 84% believed financial data sharing should work more like payment wallets, and 78% would be more willing to share data where appropriate permission controls were present.[89] These findings indicate potential demand but do not demonstrate how consumers would behave in a live, cross-sector service.

For businesses, Smarter Contracts argues that reusable verified information could reduce repeated checks, shorten onboarding and improve conversion rates. The finalist estimates that the UK processes approximately 292 million to 446 million relevant verification journeys each year. On an assumed value of £1 to £2 for each verification, it identifies a potential annual market of approximately £292 million to £892 million.[90] These figures are finalist estimates based on several markets and assumptions rather than verified national totals.

Smarter Contracts also estimates that reducing the 40% to 60% customer drop-off it associates with some Open Banking journeys could contribute £1.6 billion to £2.5 billion to

[88] Smarter Contracts consumer research (2025): https://smartercontracts.co.uk/
[89] Smarter Contracts consumer research (2025)
[90] Industry analysis based on Open Banking adoption rates

UK GDP.[91] This is a finalist-modelled estimate and should not be treated as a BIST-validated economic impact assessment.

The finalist identifies several possible applications. Financial Data Passports could support faster credit applications for SMEs. A vulnerability passport could reduce repeated disclosure by consumers. Permission and provenance records could also assist organisations and regulators in understanding how data has been accessed and used.

Smarter Contracts additionally claims that reusable Data Passports could reduce duplication of data, manual entry and network activity across verification journeys. It links this to wider estimates concerning organisational data redundancy and data-centre cooling.[92] The finalist also states that permissioned Smart Data could support AI-enabled energy optimisation.[93] These environmental benefits were not directly measured through the Challenge prototype.

6. Barriers, dependencies and limits

Pulse+ depends on participation by data holders, service providers, standards bodies and regulators. The technology may be able to receive information through existing APIs, but a reusable Data Passport will have limited value unless receiving organisations recognise its data, verification method and associated permissions.

Interoperability is therefore a central dependency. Common approaches would be required for credentials, permission records, permitted purposes, revocation and audit. Different sectors may apply different legal, regulatory and technical requirements, particularly for financial, health or vulnerability-related data.

The use case also depends on users understanding and managing permissions across potentially complex services. A single dashboard may simplify this process, but the interface would still need to communicate clearly what data is being shared, how it may be used and what happens when permission is withdrawn.

The commercial model assumes that the consumer wallet would be free while businesses pay for access to verified Data Passports, white-labelled services or protocol licences. Smarter Contracts states that the service could undercut manual verification and generate recurring revenue. However, commercial sustainability would depend on adoption, transaction volumes and the willingness of organisations to pay for a shared service.

Intellectual property is also relevant to implementation. Smarter Contracts states that the protocol is protected by 18 software claims patented by the US Patent Office and is patent pending across the EU.[94] Design protections cover the UK, EU, US and Canada. Wider

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[91] Industry analysis based on Open Banking adoption rates
[92] Industry analysis based on Open Banking adoption rates
[93] MIT Lincoln Laboratory (2025): AI models are devouring energy. Tools to reduce consumption are here, if data centers will adopt them
[94] (Accessed March 2026) US Patent and Trademark Office: Patents assigned to Smarter Contracts Ltd

adoption would therefore depend in part on licensing arrangements and their compatibility with open and interoperable Smart Data standards.

The Challenge tested a prototype rather than a live national service. It did not fully test integration with multiple operational data holders, consumer behaviour over time, regulatory acceptance, commercial demand or cross-sector liability. The benefits presented by Smarter Contracts should therefore be treated as finalist estimates and potential outcomes rather than independently verified impacts.

VoltView[95]

1. VoltView's Smart Data use case

VoltView's use case explores how Smart Data could help small and medium-sized businesses manage energy use, reduce costs and plan improvements to their buildings. The central idea is that SMEs should be able to share relevant energy, property and financial data securely, with consent, so that a service can provide personalised tariff, efficiency, retrofit and funding recommendations.

