Department for
Business & Trade

Smart Data Discovery Challenge

Significant insights and outcomes

MARCH 2025

Contents

Foreword

As we lay the foundations for a dynamic, modern, and growing economy, the role of innovation – and with it the support for our small businesses and consumers – will play a crucial role in the future of our society, and the growth and prosperity of our economy.

Smart Data will put customers in control of their data and provide innovators with the toolkit to flourish.

We have seen the power of data portability and openness with the success of Open Banking, with over 300 regulated providers of Open Banking enabled services, benefiting over 12 million users. Among firms active in Open Banking, 82 alone have raised over £2 billion of private funding since the introduction of Open Banking regulations in 2018.

The Smart Data Discovery Challenge has brought to life a wealth of creative and influential use case ideas that harness the power of Smart Data to lead our economy forward.

I would like to express my gratitude to the innovator community who have contributed their ideas and demonstrated the value of Smart Data through this process, including the 14 shortlisted entrants presented in this publication.

Thank you to Nesta Challenge Works, the Open Data Institute and Smart Data Foundry who have worked with the Department for Business and Trade (DBT) on the Challenge Prize programme, and to the community of experts in the data space for their contributions to this success.

The shortlisted ideas can save customers time and money and help them make better decisions. For example, Mealia aims to change grocery shopping by integrating supermarket and financial data, while Rodeo seeks to improve gig economy workers' financial security. These ideas are very different, but both have immense opportunities to support economic growth. Other ideas support business efficiency and achieving the UK's Net Zero targets, such as Ubiquitech Solutions which integrate electronic tracking of vessels, containers, their contents, and the ownership of goods into online banking and trade finance applications to revolutionise the freight market.

I am excited about the new Challenge Prize, offering grants and a £100,000 prize pot for prototyping in a synthetic data sandbox across finance, retail, home buying, energy, and transport sectors. This work will guide secondary legislation and common data standards following the Data (Use and Access) Bill.

The Smart Data Challenge Prize is significant to turning innovative ideas into practical solutions, benefiting the entire economy and demonstrating our plan to support innovation and Smart Data.

Justin Madders MP

Minister for Employment Rights, Competition and Markets

Department for Business and Trade

Overview

This document sets out the insights and outcomes drawn from the 14 shortlisted use cases in the Smart Data Discovery Challenge.

These use cases are conceptual. Detail regarding feasibility and operation under regulations would require further work and public consultation.

The first section provides an overall analysis of the benefits derived from the use case insights.

It includes consumer benefits, societal benefits, and for use cases which included quantitative insights, monetised results were considered. This section was written by DBT.

The second section of this document sets out individual insights reports for each use case.

The insights include a summary of the use case, an explanation of how the use case would work, benefits, data requirements, future considerations, and a visualisation of the data flow. These reports were written by Nesta Challenge Works and the Open Data Institute.

Overall insights

Each participant was asked to give an indication of how the use case may benefit end users – consumers and workers, or small and medium enterprises (SMEs) – and society generally. Some participants also provided quantified estimates, that set out a specific assessment of the monetised benefit that the use case may provide for their end users.

We have summarised the significant benefits that have been identified across the use cases and provided a brief analysis to bring together the quantified benefits. Whilst informative, this analysis is concentrated only on the potential benefits and is limited to the information provided by participants.

Consumer benefits

The use cases shortlisted provide a range of benefits for consumers and workers as end users. In general, they either used Smart Data to help consumers and workers save money when comparing between potentially complicated options or to save time with a more effective use of their own data.

For example, one use case helped consumers to save money on electric vehicle (EV) charging by using Smart Data to provide recommendations on when and where to charge.

Another use case saved consumers time by using Smart Data to make the exchange of information and property attributes more secure and faster during the house buying process.

The consumer benefits included:

- cost-savings for electric vehicle owners by providing data to help users find the most cost-effective EV charging platform – Future Energy Associates use case
- wage increases for gig workers, by providing data to help workers choose the best platform and improve gig workers' access to finance – Rodeo use case
- cost-savings for consumers buying carbon reducing home improvements such as solar panels, heat pumps and insulation, by providing data-informed recommendations and improved access to finance – Hexapower, Loop, and Smart Layer AI use cases
- time and cost savings for buyers, sellers and others involved in the house buying process such as conveyancers and estate agents by providing transparent data on the characteristics and status of the house – Open Property Data Association and Moverly use cases
- cost and time savings and health improvements for consumers by providing data-driven insights to help them plan cheaper, more nutritious, meals and grocery shopping – Mealia use case
- greater control, rewards and access to consumer's own data for those using retail rewards programmes – Unbanx use case

SME benefits

Many of the shortlisted use cases also identified benefits for SMEs as end users. In general, these included use cases that used Smart Data to save SMEs time and money when making business purchases, complying with reporting duties or making business decisions. They included:

- time-savings for SMEs, by partially automating the production of environmental, social, and governance (ESG) reports – Data Catalyst use case
- productivity improvements, cost-savings and improved profits for SMEs through providing them with data-driven insights on their decision making – Mastercard use case

- time and cost savings for conveyancers and estate agents by providing transparent data on the characteristics and status of the house – Open Property Data Association and Moverly use cases
- cost-savings for SMEs by providing increased information on energy contracts and reducing brokerage fees – VoltView use case
- cost-savings for SMEs by providing more transparent data on the progress of their inputs through global supply chains – Ubiquitech use case

Societal benefits

Smart Data use cases can also benefit wider society and further recommend other government areas of interest, such as improving health or achieving Net Zero outcomes. Participants also provided evidence on societal benefits, beyond the direct end user. These societal benefits included Net Zero benefits and improved ESG outcomes from more reliable, trusted and easily interpretable SME ESG reports – Data Catalyst use case

Net Zero benefits from:

- encouraging the use and reducing the cost of EVs – Data Catalyst use case
- providing information on sustainable meal options and reducing food waste through meal planning – Mealia use case
- providing information on sustainable electricity contracts and grants for SMEs – VoltView use case
- increasing use of carbon reducing home improvements such as solar panels, heat pumps and insulation – Hexapower, Loop, and Smart Layer AI use cases
- reducing corruption in global supply chains through increased transparency and traceability – Ubiquitech use case
- health benefits, and associated savings to the NHS through healthy meal planning and reducing stress in the house buying and selling process – Mealia use case

Monetised effects

Illustrative monetary estimates of specific end user benefits were provided by 5 Discovery Challenge entrants for their own use cases.

These details are in the individual insight reports:

Data Catalyst estimate their use case could have the potential to save labour costs of £200 to £2,000 per SME, per ESG report. This could lead to savings per year of between £49 million and £450 million if scaled up across all SMEs and all ESG reports.

Future Energy Associates estimated their use case could potentially save an average consumer £37 in EV charging fees per month or £123 million per year if scaled up over the 281,000 EV cars registered to private owners as of 2023.

Rodeo estimated their use case could increase the net earnings of gig workers by 20%, by reducing inefficiencies of existing working patterns. This amounts to a saving of £700 million per year when scaled across the food delivery market alone.

Voltview estimated their use case could potentially save SMEs an average of 2 pence per kilowatt hour (kWh) in energy brokerage fees, by removing the need to use a broker at all. On average a small business uses 20,000 kWh per year. So, this could save each business £400 per year, or around £600 million a year across all SMEs.

Open Property Data Association estimated their use case could lead to cost savings of £231 million per year through quicker processing times, improving transparency and reducing failed

transactions when buying and selling a house. Specifically, they estimated cost savings per year for each party of:

- buyers – £40 million
- sellers – £28 million
- seller conveyancers – £37 million
- buyer conveyancers – £31 million
- estate agents – £95 million
- in total, these 5 participants estimate their use cases could provide a total potential benefit of £1.9 billion per year in end user benefits.[1]

The participants have produced these estimates to establish the potential benefits based on full participation in the Smart Data scheme. We know from Open Banking that participation in Smart Data schemes starts low and then grows year on year as users discover the service. If we instead assume that participation ramps up over time, the possible benefit figure could be £390 million of benefits in year 10 and every year after that following the Smart Data scheme implementation. Specifically, if the underlying estimates provided by the Discovery Challenge entrants are accurate, the following benefits could emerge each year over the first 10 years after Smart Data schemes are in place:

Years after implementation	1	2	3	4	5	6	7	8	9	10
Percentage of users (%)	1.0	3.0	6.0	8.5	10.5	12.5	14.5	16.5	18.5	20.5
Benefits (£ million)	19	57	114	162	200	238	276	314	352	390

Note – these percentages are consistent with those assumed within the Smart Data Influence Assessment supporting the Data (Use and Access) Bill.

This analysis is based on just 5 use cases and only includes identified benefits for end users. The potential benefits would be larger when considering all potential use cases and identified benefits (benefits shown in million pounds). Importantly, the analysis is based on the initial estimates produced by entrants about their own use cases, and we have not provided additional analysis to verify the figures provided. Nevertheless, the analysis does show, tangibly, how cross-sector Smart Data schemes could lead to identified benefits for consumers, users and SMEs.

The monetised benefits are primarily calculated as time and cost savings for SMEs, consumers, and workers. These benefits could lead to improvements in annual UK growth:

- time savings for SMEs and workers increases the productivity of both, which can directly contribute to economic growth
- consumers, SMEs and workers are likely to value services that save them time and costs – creating cross-sector Smart Data schemes that enable these services would therefore create a new market for these services, with associated increases in economic growth
- cost savings to SMEs, consumers and workers through increased transparency will mean that more productive businesses are more likely to prosper at the expense of less productive businesses – in the long term this will increase the overall productivity of UK businesses which can contribute to economic growth

[1] Taking the midpoint of the £49 million to £450 million range provided by Data Catalyst.

Shortcomings

The analysis described above is useful to understanding the benefits of Smart Data use cases, however there are several shortcomings. These are mainly because the information is based on self-reported benefits from participants, rather than a specific analysis. Specifically:

- some of the cost savings identified will represent transfers, where another business or party would face offsetting costs
- there will be costs associated with creating Smart Data schemes, as set out in the Smart Data Influence Assessment[2]
- there is uncertainty in the estimates, as the benefits of innovation will depend on how the use cases and schemes are developed, as well as the behaviour of potential end users
- there may be inconsistencies between the estimates as the underlying information has been supplied by different participants

The government will continue to assess the costs and benefits of Smart Data schemes as appropriate, following Green Book guidance, as schemes develop.

[2] DBT (October 2024): Data (Use and Access) Bill Regulatory Powers for Smart Data Impact Assessment

Smart Data Discovery Challenge insight reports

The following reports were written by **Nesta Challenge Works** and the **Open Data Institute**, as part of their work on the Smart Data Discovery Challenge.

These reports do not reflect the views of the Department for Business and Trade.

Mealia – Discovery Challenge winner

Summary

Mealia plans to revolutionise grocery shopping experiences and reshape the landscape of consumer choice and wellbeing, by integrating supermarket data with users' financial transaction data, including data on loyalty schemes, points and promotions, vouchers and reward usage, and payment preferences.

Consumers can struggle to manage tight budgets for grocery shopping, and navigate the environmental influence of their food choices, while keeping a nutritious diet. Consumers grappling with this challenge often rely on time-consuming and inefficient methods like manual budgeting, coupon hunting, and rudimentary meal planning. Mealia could enable consumers to make healthier choices, by improving the nutritional value of their weekly basket. Additional benefits could include saving money, reducing waste and reducing their carbon footprint.

Currently supermarkets, the data holders, do not share data with service providers without some form of partnership, but even then, the data is often limited and not in an easily readable standard. Smart Data could enable this data to be accessed, with consumers' consent, by Mealia, to create a more health-conscious, cost-effective, and environmentally sustainable grocery shopping experience.

The use case

Mealia primarily intends to use consumer's purchasing and financial data, as well as Stock Keeping Unit (SKU) level data. SKU is a scannable code to help vendors automatically track the movement of inventory. This code often appears as a barcode or QR code along with alphanumeric digits on an item for sale. When a customer buys an item at the point-of-sale (POS), the SKU is scanned, and the POS system automatically removes the item from the store's inventory as well as recording other data such as the sale price. The use case encompasses 5 significant areas:

Health optimization – By analysing users' purchase history and financial data, Mealia can recommend healthier food alternatives, fostering better dietary choices. This personalised advice could range from suggesting nutrient-rich alternatives to identifying potential allergens. Cost savings: with the use of Smart Data, Mealia aims to guide users in making more economical choices. By comparing prices and analysing spending patterns, the app can suggest budget-friendly shopping strategies, maximising value for every penny spent.

Culinary exploration – Utilising purchase data, Mealia can suggest innovative recipes that align with users' taste preferences and dietary restrictions, transforming routine meals into exciting culinary adventures.

Waste reduction – By tracking purchase dates and food types, Mealia can prompt users to use items nearing expiry, significantly reducing food waste. This feature not only benefits the environment but also helps users save money by avoiding unnecessary purchases.

Eco-conscious shopping – Mealia can analyse the carbon footprint of users' grocery choices, offering greener alternatives and recommending sustainable consumption.

Benefits

Consumer benefits

The Mealia use case has the potential to benefit millions of UK users, spanning those facing food insecurity (estimated to be 11.3 million households in the UK in 2022[3]), health-conscious individuals, and environmentally aware consumers.

Specific benefits

Cost savings to consumers – By optimising grocery shopping with data-driven insights, Mealia could make thousands of nutritious meals accessible from £1 per serving.

Health improvement – Access to healthier food choices and nutritional information can lead to better overall health outcomes for users. This can translate into long-term benefits like reduced healthcare costs and improved quality of life.

Time efficiency – Mealia estimate that they could save users 8 hours per month typically spent on meal planning and grocery shopping, offering quick, personalised solutions.

Environmental influence – Mealia could decrease the carbon footprint associated with grocery shopping by 65%, and household food waste by 50% contributing to broader environmental goals.

In addition, the integration of retail and financial data opens doors for strategic partnerships, offering tailored incentives like insurance premium discounts for healthy choices or loyalty points from brands aligning with users' preferences.

Wider economic and social benefits

Cost of living– The ONS estimated that, in FYE 2022, an average household spent 11.8% of their expenditure on household food and non-alcoholic drink in the UK, whilst the lowest 20% of households averaged 14.8%.[4] This service could optimise spending habits, potentially reducing overall grocery expenses for consumers. Users could stretch their budgets further, mitigating the influence of rising living costs and improving their financial resilience.

Net Zero – Mealia could promote more sustainable consumption patterns by providing insights into the environmental influence of purchasing choices and promote eco-friendly products.

Supporting vulnerable consumers – By analysing the purchasing patterns and preferences of vulnerable consumers, Mealia could offer personalised recommendations tailored to their dietary requirements, health conditions, and budget constraints. For example, if a consumer has diabetes, Mealia could suggest low-sugar alternatives or provide recipes that align with their dietary restrictions.

---

[3] Hunger in the UK, August 2023 - The Trussell Trust

[4] Family Food FYE 2022 - GOV.UK (www.gov.uk)

Data

Data requirements

The realisation of this use case's full potential hinges on the availability of detailed, sector-specific Smart Data consumer banking and retail data. This includes high street and online transactions, detailed 'Stock Keeping Unit' (SKU) level data, and loyalty scheme data.

Sharing SKU level data provides access to rich and detailed data to personalise recommendations including:

- list of ingredients by themselves or accompanied by a quantitative ingredient declaration (QUID) which tells a consumer the percentage of ingredients contained in a food product – QUID is calculated based on the recipe at the time when the ingredients are added, that is at mixing bowl stage
- if food has been processed or altered in some way during preparation
- allergen information
- storage conditions and date labelling
- name and address of manufacturer
- country of origin or place of provenance
- preparation instructions
- nutritional declaration, including calories
- packing and recycling information
- metrics on the carbon footprint of specific shopping choices

To test the concept and explore implementation approaches in a sandbox environment, Mealia could build an app or grocery assistant that uses the standardised data to offer personalised recommendations, report on nutritional and environmental influences, and demonstrate food expiry date alerts. Mealia could also explore the optimal methods for accessing, processing, and presenting the data to users.

Data attributes critical to the success of the use case

The entrant is of the view that data coverage from the big 4 supermarkets (72% market share) would be required for success. The data shared would need to be near real-time and able to be seamlessly integrated into third party applications via APIs, much like the way Open Banking allows transaction details to be shared. This could be implemented by organisations like Dunnhumby, who managed the large volumes of data generated by Tesco's Clubcard scheme and derive significant value from this Customer Data Science.

Sharing of customer data by these data holders is effectively an implementation of data portability under General Data Protection Regulations (GDPR).[5] However, there may be a requirement, as in Open Banking, to mandate sharing in a timely and consistent manner via standardised APIs.

[5] Legal Definitions - Information Commissioners Office (ICO)

Smaller providers could voluntarily share SKU level data for the purpose of having their alternative products visible to apps and recommendation tools, for example offering consumers cheaper, healthier, or more environmentally friendly goods.

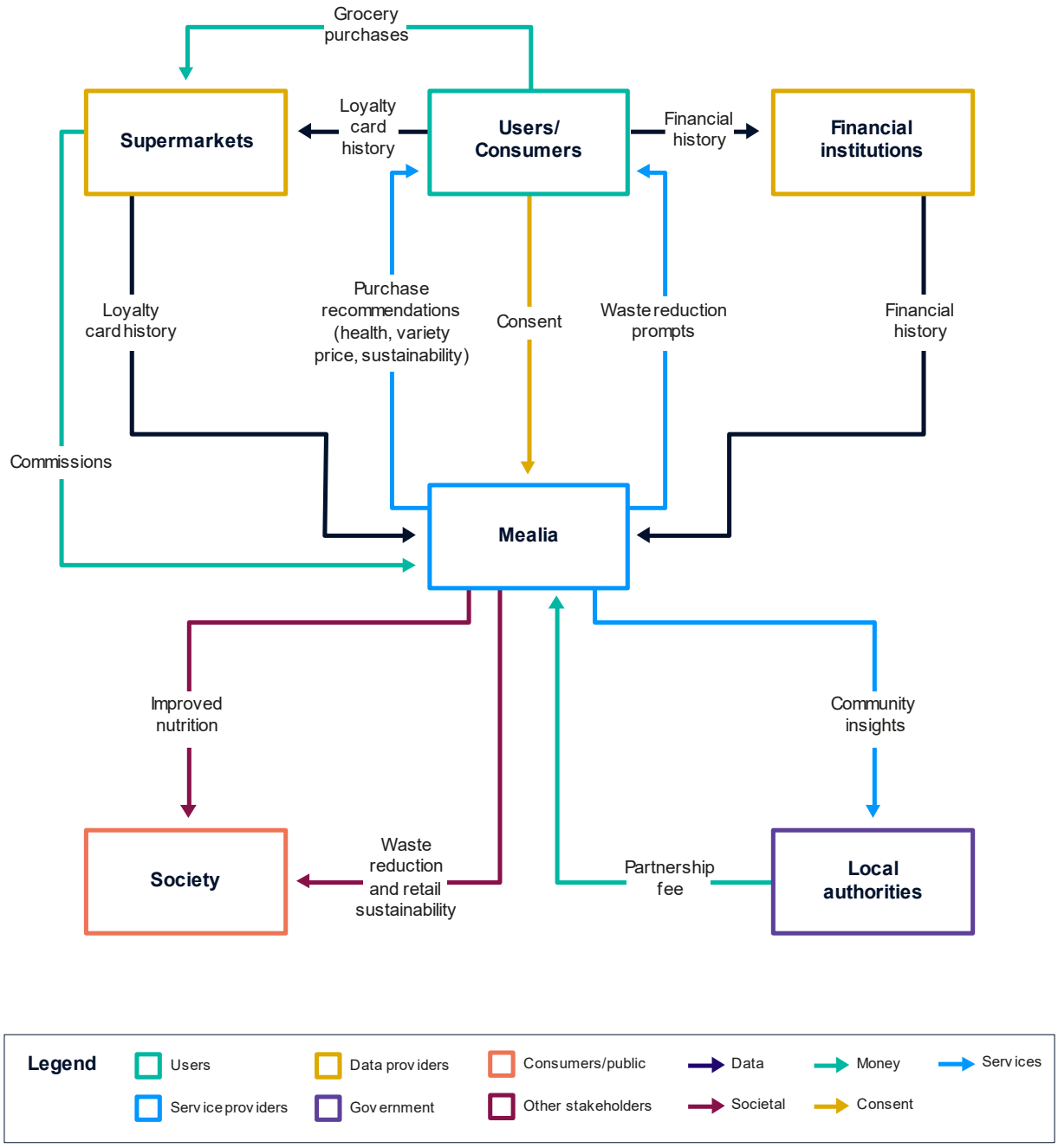
Future considerations for this use case

Significant barriers to development

Mealia requires consumers to authorise third party access to their detailed supermarket transaction data. The proposition may be perceived as too generalised and lacking in specific examples to demonstrate the potential value to consumers and retailers. It also could be challenging to get supermarkets to support the scheme, although their participation could in principle be mandated under the Smart Data legislation, it could be easier to scale Mealia with supermarket support. In this case, a significant challenge will be ensuring that users see a clear benefit from using the service. Communicating how the data can enhance their shopping experience, such as providing personalised recommendations or making grocery purchases easier, is significant.

A significant challenge will be making sure users gain a clear benefit from using the service. It's important to show how the data can improve their shopping experience, like providing personalised recommendations or making grocery purchases easier.

Visualisation



Users give consent to Mealia to use their bank and loyalty card information. Mealia can then give the user grocery purchase recommendations so the user can:

- improve nutrition
- reduce waste
- contribute to food sustainability

Lightning Riders – smart earnings data for gig workers – Discovery Challenge winner

Summary

A Smart Earnings Data scheme could radically enhance what Rodeo and other companies could do to improve the market power and financial security of gig workers. Rodeo helps workers in the gig economy to access and consolidate the personal data that companies like Uber, Deliveroo and Just Eat hold on them. There are currently 250,000 food delivery gig workers, 80% of these working across multiple platforms. Most gig workers are low paid and face significant financial insecurity.[6]

Personal data is held by the delivery platforms, such as Uber Eats, Deliveroo, and Just Eat. Under GDPR, workers have the right to access and port this data, however the data holders currently only share some of this data with workers, and not systematically or consistently. Account sharing can be used today to gather data.