The use case responds to the difficulties SMEs face in understanding energy costs and making investment decisions. Unlike domestic consumers, businesses are not protected by the domestic energy price cap. VoltView also cites Ofgem research indicating that 73% of businesses mistakenly believe energy broker services are free, although the brokerage industry earns approximately £2.25 billion in annual commission.[96] According to the same research, only 9% of businesses using brokers receive energy-efficiency advice.

VoltView's proposition is the Smart Energy Marketplace, or SEM. The platform combines information about a business's energy consumption, tariffs, finances and property with open data such as weather and carbon intensity. It then generates recommendations across four related areas:

- tariff improvement;
- energy-efficiency measures;
- Energy Performance Certificate compliance planning; and
- relevant grants and funding.

In practical terms, the platform is intended to act as an energy assistant for SMEs. It could identify whether a business is on an appropriate tariff, highlight energy used unnecessarily outside operating hours, assess possible retrofit measures and indicate whether grant support may be available.

For example, the platform could identify an improvement that fits a business's available budget, qualifies for grant funding, reduces peak-rate consumption and improves the building's EPC rating. The intention is to bring these considerations together rather than requiring the business to use separate tariff, property, finance and funding services.

SEM uses the Model Context Protocol to support an AI assistant working across different data sources. VoltView describes this as a secure layer through which the assistant can use minimal, consented and auditable information to generate customised recommendations.

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[95] Challenge Works (2025): SDCP Innovators: VoltView on Vimeo
[96] Harcus Parker (2023): Business Energy Claims

2. Data required to make the use case work

VoltView's use case depends on bringing together data currently held across energy suppliers, financial institutions, property registers and other organisations. The finalist identified the following as important:

- half-hourly smart meter consumption data;
- historical energy bills;
- current tariff and contract information;
- available tariff data, including time-of-use tariffs;
- business financial transactions and balances;
- property specifications;
- EPC ratings;
- property identifiers from EPC and VOA records;
- NESO (National Energy System Operator) carbon-intensity data;
- weather information;
- VOA non-domestic rating data; and
- information about relevant government grants and funding schemes.

VoltView's view is that the service's value comes from combining these datasets. Energy data can show when and how much energy a business uses. Tariff data can identify alternative prices. Property data can indicate the condition and efficiency of a building. Financial data can help assess whether an investment is affordable. Grant information can identify support that may reduce the upfront cost.

Half-hourly meter readings are particularly important because they allow SEM to identify patterns that monthly totals may conceal. VoltView states that approximately 60% of meters can provide this level of granularity, while 40% are limited to monthly readings.[97] Where half-hourly data are unavailable, the finalist proposes using pattern recognition and peer benchmarking, although the recommendations would be less directly based on the individual business's consumption.

The use case also depends on consistent property identifiers. Information from the EPC Register and VOA non-domestic rating list may need to be matched before it can be used in the same analysis.[98] If records are incomplete, inaccurate or difficult to reconcile, the quality of retrofit and compliance recommendations may be affected.

3. How consent, access and sharing would operate

The use case assumes that an SME would give explicit consent for relevant organisations to share specified energy, property and financial data with SEM. The business would need to

[97] DESNZ (2025): Smart Meter Statistics in Great Britain: Quarterly Report to end December 2024
[98] Gov.uk (2025): Find a Business Rates Valuation; Gov.uk (2025): Energy Performance Certificate (Commercial Property)

understand what information was being accessed, why it was required and how it would contribute to the recommendations.

VoltView's model is based on data minimisation. The platform is intended to collect only the information needed for the relevant analysis. It would combine consented business data with open sources such as carbon-intensity, EPC and property-rating information.

The Model Context Protocol is intended to allow the AI assistant to work across these sources while maintaining a record of the information used. VoltView states that users would see the main factors behind a recommendation in plain English, with further technical detail available where required.

SEM would initially provide recommendations for the business to consider rather than automatically implementing every action. Specific transactions, such as changing a tariff or entering a new contract, would require appropriate user confirmation. The finalist's sandbox testing also identified the need for explicit confirmation where the service highlights an EPC anomaly or presents contract terms before a switch.