To date 15,000 gig workers have used Rodeo. However, under the current system, the data held by food delivery platforms is often incomplete, and the data holders often ignore, or are very slow to process data subject access requests (DSARs) and take out legal action or put technical blocks in place. The result for gig workers is often missing opportunities to increase earnings (due to inconsistencies in working patterns) and facing difficulties with things like accessing credit, renting properties and forecasting their future income.

A smart earnings data scheme could allow gig workers to see all their previous job data in one place (fees, timestamps, GPS coordinates for the jobs gig workers have completed on platforms) which could make their lives better by improving their earnings, improving their credit history and helping them to forecast future earnings. This could be assisted by mandating the data holders to give real time APIs to companies like Rodeo, so that workers can control and port their personal data in a timely, convenient and interoperable way. By making the market more transparent and therefore enabling drivers to select the best jobs, Rodeo estimates a potential increase of about 20% for average driver earnings.

The use case

Rodeo has been operational since 2022, enabling gig delivery drivers to consolidate and analyse their earnings. Workers give Rodeo access to their Uber, Deliveroo, Just Eat and Stuart accounts to export their historic earnings data so that they can have access to it in the Rodeo app. This can be cumbersome and is sometimes unreliable.

[6] The Gig Economy Equality Gap

Smart Data could enable gig workers to consent for the individual data holders (such as Deliveroo)

to share their data with Rodeo. This could enable the Rodeo app to use the consolidated earnings and performance picture to enable gig workers to:

- understand their performance and make better informed decisions about their work.
- track, demonstrate and project their earnings to enable them to plan their finances
- see which companies are paying the best rates – it is worth noting that none of the major gig work platforms explain their pay formulas, announce pay changes or publish average pay stats
- improve access to credit with greater transparency about their earnings

Benefits

Consumer benefits

There are an estimated 250,000 delivery gig workers, 80% of whom work on multiple platforms, who could be the primary beneficiaries of a Smart Earnings Data scheme. Rodeo have been able to analyse the data of the 15,000 gig workers who have used their platform to date.

The primary benefit identified is an increase in net income. This is based on existing inefficiencies in working patterns. For example:

- better credit can enable food delivery workers to rent or purchase better vehicles – particularly e-bikes)
- better forecasting can reduce workers spending on expensive short-term overdrafts
- more transparent markets can enable workers to spend less time travelling and more time on higher paying jobs

The total earnings by on-demand delivery (as opposed to scheduled delivery) drivers in the UK is about £3.5 billion. Rodeo estimates there are about 700 million on demand deliveries each year (average £5 per order) and about 250,000 drivers earning an average of £14,000 per year (some part time, some full time).

By analysing Rodeo users' data, Rodeo can see that drivers who are better at order selection (accepting better orders and rejecting worse orders) generally earn significantly more. Companies can pay drivers less because drivers are not able to exercise their market power.

By making the market more transparent and therefore enabling drivers to select the best jobs, Rodeo estimates a potential increase of about 20% for average driver earnings. This could equate to an increase in net income per gig worker of £2,800 per year, which based on the size of the food delivery market alone, this amounts to a total increase in net income of £700 million annually.

Additional benefits could include:

- improved access to credit
- facilitated access to rental properties
- simplified tax filing processes
- improved income forecasting

Rodeo did not provide any estimates to support these claims.

Wider economic and social benefits

Cost of living: Gig workers are some of the lowest paid in the economy, often experiencing uncertain and volatile income. An increase in net earnings for gig workers could alleviate the cost of living by providing them with more disposable income to meet essential expenses such as housing, utilities, and groceries. Additionally, this boost in income could contribute to stimulating local economies as gig workers have more purchasing power, potentially easing the strain on households grappling with rising living costs.

Encouraging small businesses to thrive*:* UK Hospitality report that 99% of the hospitality businesses in the UK are made up of SMEs.[7] By encouraging gig economy workers to work more efficiently, there is the opportunity for restaurants and other hospitality businesses themselves to speed up delivery times and increase their own productivity.

There is also the opportunity for this app to expand beyond delivery drivers, to target freelancers and gig workers across the economy.

Additionally, by supporting transparency within the gig economy, it builds trust among gig workers, informs consumers about platform practices, and presents the UK with the opportunity to lead in setting international standards.

Data

Data requirements

All of the data that Rodeo would like to include under the Smart Earnings Data scheme is personal data, as defined by GDPR.[8] This includes earnings data, including fees, timestamps and GPS coordinates for the jobs a gig worker has completed on platforms.

Workers already have the right to access and to port data.[9] Smart Data regulation could enable real time APIs, so that workers can control and port their personal data in a timely and convenient way, as well as include data from other sectors.

Future considerations for this use case

Significant barriers to development

For development, Rodeo requires a ’Smart Earnings Data Scheme‘ with real time APIs, which in their experience, require enforcement to mandate data holders to make this data available.

---

[7] Economic contribution of hospitality - Hospitality

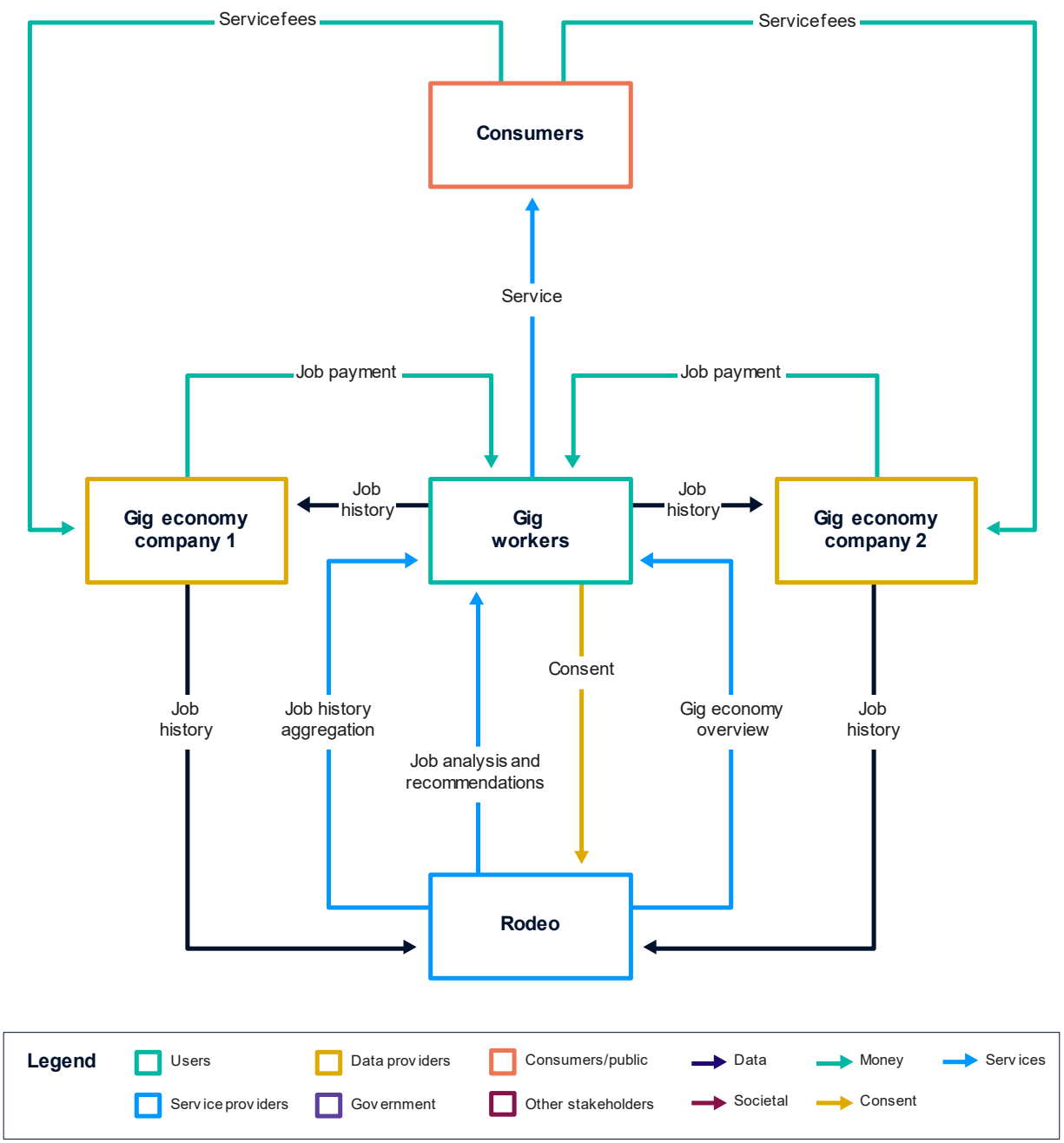
[8] What is personal information? Information Commissioner's Office (ICO)

[9] The right to data portability - Information Commissioner’s Office (ICO)

Implementation of Smart Data legislation in this area could remove any clear barriers for developing this use case further.

Stakeholder engagement: Discussions with the ICO could be beneficial, particularly on data privacy and joint working with providers of accounting software for seamless integration and data sharing; and discussions with HMRC for potential direct access or streamlined processes for filing tax returns.

Visualisation



Gig workers give consent to Lightning Riders or Rodeo to use their bank and gig work history. Lightning Riders and Rodeo can then give the gig worker insights so they can:

- see a full picture across all their gig work
- get recommendations on where and when to work for certain gig companies
- improve their overall earnings through better gig work management

Smarter Contracts – Discovery Challenge winner

Summary

Smarter Contracts propose a service that provides consumers with personalised money-saving comparison offers, for a wide variety of cross-sector services. For example, a service that removes the need for consumers to remember to begin an action when their mobile contract is about to expire. The service can use actual product usage and terms to identify the right product for the user, for example when an individual is looking to better manage their mortgage, and either confirm or accurately predict the amount of money the consumer could save by switching.

The Smarter Contracts use case has a particular interest on Personal Finance Management (PFM), Price Comparison Websites (PCWs) and business to business (B2B) markets. Personal Finance Management (PFM) refers to the practice of managing one's financial affairs, including budgeting, saving, investing, and tracking expenses, typically facilitated through digital tools or software applications.

Price Comparison Websites (PCWs) is the umbrella term for all online price comparison services. PCWs as a group may compare a wide range of products including personal credit, utilities, flights, hotels, electronics, and insurances. Business to business (B2B) markets involve transactions and relationships between businesses rather than between businesses and individual consumers, encompassing the buying and selling of goods, services, or information between companies.

Current price-comparison services lack the capability for users to easily and automatically input all their consumer information, resulting in product suggestions that may not be tailored to their individual needs or existing deals. Users often find it challenging to access the necessary data through comparison websites, as product information may not be readily available or accessible within commonly used applications.

Additionally, relying on users to manually input data leaves room for error, and estimating interest rates based on sources like the Credit Reference Agency (CRA) data can lead to inaccuracies. Finally, the timing and act of searching for alternative products is reliant on the individual, who may not know when it is possible to switch provider, or leave it too late to switch, meaning they stay with their incumbent service provider out of convenience, rather than value.

As a result, a wide range of consumers are overpaying for their existing products and services. This particularly is the case for consumers most at risk from a 'loyalty penalty.[10,11] These include consumers who have low levels of engagement, low levels of financial knowledge or sophistication, difficulties in managing day-to-day finances, a lack of trust in companies' use of their data and other various specific kinds of vulnerability.

A Smart Data scheme concentrating on the finance and energy sectors could allow consumers, and in particular vulnerable consumers, to make significant financial savings through more

[10] Frontier Economics - Loyalty Penalties and the limitations of competitive markets

[11] The loyalty penalty is the difference between what loyal and new consumers pay for the same service.

automated processes for assessing alternative options, switching, and monitoring changes in the marketplace.

The use case

Smarter Contracts are proposing 2 products.

The **Digital Financial Health Check** (DFHC) is an online financial assistant that provides consumers with personalised money-saving comparison offers, for a wide variety of cross-sector services, when a consumer needs it. Unlike current price-comparison services that rely on the user to know what products are best for them, and only display lists of products that can't be financially compared to a user's existing products, the DFHC can use actual product usage and terms to identify the right product for the user and either confirm, or accurately predict, the amount of money they can save by switching

The **Digital Financial Health Monitor** (DFHM) provides the ability for a consumer to consent to always-on monitoring of their current products and services in relation to market changes, to check (by using the DFHC) that they are always on the most appropriate product and terms, alerting them to potential savings when available

The data and technology behind both the DFHC and DFHM include Smart Data APIs (application programming interface) to access product data from multiple sectors. This includes:

- a consent and permission management engine to enable data sharing preferences (provided by Smarter Contracts)[12]
- a personal data store to securely hold user-permissioned data (provided by Smarter Contracts)
- a product marketplace providing access to multi-sector products (provided by Aro)[13]
- artificial intelligence machine learning (AI/ML) models to calculate and predict financial comparisons (provided by Aro)
- a credit and fraud bureau to assess product eligibility and authenticate the users (provided by Equifax)[14]

Examples of where Smarter Contracts products could be used include removing the need for consumers to remember to begin an action when contracts are about to expire (for example contracts such as a re-mortgage, Individual Saving Account, mobile, energy), or highlighting when new products are entering the market such as credit cards or when market conditions are changing (for example interest rates).

---

[12] Smarter Contracts - consent and permissions management platform

[13] Aro - the data driven marketplace

[14] Equifax - credit bureau company

Benefits

Consumer benefits

Smarter Contracts estimates the service could enable tens of millions of UK consumers to save hundreds of pounds on an annual basis. The service is intended to serve UK consumers of all demographics and financial circumstances but could be particularly beneficial for consumers most at risk from a 'loyalty penalty'.

The FCA and Citizens Advice analysis has shown that the loyalty penalty can cost consumers at least £1,114 a year.[15] It is estimated that 1 in 7 people in the UK suffer from the loyalty penalty.[16] Total customer detriment from the loyalty penalty was estimated by Citizens Advice in 2020[17] to be £3.4 billion per year across 6 markets with Ofgem in 2021[18] estimating it at £1.5 billion per year for the energy market.

To encourage the creation of inclusive Smart Data schemes, DBT published research on Design principles for inclusive Smart Data schemes[19] which identifies 21 inclusive Smart Data design principles to mitigate the barriers to inclusion that should be considered in the development of future Smart Data schemes.

Wider economic and social benefits

This service could improve market competition and ensure firms give fair value to their customers, and make customer onboarding more efficient, resulting in lower costs.

Cost of living – The estimated savings for consumers could significantly alleviate the cost of living by supporting consumers to make more informed purchasing decisions. By streamlining the process of finding cost-effective alternatives, this service not only helps individuals stretch their budgets further but also fosters competition among businesses, potentially driving prices down and making essential goods more affordable for everyone.

Supporting vulnerable consumers – Smart Data can open up new opportunities to support vulnerable consumers. Many of the challenges associated with market engagement are exacerbated for vulnerable consumers. Vulnerability is often multi-layered, but the Financial Conduct Authority (FCA) define a vulnerable customer as someone who, due to their personal circumstances, is especially susceptible to harm, and are often significantly less able to represent

---

[15] Citizens Advice (August 2022): Overcharging consumers in a cost of living crisis; The Loyalty Penalty 4 years on

[16] Citizens Advice (August 2022): Overcharging consumers in a cost of living crisis; The Loyalty Penalty 4 years on

[17] Citizens Advice (September 2020): "The loyalty penalty in essential markets: Two years since the super-complaint" – Markets include: Mobile, Broadband, Home insurance, Cash savings, and Mortgages

[18] Domestic Energy Retail Consultation - Department for Business, Energy & Industrial Strategy July 2021

[19] DBT (July 2023): Design principles for inclusive Smart Data schemes research - GOV.UK (www.gov.uk)

their own interests.[20] They may have different needs and have more behavioural biases that negatively influence their decision making. As of May 2022, 52% of all adults in the UK showed characteristics of vulnerability.[21] Research on vulnerable consumers highlights that a consumer's ability to make simple calculations is lower than assumed or accounted for. For example, low-income households were found to pay a 'poverty premium' of £430 more for essentials like energy, credit and insurance.[22] Smart Data schemes may benefit low-income consumers as they aim to show the best and most affordable option based on the consumer's data which in turn reduces the barrier, of not understanding consumer choice, to consumption. The proposed service aims to assist vulnerable customer segments by automatically identifying opportunities to switch providers and save money, streamlining the market search process and simplifying the transition to a new provider.

Encouraging small businesses to thrive – the service could also be extended to SME business customers to help them optimise their financial decisions and reduce operating costs. By receiving tailored insights based on data analysis, SMEs could make informed choices regarding financial products and energy usage, leading to increased efficiency and profitability for their businesses.

Data

Data requirements

Smarter Contracts would require data on the user and Credit Reference Agency (CRA) data to check the eligibility of the user for the product or service they are seeking. Additionally, the data required includes contextual business data, for example information on the products and services that the consumer currently uses or is seeking, such as mortgage, cards, loans, current accounts, savings, internet, energy, insurance. This data could be, for example, costs (interest, fees, penalty), relevant dates (renewal, expiry), product usage, all specific to the customer's current set of products.

Future considerations for this use case

Significant barriers to development

Consumer consent to share data with the service could need to cover the renewal period of the services being compared and provided, such as mortgage periods. For example, if a user has a 2-year fixed mortgage, consent needs to be for 2 or more years to cover the remortgage period. Users would need to trust the service using their data, which could be managed through regulation and clear consent and control mechanisms.

Users could be drawn to this service due to its emphasis on user data control and transparency in usage. Taking advantage of progress in Open Banking, the platform could build upon existing practices to enhance consent mechanisms and improve visibility into data lineage, including

---

[20] FCA (February 2021): Guidance for firms on the fair treatment of vulnerable customers | FCA

[21] FCA (July 2023): Financial Lives Survey 2022

[22] Fair By Design (Nov 2022): Why the poverty premium matters for local economies

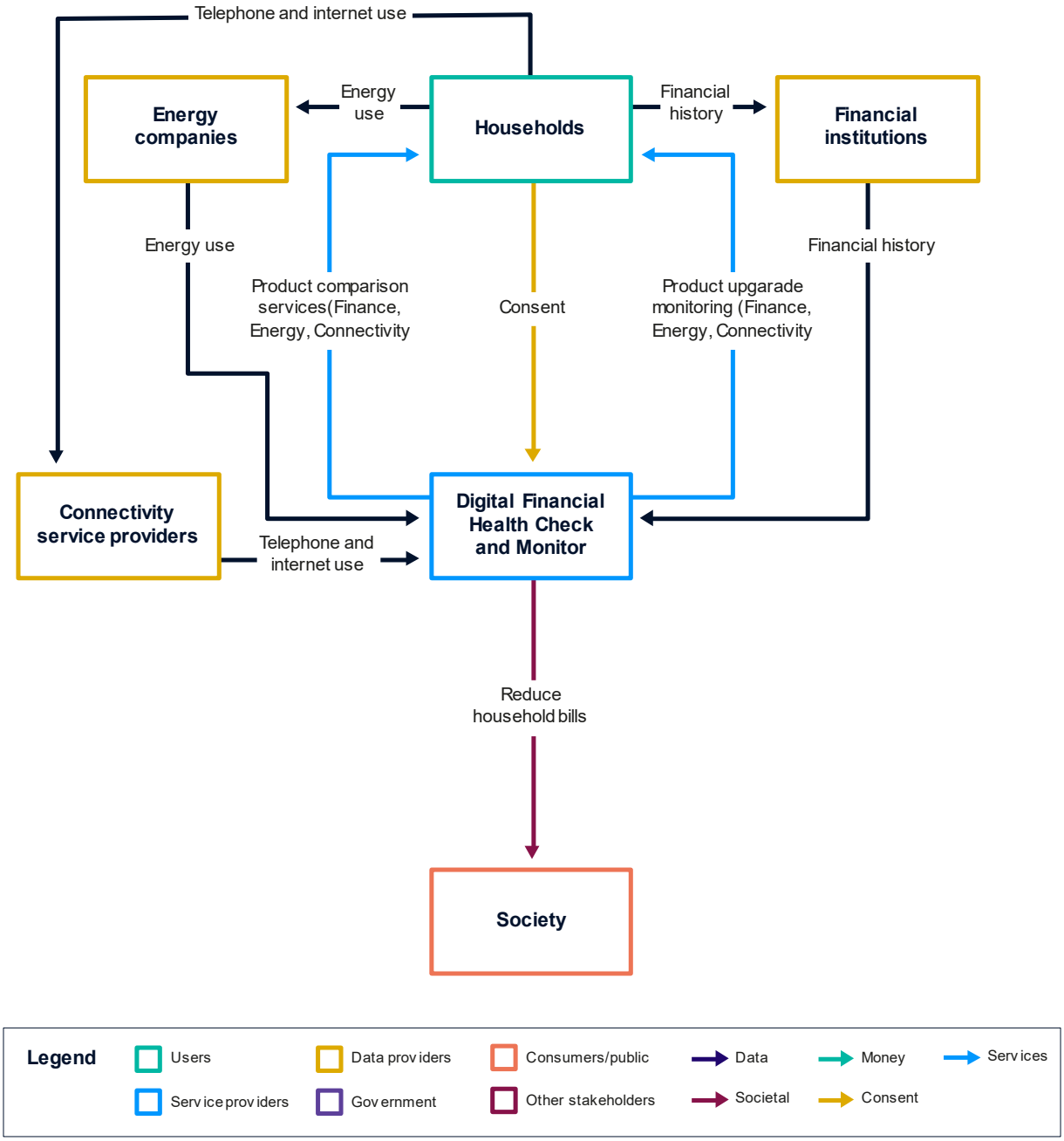
aspects like onward sharing and consent dashboard functionalities. A cross-sector consent dashboard would enable a user to conveniently manage all their permissions via a single app or website.