VoltView identifies a cross-sector consent service as a potentially important enabler. This could allow SMEs to manage revocable permissions without using separate portals for each data source. However, implementation would require clarity about permitted uses, the period of access and liability where recommendations combine financial and energy information.

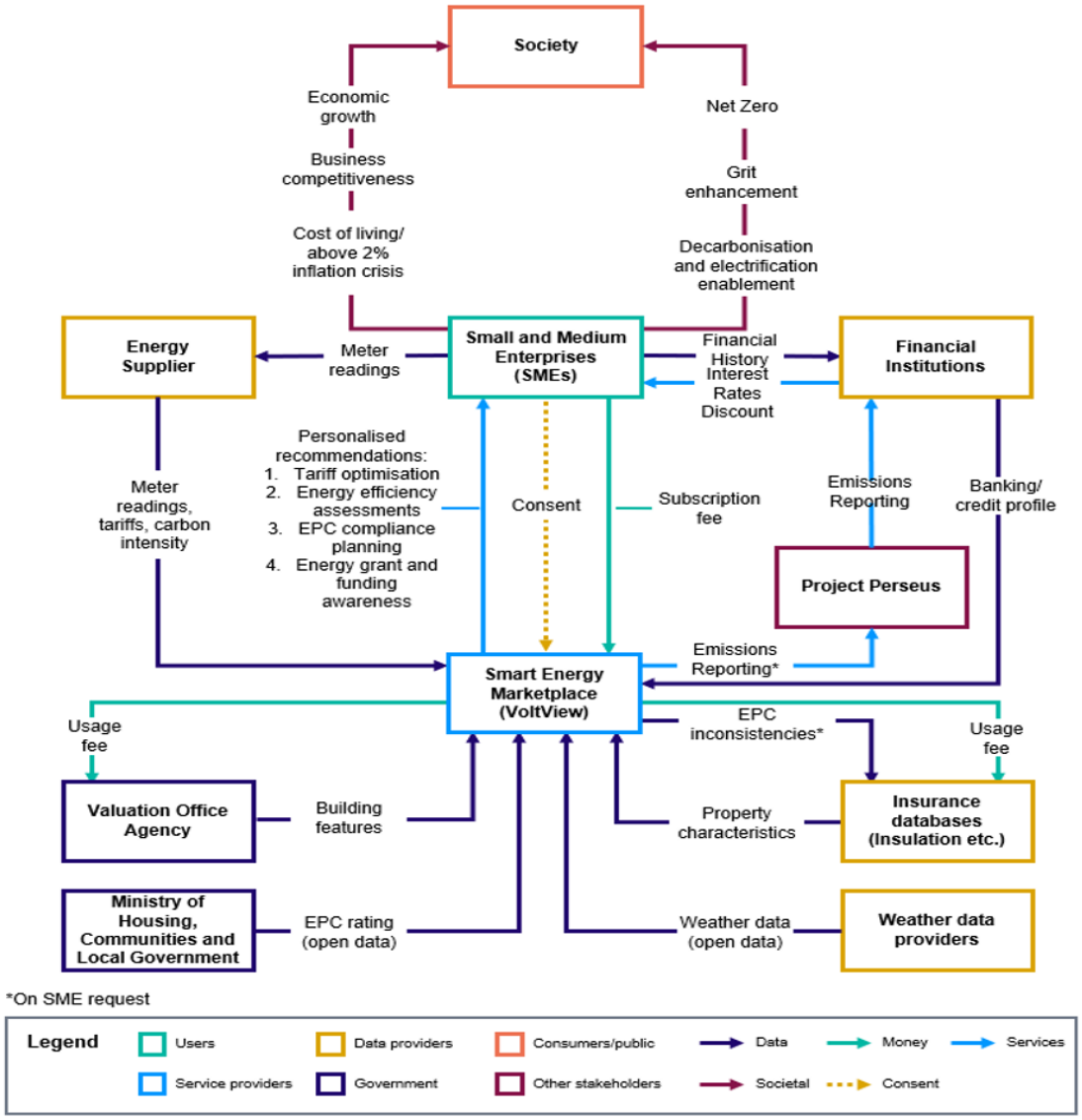

Figure 12: VoltView data ecosystem map

4. What the Challenge tested

Through the Smart Data Challenge Prize, VoltView developed a minimum viable product using synthetic data. The prototype tested whether energy, property, financial and carbon-intensity data could be combined to produce tailored recommendations for SMEs.