Attributes of the data most critical to the success of the use case

The critical attributes of the data for the success of this use case revolve around its accuracy, timeliness, and comprehensive market coverage, given the real-time nature of the service provided. A significant consideration is whether there should be a classification of different types of data, such as raw product data versus derived data, with the former being deemed essential. Moreover, the establishment of new standards should involve a diverse range of market participants to ensure inclusivity and interoperability, fostering customer familiarity and encouraging best practices. While enforcement may be necessary for use cases recommending a switch over to alternative providers, the overall goal is to establish consistent, interoperable systems across sectors to enhance user trust and streamline processes, particularly regarding consent. The entrant is currently concentrated on:

- fining a data model for the customer's product information for each Smart Data sector (include product info, dates, usage, cost, benefits, status) – they could need the assistance of industry experts for this
- development of the technologies required to provide the service. This includes the consent management engine, digital wallet, personal data vault, AI assistant and marketplace.
- engagement with potential customers:
    - How much is the existing product costing?
    - How are they using it?
    - What alternative products are available?
    - How does it compare existing solutions and alternatives?
- creating an evidence base of the potential benefits for consumers of using their products

Visualisation



Users give consent to Smarter Contracts to use their bank, energy and connectivity services information. Smarter Contracts' Digital Financial Health Check and Monitor can then give the user recommendations so the user can:

- compare products better
- upgrade the products they are using
- reduce household bills

Smartlayer.Ai Limited – Discovery Challenge winner

Summary

Decarbonising the UK's housing stock can be necessary for achieving emissions reduction targets. The costs of this transition, which can largely fall on the households, need to be kept as low as possible. But at present green products are difficult for many consumers to understand and householders are not rewarded for making greener choices. With rising mortgage arrears and £2.6 billion of household energy debt[23], households are facing a cost-of-living crisis, an energy crisis, and being asked to take on more debt to go green. Hence, green only works for more affluent householders.

This use case combines Open Banking, energy smart meter and property data to make green finance affordable for a much wider range of householders than at present. Energy, finance and insurance providers could have the opportunity to reduce costs to develop personalised, more affordable home finance products. Integrating Open Banking data could provide detailed insights on the unified costs and affordability of embedded green finance solutions, personalised over a 20- to 27-year mortgage lifecycle.

For householders, this provides an opportunity to better understand the true cost of home ownership, true levels of household income and debt and the health of the home.

The use case

The HomeHealth score combines data from Smart Meters, mortgages and consumer banking, insurance premiums and assessments, property reports and information on improvements and retrofits.

Lloyds Bank Group Data and AI team have developed a prototype HomeHealth Score that could be developed as a framework to provide a dynamic forward looking metric, adopted by all UK banks to enable fair rates.

This could provide householders with personalised dashboards showing unified cost and affordability insights, comparing energy usage with similar homes, and offering cost-effective and highly personalised home-upgrades via their mortgage providers.

[23] Ofgem explores options amid rising consumer debt (Ofgem)

Benefits

Consumer benefits

The service is estimated to be applicable for any homeowners, especially those who are cost constrained, those with homes with poor energy performance, landlords and the green conscious. The service could provide the following benefits for householders:

- reduced data complexity and costs to enable better personalised, more affordable home finance products
- embedded green finance solutions, personalised over 20- to 27-year mortgage lifecycle
- greater visibility into total cost of ownership, and personalised advice on how to reduce costs, tapping into an ecosystem of relevant suppliers.
- the benefits are anticipated to go beyond the targeted end users to the following users:
    - insurers – greater visibility into risks of an individual household
    - banks – greater visibility into their customer base, opportunity to access the huge retrofit lending opportunity with targeted products
    - house hunters – receive new insights into the comparative cost of running different homes they are looking at
    - regulators – greater visibility into progress of greening our UK homes (more detailed and real time than EPCs), and easier to measure the efforts for example of Banks in hitting compliance targets
    - brokers and estate agents

Wider economic and social benefits

Cost of living – By providing affordable financing solutions for sustainable investments, such as home energy improvements, this service helps lower household bills and mitigate financial strain, ultimately contributing to improved affordability for individuals facing the cost of living.

Net Zero – By supporting more households to invest in renewable energy, energy efficiency, and carbon reduction measures, this service amplifies the collective influence toward reducing carbon emissions and recommending the transition to a carbon-neutral economy.

Opportunities across the country – By providing opportunities for all households to participate in green finance initiatives, regardless of their socioeconomic status or geographic location, this service promotes economic growth and encourages inclusive growth across communities.

Supporting vulnerable consumers – By offering accessible financing for energy-efficient upgrades and renewable energy installations, this service helps vulnerable consumers lower their utility bills, enhance their living conditions, and contribute to a more sustainable future.

Data

Data requirements

The applicant requires:

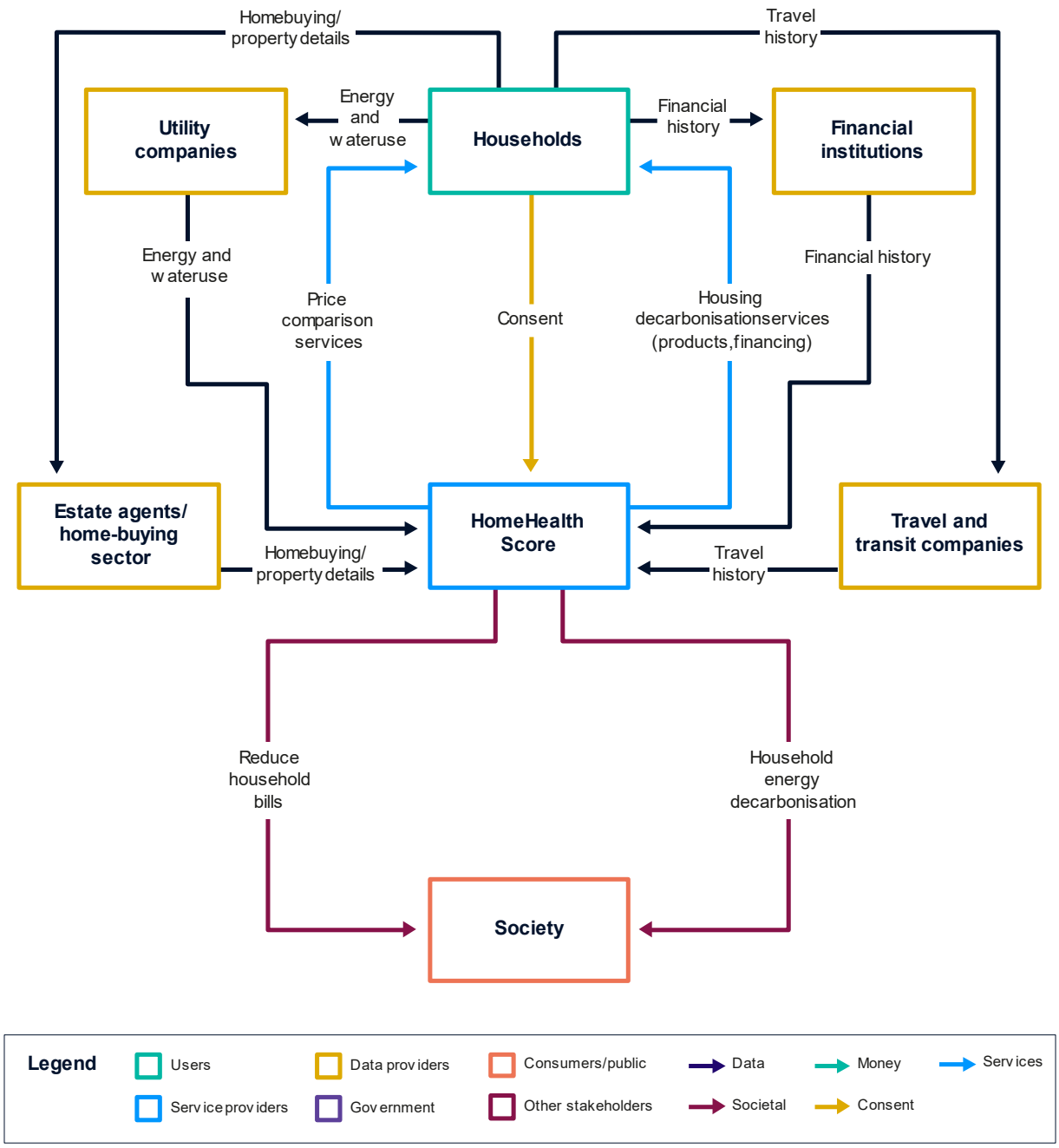
- smart meter data from the energy sector, including consumer consumption and carbon emissions – they might require this data to be granular enough that it can be tagged against Open Banking data
- mortgage and consumer banking data from the finance sector, as well as insurance premiums and assessments
- full property report datasets from the home buying sector, plus data on improvements and retrofits

Future considerations for this use case

Significant barriers to development

This use case may require very detailed data to be effective. For example, to determine the optimum energy efficiency upgrades for a specific property, one might need electricity consumption information for individual rooms and devices. Accessing consistent, data at this level of detail may not be feasible.

Visualisation



Users give consent to Smartlayer.AI to use their bank, energy, proper and transport services information. Smartlayer. AI's HomeHealth Score can then give the user recommendations so the user can:

- compare prices to reduce household bills
- find greener products to reduce household carbon footprint

Future Energy Associates

Summary

Future Energy Associates' use case links electric vehicle (EV) car ownership address data with energy data on tariff and consumption via consumers' smart meters to enable EV owners to make savings on their electricity consumption and give potential owners better insights into the cost of ownership and charging of an EV. Smart Data could enable Future Energy Associates to unlock data on who the existing electric vehicle owners are, who already has EV charging points, and what the energy vendor tariffs can be. This could essentially be a one-off service for domestic customers, in that it leads to a switch or installation, or not. Continued use of the service could be more relevant for infrastructure providers.

As fully electric vehicle ownership becomes more common in the UK, there appears to be a lack of understanding among consumers when it comes to who is offering domestic charging infrastructure, such as Pod Points, and the energy suppliers that offer electricity tariffs tailor-made for EV owners. EV owners currently charge their EVs at higher tariffs than necessary due to a lack of access to information about alternative energy tariffs with smart charging profiles. Through this offering, consumers can be better informed on their options for EV charging installation and payments, which in turn, could lead to an increase in EV uptake as costs are saved.

The use case

By linking the Driver and Vehicle Licensing Agency's (DVLA's) registry of EV car ownership by address and Distribution Network Operator data on charge point installations, with energy suppliers' records of customer tariffs and, where possible, their smart meter consumption, Future Energy Associates could seek to incentivise the uptake of new EVs, help shift their high electricity demand to periods of the night where demand is lowest, and reduce unnecessary expense for existing owners.

Through this combination of data, service providers could also gain a clearer understanding of which properties are capable of installing dedicated charging infrastructure that could otherwise not be aware they could do so, as well as those EV owners currently on expensive variable rate tariffs, and can target them specifically with combined offers of EV tariffs and charging infrastructure installation.

Benefits

Consumer benefits

The initial users of this service could be those with existing electric vehicle charging points (EVCPs) currently on standard variable tariffs, followed by EV owners without EVCPs, and then prospective EV owners.

End-user benefit is based on cost savings, such as how much they could save with an EVCP bundle[24] and EV tariff combined as opposed to getting both individually. Future Energy Associates

[24] Combining the cost of installing an electric vehicle charging point with the purchase of an electric vehicle

estimate energy savings of £36.50 per month per EV owner, which could equate to £10.25 million of savings per month based on 281,000 owners of EVs.

Wider economic and social benefits

Cost of living – This use case could help to reduce the cost of living by reducing long-term transportation expenses, through cheaper fuel and maintenance costs associated with electric vehicles. By enabling households to switch to electric vehicles and potentially lower their overall transportation costs, this service can alleviate financial strain and contribute to improving affordability for residents.

Net Zero – This use case also helps to reach Net Zero by accelerating the adoption of electric vehicles, thereby reducing emissions from transportation. By making it easier for households to transition to electric vehicles through accessible charging infrastructure, this service could play a pivotal role in decarbonising the transportation sector. Furthermore, it could help to decrease the burden on electricity demands over the next 10 years, due to more efficient charging.

Data

Data requirements

All of the Smart Data could be data from the energy, transport and home buying sector.

From the transport sector they could need DVLA EV registration addresses and the registry for vehicle ownership.

From the energy sector, they could need Distribution Network Operator (DNO) Energy Networks Association application details (just one DNO could provide proof of concept but having all could maximise cross-coverage with the DVLA). They could need energy vendor tariff details from the property Meter Point Administration Numbers. They could also need Smart Meter data on household energy consumption.

From the home sector, they could need details on property build and existing energy performance certificates, heat pumps, solar panels and energy storage.

For all of the data they require up-to-date information updated on a monthly basis

Future considerations for this use case

Significant barriers to development

The entrant has highlighted they need a better understanding of property level data to identify those with a high likelihood of installation, so greater support is needed for this.

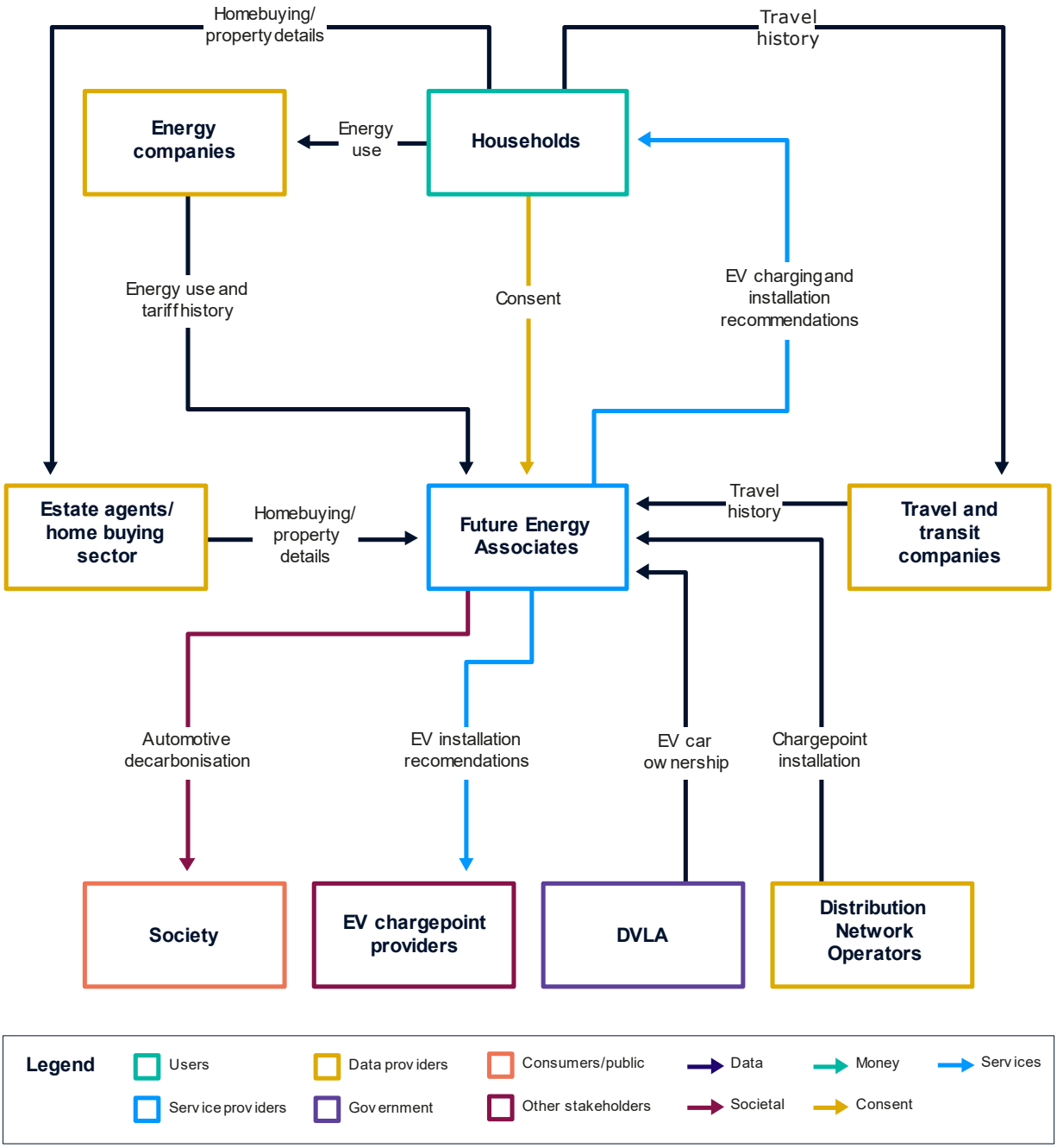
They have concerns that consumers may be sceptical and need smooth consent mechanisms and careful management of communication to ensure they trust the service. They can also need to make the benefits clear and more tangible, to convince consumers to see the value in sharing their data with third parties.

There is also variety in the usage and mileage needed per household for electric vehicles, so it may be challenging to demonstrate and quantify a broad cost saving over multiple stakeholders.

Additional support for this entrant

The applicant may benefit from support in exploring how the use case can provide short-term value to end users to encourage data sharing. They also need support to discuss the platform business approach and alternative use cases. Finally, they may need support to evaluate the consent management and how to address complexities in the implementation.

Visualisation



Users give consent to Future Energy Associates to use their energy property and electric vehicle (EV) use information. Future Energy Associates can then provide recommendations to:

- users, for improved electric vehicle charging and installation
- electric vehicle charge points providers, on regional electric vehicle charge point installation

Data Catalyst Limited

Summary

Small and medium enterprises (SMEs) often need to report on their environmental, social, and corporate governance (ESG) metrics due to regulation requirements from corporate customers and partners, such as the EU product passport or UK Climate-Related Financial Disclosure initiatives. Many SMEs have the data required for such reporting, but sometimes are not aware they do, and often cannot find or access it.

The proposed use case is to create the Smart ESG service, which obtains data from the finance, energy, transport and property sector services that SMEs already use to provide them with a fuller understanding of their business and its influence in real time across all 3 pillars of ESG reporting. This could enable ESG reporting at a fraction of the cost of time-consuming manual processes, is more accurate and up-to-date, and less susceptible to greenwashing than alternative approaches.

Smart Data could support the development of this use case by improving accessibility of finance, energy, transport and property sector data. This could allow SMEs to complete their ESG reporting faster and support them to achieve their own Net Zero ambitions and the ambitions of their supply chain and regional partners.

The use case

To produce detailed ESG metrics, Smart ESG combines:

- Smart Data from Open Banking, credit transactions, energy usage, employee travel, and business premises energy certification
- SME data from business management software such as accounting, human resources (HR), enterprise risk management (ERM), and enterprise resource planning (ERP) packages and
- public record data and open data sources

These are then mapped by the Smart ESG Graph API (an API that models the data in terms of objects and relationships and allows the client to interact with multiple nodes in a single request) to internationally-recognised reporting standards such as the International Financial Reporting Standards (IFRS) or the Sustainability Accounting Standards Board (SASB), allowing SMEs to analyse and report their sustainability in formats already used by larger enterprises and governments.

An extended use case for Smart ESG for SMEs could include:

- educational content, tailored by generative AI to an SME's precise metrics
- secure onward sharing of data
- better reporting
- and a marketplace of relevant products and services, from heat-pump installation to ESG consultancy

Benefits

Consumer benefits

The target customers are SMEs that are listed on public stock exchanges who therefore have obligations to report their ESG scores, and SMEs who provide services to large corporates with obligations to report ESG scores along their entire supply chain. A secondary market could include consultants that could help smart ESG services to support SME reporting.

The significant proposition for the SME is real-time, reusable data across various reporting and strategy needs. This enables reporting at a fraction of the cost of time-consuming manual processes, and that it is more accurate, up-to-date, and less susceptible to greenwashing than subjective questionnaire-based approaches.

The use case could be extended to also include tracking end-to-end product life cycles and if the production and distribution of products are contributing to a circular economy. Additional services from an extended use case could also expand to stakeholders beyond SMEs, such as large corporates, investors, banks, and insurers that are reliant on SMEs in their value chain and need to understand and report on their ES metrics.

Data Catalyst estimates that the annual cost and employee time savings for the UK are 2.25 million to 22.5 million labour hours in the UK, providing a financial benefit to the economy of £49 to £450 million. This is based on an estimated 250,000 SMEs in the UK and a potential savings of £200 to £2000, per SME, per report.[25]

Wider economic and social benefits

Net Zero – Smart ESG provides SMEs with greater awareness and understanding of their environmental influence, so they can implement targeted strategies to reduce emissions and align their operations with Net Zero ambitions, thus contributing to broader sustainability initiatives.

Encouraging small businesses to thrive – Smart ESG supports small businesses to demonstrate their commitment to sustainability and responsible business practices, enhancing their reputation and attractiveness to investors, customers, and stakeholders. This service could enable small businesses to differentiate themselves in the market, drive innovation, and create long-term value, ultimately fostering their growth and success.

Supporting ethical businesses and supply chains – UK SMEs who are early adopters of ESG reporting are primarily driven by customer demand for ethically produced and sourced goods and services, and by demand from their employees, who increasingly want to work for an employer whose values align with theirs.

[25] Figures based on Data Catalyst's own estimates

Data

Data requirements

This use case concentrates on access to data held in the finance, energy, transport and property sectors. Data should be ideally accessed via APIs with interoperability across providers, time-stamped and traceable, and have strong classification systems across sectors.