The minimum viable product included connectors for the different data sources, analytical functions for tariff comparison, retrofit recommendations and return-on-investment modelling, and a user interface presenting insights and suggested actions.

The prototype tested tariff-switching logic and modelling for different operating patterns. It also examined edge cases including dual-rate tariffs and expired contracts. The use of synthetic data allowed VoltView to explore these interactions without integrating live production systems or processing live customer information.

The Challenge also tested whether tariff selection and retrofit planning could be assessed together. Rather than first choosing a tariff and then separately considering energy-efficiency measures, SEM modelled tariff choice, operating behaviour, retrofit investment and available funding as connected decisions.

The prototype demonstrated the logic of cross-sector analysis but did not establish performance across live energy, financial and property systems. It did not fully test live access to half-hourly meter data, operational banking APIs, real-time tariff information or consistent property matching across the market.

5. Finalist-claimed benefits

VoltView argues that SEM could help SMEs reduce energy expenditure and the administrative effort required to manage tariffs and energy accounts. The finalist's research with hospitality businesses identified reported or modelled examples of businesses saving between 14 and 22 or more administrative hours each month.

The examples also included annual cost savings of £18,962 for one multi-site restaurant group and £14,129 for another. In these cases, VoltView attributed the potential savings to a combination of tariff changes, lower standing charges, improved gas rates and reductions in after-hours consumption.

These figures arise from research and analysis reported by VoltView. They illustrate the potential value for businesses but should not be treated as independently verified outcomes or as representative of all SMEs.

VoltView also argues that combining tariff and retrofit recommendations could help businesses make better investment decisions. The platform could compare the cost and payback period of energy improvements, identify grants and show how an investment may affect energy bills and EPC performance.

For time-poor or digitally excluded businesses, the finalist proposes plain-English guidance, accessibility features and training. The intention is to make energy information more understandable without requiring users to interpret complex billing, tariff or property data.

At a wider level, VoltView argues that SEM could contribute to the government's £2.7 billion target for SME energy-efficiency improvements.[99] It also claims that transparent tariff comparison could support competition and that clearer retrofit recommendations could increase demand for relevant construction and green skills.

These wider benefits depend on adoption by SMEs, access to appropriate data and businesses acting on the recommendations. They were not demonstrated at national scale through the Challenge prototype.

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[99] BEIS (2019): Annual Report and Accounts 2018–2019

6. Barriers, dependencies and limits

SEM depends on access to accurate, timely and interoperable data. The first barrier is the uneven availability of half-hourly smart meter readings. Where only monthly data are available, the platform may be unable to produce the same level of personalised tariff and operational analysis.[100]

The second barrier is the availability of complete and machine-readable tariff information. Accurate comparison requires details of commodity and non-commodity charges, standing charges, contract conditions and time-of-use rates. If these are incomplete or inconsistent, automated recommendations may be unreliable.

The third barrier concerns property data. VoltView identifies known concerns about EPC accuracy and the difficulty of matching properties across the EPC Register and VOA databases. These issues could affect retrofit, compliance and return-on-investment calculations.

The use case also depends on cross-sector consent and data-sharing arrangements. Energy Smart Data regulations are still developing, and VoltView identifies a need for clarity on how new requirements would interact with existing Authorised Third-Party obligations. This includes the permitted use of data and liability where advice combines energy, property and financial information.

SEM's AI-enabled recommendations would also require continuing checks against actual outcomes. VoltView proposes investigating substantial differences between predicted and actual bills, including differences exceeding plus or minus 5%. However, the prototype did not establish how this monitoring would operate across a large live customer base.