The core data requirements are:

- financial services data – financial history data such as account transactions and credit checks
- energy data – half-hourly smart meter data, business energy consumption data
- transportation data – data on use of public transport and private vehicles
- business and operations data – legal and courts data, such as fines and tariffs, wage data, diversity data, and other data from accounting, HR, ERM and ERP systems, location data where operations are happening
- property sector data – commercial property data, property transaction history, energy performance certificates
- ESG reporting standards

The extended data requirements are:

- detailed commute data from transport providers
- product supply chain data
- renewable energy market data
- court judgements against companies (for example, environmental penalties, other fines)
- SME market data held by national statistics offices

Future considerations for this use case

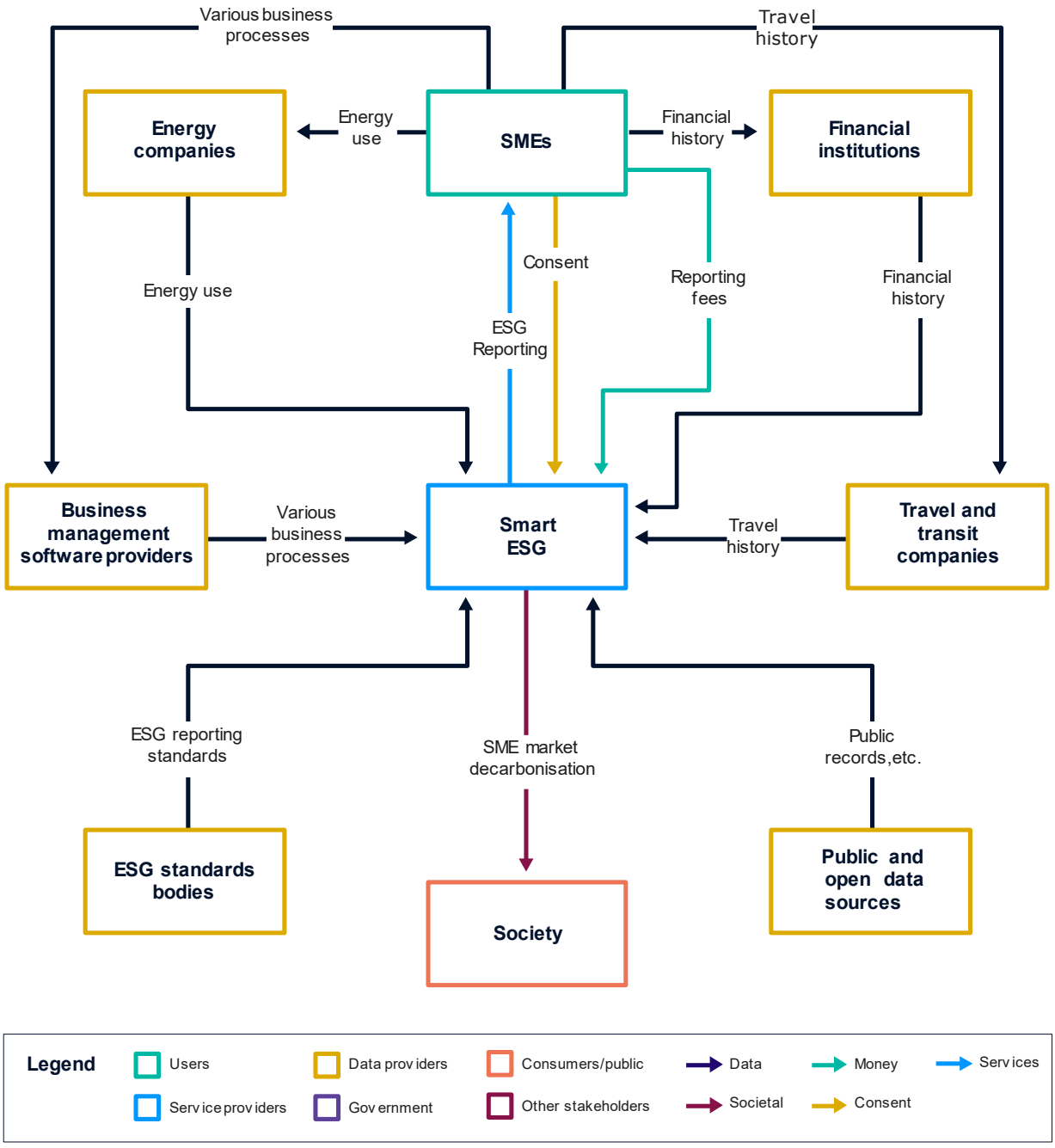
Significant barriers to development

The biggest challenges facing the use case include the adoption of data standards, such as:

- consistent data structures and characteristics, such as schemas and identifiers
- consistent digital taxonomies and ontologies
- interoperability of the data captured in sustainability frameworks and data made accessible through Smart Data Schemes

In addition, for consumers to trust the services that could be provided through this Smart Data scheme, they need clarity on authorisation, permissions and process.

Visualisation



Small and medium enterprise users give consent to Data Catalyst to use their bank, energy, transport and other business process information. Data Catalyst can then use their Smart ESG platform to provide small and medium enterprises their Environmental, Social and Governance reporting.

Hexapower Limited

Summary

Hexapower proposes to use energy consumption data, financial data on creditworthiness, mortgage data and estimates of insurance premia and building data property data, to help consumers find the best way for them to become 'prosumers' in the energy market. This means that instead of only consuming energy from the energy system, they can self-generate, store, consume, and participate in flexibility or energy efficiency schemes.

More and more people and businesses are transitioning from being passive consumers and users of a centralised one-directional electricity system, to becoming users and producers of energy, through the generation of renewable energy, known by Hexapower as 'prosumers'. These users self-generate, store, consume, and participate in flexibility or energy efficiency schemes.

The transition from being a consumer to a prosumer, however, is both costly and takes time, leading to a slower overall transition to Net Zero goals. The use of cross-sector data, in particular energy consumption information, property information, flexibility markets and finance information, could lead to a speedier transition that is cost-effective and efficient.

The use case

Using energy, financial (creditworthiness and estimates of insurance premium), and building data, Hexapower is in the process of developing AI systems that could help consumers find the best way for them to become prosumers.

Unlike the current model that encourages users to optimise against their own energy usage and to co-locate various decarbonisation assets (an expensive option), this system could choose the best decarbonisation technology based on the export profile of a nearby premise with generation assets and vice versa.

Benefits

Consumer benefits

Hexapower's use case should result in cheaper, faster, and more efficient ways for consumers to reduce their carbon footprint and energy costs, by enabling them to view the costs and potential savings from investing in renewable energy in one place, encouraging more informed decisions.

The use case is applicable to both commercial and domestic users, including all people interested in becoming prosumers. This use case could also make decarbonisation more accessible to lower income households or businesses.

Hexapower suggests that the total savings offered to consumers from its approach could be up to 50% of the installation costs. In turn, an increased and faster uptake of renewable technologies should result in a faster reduction in carbon emissions.

There are also proposed benefits for installers and energy consultants, who can have the ability to make better, data-driven, and informed recommendations to their clients on what technology to install and how to reduce their energy costs. Finance providers should have the ability to better understand which decarbonisation assets are suited to a specific customer profile, and what is the

best way for them to structure a financing solution. In addition, National Grid and electricity distribution companies should have a better ability to manage the system and use the flexibility created effectively.

Wider economic and social benefits

Net Zero – To help reach Net Zero, the use case could lead to a higher rollout of renewable assets due to total wider system integration, and lead to potential development of microgrids[26], if wider system information can be shared. This could help to decentralise energy production and promote sustainable practices.

Cost of living – To help reduce the cost of living, the use case helps to reduce dependency on traditional energy suppliers and lower utility bills. By promoting self-sufficiency and efficiency in energy usage, this service offers financial relief to households and businesses, contributing to overall affordability and economic stability.

Encouraging small businesses to thrive – The use case also encourages small businesses to thrive by encouraging them to minimise operational costs and enhance sustainability practices. By enabling greater control over energy usage and potentially reducing reliance on traditional suppliers, small businesses could allocate resources more strategically, bolstering their resilience and fostering growth opportunities in an increasingly competitive landscape.

Data

Data requirements

From the energy sector they could need energy consumption data at an area level, including Distribution Network Operator (DNO) connection costs and limitations, tariff costs in areas over time and collocation of other sites that could share assets. They also need consumption data at a household level.

From the housing sector they need land registry data and geospatial roof spaces.

From the finance sector they need financial profiles and credit scores, banking and mortgage data, and insurance data.

Future considerations for this use case

Significant barriers to development

As this use case requires data from a number of data holders, it is essential that it is straightforward for consumers to provide consent to share their data, and for them to understand who is using their data and why.

[26] Definition of a microgrid: https://en.wikipedia.org/wiki/Microgrid

Stakeholder engagement (organisations or contacts mentioned)

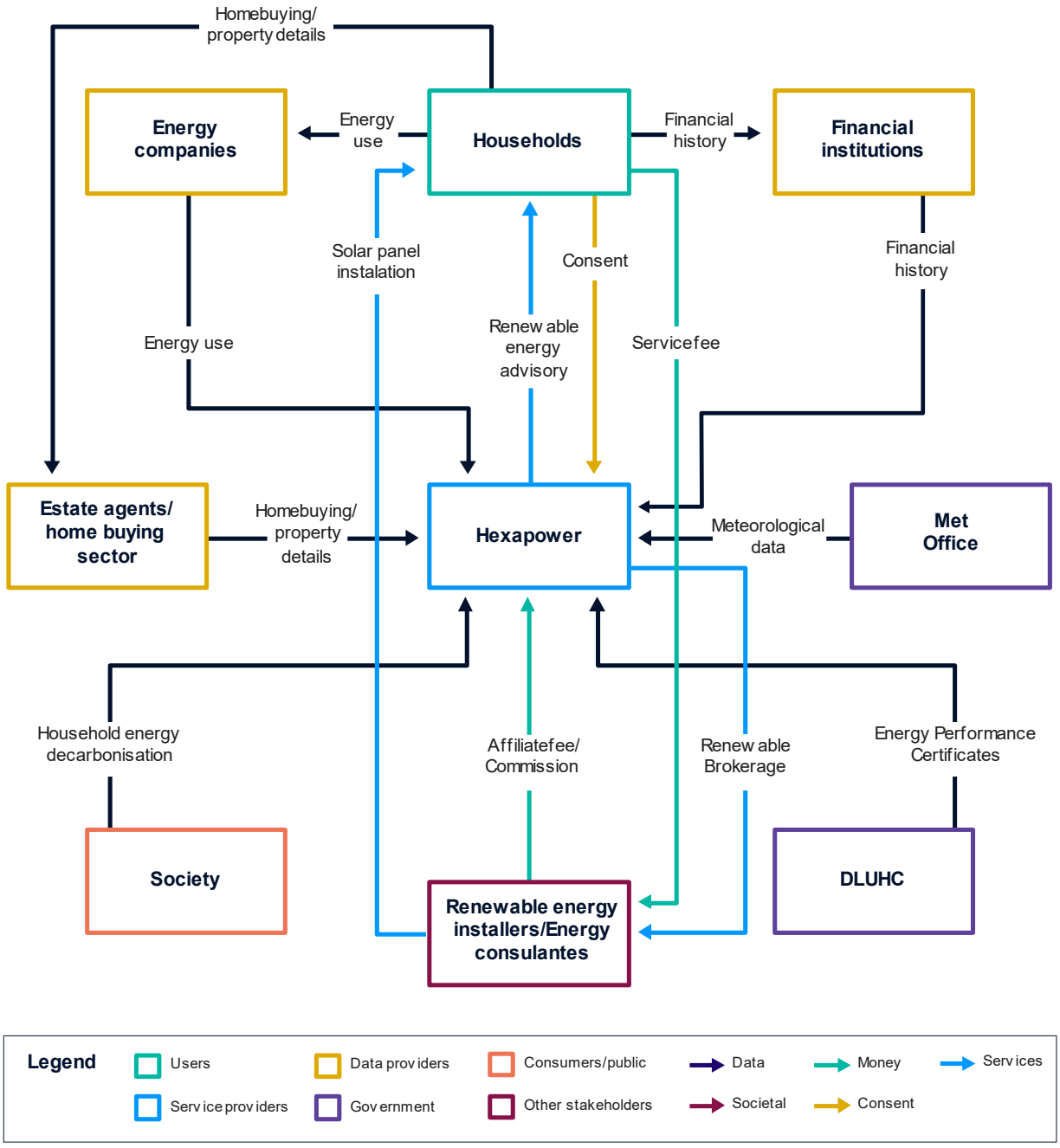
Hexapower could benefit from working with small businesses seeking a decarbonisation strategy, or exploring partnerships with entities involved in financial data to enhance their economic model. They could also be interested in further discussions with experts in meteorological, network congestion, and built environment data.