The commercial model is based on a no-commission subscription service. VoltView initially intends to target more than 300,000 UK retail businesses and later expand into wider commercial and public-sector markets. Its proposed routes to market include accountants, software vendors and integration with Project Perseus.[101] Commercial sustainability would depend on customer uptake, subscription revenue and successful partnerships.

The Challenge used synthetic rather than live operational data. The prototype therefore tested the logic of the proposition but did not fully establish data availability, integration cost, recommendation accuracy, customer behaviour or commercial viability under live market conditions. The benefits presented by VoltView should be treated as finalist findings and modelled possibilities rather than BIST-validated national impacts.

[100] DESNZ (2025): Smart Meter Statistics in Great Britain: Quarterly Report to end December 2024
[101] (Accessed March 2026) Bankers for Net Zero: 'B4NZ: 'Perseus'

Part 2: Learning about the Challenge Prize

The Smart Data Challenge Prize gave ten finalists and one Smart Data Fellow a structured environment to develop and test propositions across energy, financial services, grocery, property, transport, carbon reporting, the gig economy and cross-sector personal data. That variation was useful. It showed where a Challenge Prize can add value by sharpening propositions, testing data flows, surfacing missing data, strengthening governance and connecting participants with relevant expertise. It also showed the limits of prototype development: a service tested with synthetic data may demonstrate logic and feasibility, but it does not prove live performance, market adoption or the benefits claimed by a participant.

The findings below are drawn from participant submissions and their reported experience of the programme. Claims about programme value, commercial progress or future outcomes should be read as participant-reported learning, not independently validated impact.

Cross-cutting lessons

A structured environment turned broad ideas into testable propositions

The Challenge showed that development discipline mattered. The timetable, milestones and requirement to produce a prototype pushed finalists to define the problem they were addressing, the data they needed and the action their service was intended to support. This was especially valuable for propositions involving complex systems: GlowTrack narrowed a broad fuel poverty concept into a focused model for identifying at-risk households, and Moverly mapped Smart Data against real homebuying, mortgage and conveyancing processes. The strongest prototypes showed a clear pathway from data access, to usable insight, to action, to outcome; where that pathway was implicit, it was less clear who would act on the insight, under what authority and through which operational process.

Synthetic data proved useful, but only as one stage of evidence

The sandbox allowed finalists to test data flows, permissions, user journeys and edge cases safely without live personal or operational data. But synthetic data could not reproduce the quality, latency or changing access conditions of live data, and could not show whether users would maintain consent or whether data holders would participate. Mealia and Rodeo illustrate the limits: sandbox data became less useful once real supermarket data or platform restrictions were involved, and Open Transport demonstrated a concept rather than full deployment with live operator data.

Sandbox usefulness depended on reflecting real decisions, not just data volume

The usefulness of a sandbox depended less on the volume of data and more on whether the data reflected the decision being tested. BelowZero needed consumption, tariff, property and asset data together; Moverly needed property, employment and conveyancing data. Early-stage concepts drew on generic data and basic technical support, while more developed

propositions needed sector-specific datasets, data-holder engagement, interoperability testing or a route into controlled live testing.

Access and interoperability were often bigger barriers than invention

Across finalists, the main barriers were rarely about technical invention. They were whether data could be accessed reliably, lawfully and in consistent machine-readable form: standardised APIs, common schemas, reliable identifiers and agreed update frequencies. This applied from BelowZero's tariff data to Rodeo's gig-platform earnings data. A prototype can show how data might move if access exists, but it cannot make data holders participate; institutional readiness, who holds the data, who can share it and what standards exist, mattered as much as technical feasibility.

Cross-sector propositions depended on ecosystem development

Propositions such as GlowTrack, Moverly, Open Transport and Nigel depended on several organisations acting together, so their value came from coordinated adoption and shared governance rather than a single data connection. The Challenge helped some finalists identify partners and test how their propositions fitted existing processes: Moverly's work showed where earlier verified information could reduce duplication across the transaction, and GlowTrack's showed that identifying vulnerability is only useful if the right organisation can provide timely support.

Non-financial support was central to the programme

Participant accounts suggest that mentoring, technical guidance and governance support were as important as funding. Debit Score®; drew on support covering regulation, ethics and scaling; VoltView and Smarter Contracts used it for cross-sector integration and vulnerable-user issues. Governance and responsible-innovation support were particularly important for propositions involving sensitive information or vulnerable users, and the consistent lesson was that funding alone was not enough.

Inclusion and trust mattered from the start

Nigel, Debit Score®, VoltView and Smarter Contracts all showed that data access does not automatically create an accessible or trusted service. Consent had to be more than a valid technical authorisation: users needed to understand what data is accessed, why, how long access lasts and how it can be withdrawn, with delegated support raising questions of safeguarding and accountability. Trust also depended on the consequences of automated insight, and where a service influenced a significant financial, household or business decision, users needed clear explanations and routes to question or correct the outcome.

Governance became harder as datasets were combined

Combining datasets created risks beyond those of any single dataset. GlowTrack's proposed links between energy use, housing, financial vulnerability and potentially health-related risk show the sensitivity that can arise through combination, and Nigel, Debit Score®, Rodeo, Smarter Contracts and VoltView also worked with information capable of affecting significant decisions. Common requirements recurred across propositions: lawful basis, intelligible

consent, data minimisation, revocation, auditability and routes for challenge or correction, alongside the distinction between technical consent, lawful processing and meaningful user understanding.

A gap remained between prototype and live implementation

A recurring gap existed between demonstrating a proposition and running an operational service. The Challenge helped finalists test concepts, build credibility and refine products, but further progress depended on live data access, data-holder cooperation, common standards, regulatory clarity, partnerships and funding. Rodeo captured the tension: policymakers may want evidence of viable services before supporting a scheme, while businesses may hesitate to invest in services that depend on infrastructure not yet in place.

Activity, evidence and impact were not equivalent

The Challenge produced prototypes, data maps, user journeys and technical learning, and some participants also reported increased credibility, partner conversations or prospective benefits. These are not equivalent: a working prototype shows that functionality operated under test conditions, a partner conversation shows engagement rather than adoption, a modelled saving is not an observed outcome, and a participant's estimate is not a validated impact assessment.

Sector-specific learning

The Challenge also produced practical sector-specific learning. This is not proof that any service will work at scale, since much of it came from finalist submissions, synthetic data and controlled prototype development, but it identifies the data, standards, governance and delivery questions that recurred across sectors.

Energy and household management (BelowZero)

Household energy optimisation needed granular half-hourly consumption data alongside tariff, property and asset information, tested together, since usage alone cannot indicate the best tariff or retrofit action. The recommendation depended on usage patterns, property type, tariff structure, assets, weather, carbon intensity and contract terms.

SME energy and retrofit decisions (VoltView)

SME energy advice worked best when tariff choice, operating behaviour, building efficiency and retrofit investment were treated as connected decisions, requiring energy, property, EPC and financial data together. A cheaper tariff may not be the best option where a business is also considering solar generation, storage, electrification or building changes.

Automated carbon reporting (Mycelium)

Smart Energy Data could strengthen the link between consumption data and emissions records, but depended on permissioned business energy data, reliable meter and organisation identifiers, standard conversion factors and auditable provenance, and on distinguishing between accessing data, calculating emissions and publishing the resulting report.

Fuel poverty and vulnerability (GlowTrack)

Identifying vulnerability was not just a data-matching exercise; it only helped where it led to timely, appropriate support. Because these data combinations are sensitive, lawful basis, minimisation, safeguarding, access controls and accountability were central from the outset.

Consumer financial wellbeing (Debit Score®;)

Personalised financial recommendations needed customer-level prices, contract terms and renewal dates, not generic product data, and turned on distinguishing between apparent and achievable switching opportunities.

Cross-sector personal administration (Nigel)

Personal administration services needed reliable ways to organise information across sectors such as financial services, property and utilities, and to help users maintain permissions over time, delegate access safely and correct information at source.

Grocery and retail (Mealia)

Grocery services needed current, item-level data such as prices, promotions, nutrition and purchase history, with comparability across retailers, where products carry different descriptions, pack sizes and identifiers, as the unresolved issue.

Property and homebuying (Moverly)

Smart Data in property depended on authoritative, provenanced and reusable information moving through a complex transaction involving many parties, with the value lying in whether authoritative data can be delivered when needed, relied upon by professionals, and reused across identity and property checks.

Transport and mobility (Open Transport)

Integrated mobility services depended on portable customer-account and journey data across operators and modes, with live portability, rather than the dashboard itself, as the critical issue.

Gig work and earnings portability (Rodeo)

A Smart Earnings Data scheme needed granular job-level data, not payment totals. The prototype showed how a standardised API might work, but not whether platforms would participate voluntarily; the unresolved issue was institutional, not presentational.

Consent, permissions and reusable credentials (Smarter Contracts)

Consent needed to cover more than a one-off authorisation screen, managing purpose, duration, renewal, revocation and delegation, and remaining meaningful, auditable and manageable across the life of a service.

Conclusion

The Challenge showed that there is no shortage of innovative ideas about how Smart Data can drive benefits for consumers and businesses. It also showed that progress depends on reliable data access, common standards, workable governance, meaningful user control, and participation by the organisations needed to deliver the service - not just technical capability. Its principal value lay in the practical evidence generated about what each proposition would need to operate beyond the sandbox, providing a foundation for staged progression into controlled live testing, with further development determined by the quality of the evidence rather than the promise of the proposition.

Appendix: Glossary of Acronyms

- **AI** - Artificial Intelligence
- **API** - Application Programming Interface
- **ARR** - Annual Recurring Revenue
- **B2B / B2C / B2B2C** - Business-to-Business / Business-to-Consumer / Business-to-Business-to-Consumer
- **BIST –** Department for Business, Innovation, Science, and Trade
- **CBE** - Commander of the Order of the British Empire
- **CAP** - Carbon Accounting Platform
- **CLF** - Consumer-Led Flexibility
- **CO_2 / CO_2e** - Carbon dioxide / Carbon dioxide equivalent
- **DCC** - Data Communications Company
- **DESNZ** - Department for Energy Security and Net Zero
- **DFT** - Department for Transport
- **DID** - Decentralised Identifier
- **DVLA** - Driver and Vehicle Licensing Agency
- **EPC** - Energy Performance Certificate
- **ESG** - Environmental, Social and Governance
- **EV** - Electric Vehicle
- **FCA** - Financial Conduct Authority
- **FTO** - Freedom to Operate
- **GDPR** - General Data Protection Regulation
- **GHG** - Greenhouse Gas
- **HMLR** - HM Land Registry
- **HMRC** - HM Revenue and Customs
- **ICO** - Information Commissioner's Office
- **IP** - Intellectual Property
- **JSON** - JavaScript Object Notation
- **KPI** - Key Performance Indicator
- **MAAS** - Mobility-as-a-Service
- **MHHS** - Market-wide Half-Hourly Settlement
- **MVP** - Minimum Viable Product
- **NESO** - National Energy System Operator
- **NET ZERO** - The UK target to reduce net greenhouse gas emissions to zero by 2050
- **NHH** - Non-Half-Hourly (metering)
- **NHS** - National Health Service
- **OCR** - Optical Character Recognition
- **ODI** - Open Data Institute
- **OAUTH2** - An industry-standard protocol for secure, consent-based authorisation
- **OPDA** - Open Property Data Association
- **PSD2** - Revised Payment Services Directive

- **REST / RESTFUL API** - A standard approach to designing web-based data interfaces
- **SAAS** - Software as a Service
- **SECR** - Streamlined Energy and Carbon Reporting
- **SEDER / SEDR** - Smart Energy Data Repository
- **SIC** - Standard Industrial Classification
- **SME** - Small and Medium-Sized Enterprise
- **SSES** - Smart Secure Electricity Systems
- **TRL** - Technology Readiness Level
- **UX** - User Experience
- **VC** - Verifiable Credential
- **WCAG** - Web Content Accessibility Guidelines

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