Additional support for this entrant

Hexapower could benefit from support in clarifying how the end user, including residential and small business consumers, can actively engage and benefit from the proposed model.

They could also benefit from exploration of potential closer working with credit, affordability, and risk rating sectors to enhance the overall economic model.

Visualisation



Users give consent to Hexapower Limited to use their bank, energy and property information. Hexapower Limited can then give the user recommendations on installing renewable energy technologies in their households

Mastercard Europe Services Limited

Summary

Small and microbusinesses typically have limited personnel, budgets, and resources – particularly relating to digital technology. Recent challenges for small businesses have been particularly intense, resulting in many downsizings or ceasing their operations in recent years. Small businesses face challenges in negotiating good deals from suppliers, managing their carbon footprint and achieving growth and resilience.

Get clever could provide SMEs with access to a Smart Data Hub, combining Smart Data from small and microbusinesses and Mastercard's proprietary transactional spend data, tailored to the individual business, to help them to:

- understand and actively manage their expenditure and carbon footprint
- understand and effectively target, engage and retain customers in their specific local environment
- access the finance they can prove they need and can prove they can afford

Smart Data could support the development of this use case by improving accessibility of financial, utilities and connectivity services data, allowing SMEs to pool data into a hub to improve financial and environmental decision making.

The use case

Mastercard proposes to build a data and analytics platform, Get Clever, designed to support small and microbusinesses manage costs, grow revenue and reduce their carbon footprint. They propose to do this by:

- building a platform that can plug into the existing Open Banking scheme and proposed Smart Data schemes, including finance, energy and connectivity services such as telephone and internet. This platform can then ingest and analyse spend and use data to help small businesses manage costs better
- making proprietary data about card transactions in the local area, collected by Mastercard, available to the platform to help inform small business sales strategies by understanding local purchasing patterns
- creating a carbon calculation application within the platform that analyses spend and use data to provide emissions benchmarks and carbon reduction recommendations

Benefits

Consumer benefits

The target customers are small and microbusinesses, concentrating initially on the approximately 250,000 (around 5% of UK SMEs)[27] that have a physical presence.

The use case aims to improve financial and environmental sustainability by enabling small businesses to:

- better understand and actively manage their expenditure and carbon footprint
- better understand and effectively target, engage and retain customers in their specific local environment
- access the finance they can prove they need and can prove they can afford
- negotiate better deals from suppliers

Wider economic and social benefits

Net Zero – Small and microbusinesses often struggle to take meaningful steps to reduce their carbon footprint and make customers aware of what actions they are taking. Get Clever could provide these businesses with their carbon score based on their expenditures, helping them to design effective energy and waste reduction plans, and to publicise this information with customers as a point of differentiation from bigger retailers.

Helping communities – enable small and microbusinesses to thrive on the high street alongside larger retailers contributes to the health of the local communities and neighbourhoods that support them and that they support.

Data

Data requirements

The Get Clever 'Smart Data Hub' could require strong data infrastructure to give benefits to customers, including data availability via API, consent and authorisation mechanisms and cross-sector interoperability. It has a set of core data requirements to provide the proposed service, with additional functionality proposed in future through extended data requirements.

Core data requirements are:

- financial services data – financial history data such as account transactions
- utilities data – Half-hourly smart meter energy data, water consumption data
- retail data – Mastercard proprietary transaction data
- connectivity services data – telephone and internet use data
- basic business data such as number of employees, geographic location, and Companies House registration

[27] According to the UK FSB.

- carbon scoring relies on data sets and algorithms from Doconomy, a company that estimates the CO_2e (carbon dioxide equivalent) influence of financial transactions

Extended data requirements are:

- transportation data – data on use of public transport and private vehicles
- social media data
- official statistics and government data – demographic data, business rates, small business grant data

The use case can use the following proprietary assets:

- Mastercard's carbon calculator – assesses card and bank spend data to derive the carbon score of a small and microbusiness expenditures
- Mastercard's secure network connectivity – links to banks, utilities, telecoms and other data suppliers to bring Smart Data into the Get Clever hub

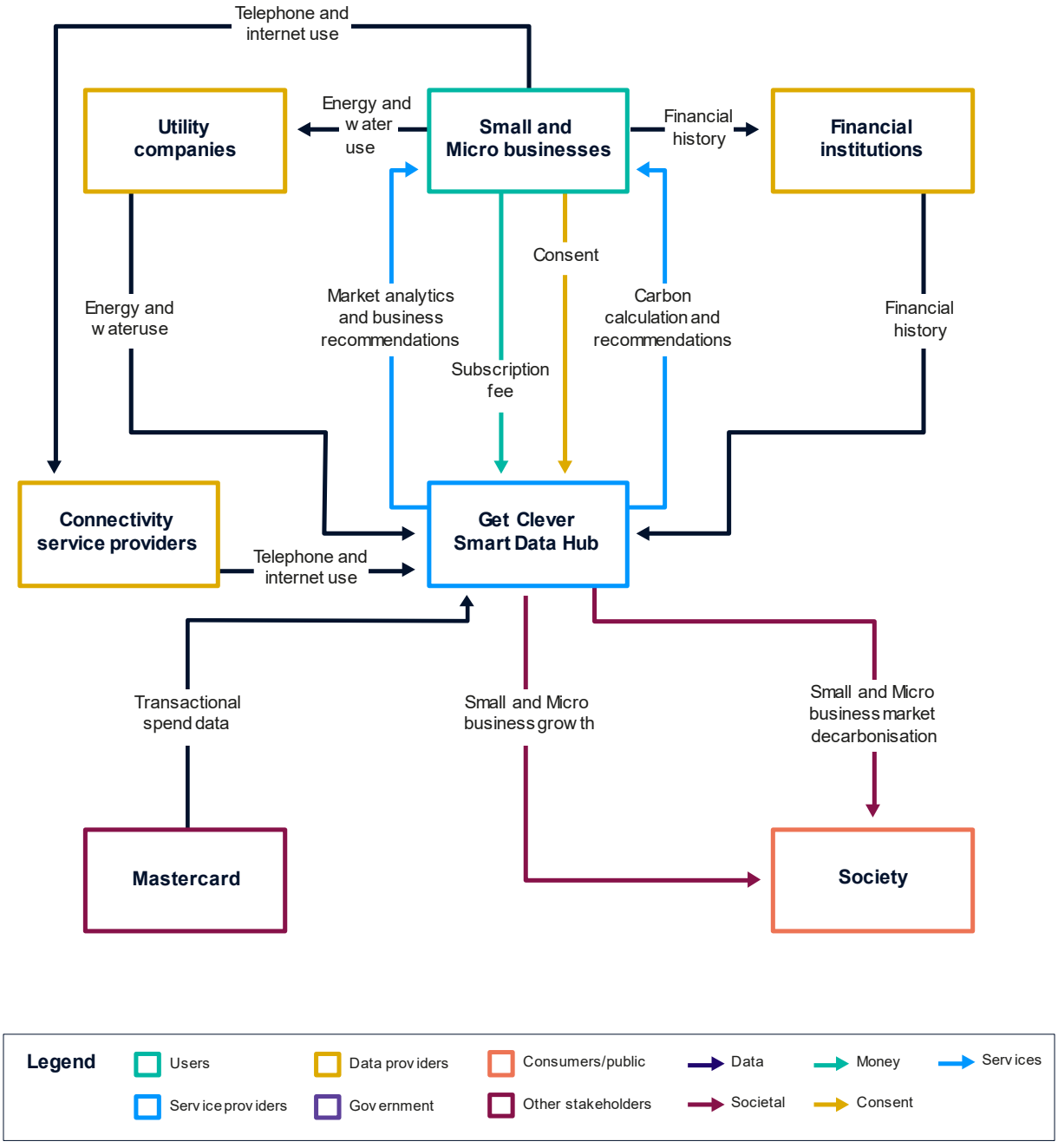
Future considerations for this use case

Significant barriers to development

The biggest challenges facing the use case includes access to telecoms, utilities and other sector data in a way which is standardised and consented. Succeeding in this may require Smart Data policy mandates in multiple sectors to make data accessible.

The solution proposes small and micro businesses already paying the expenses to run a physical store to pay a fee to access the platform for insights and recommendations. There can likely need to be some pilots or market research to show that financial gains from reduced bills and increased revenues outweighs the platform access costs.

Visualisation



Small and micro business users give consent to Mastercard to use their bank, energy, water and connectivity services information. Mastercard can then use their 'Get Clever' Smart Data Hub to provide:

- market analytics based on the Mastercard spend data in the area
- recommendations to improve sales and lower costs
- a carbon calculation and reduction service

Moverly LTD

Summary

Moverly proposes a simplified, automated platform for managing property data alongside financial data, to connect estate agents, buyers, sellers and banks with relevant information to make informed purchasing, affordability and lending decisions. Connecting and sharing trusted data between conveyancers and financial services supports closer working, simplifies fund checks and money transfers, making transactions easier.

Home buyers and sellers often lack clear, accessible information about properties, and the conveyancing process is typically unnecessarily complicated and time-consuming.

Property transactions are complex, and multiple participants are currently siloed. Banks and lenders require reliable, trustworthy data as the basis for property lending decisions. For estate agents, there is a high administrative burden in collecting data and managing listings.

This strategic use of Smart Property Data creates more efficient, transparent, and compliant property transactions. The customer experience could also improve for example with reusable identifiers reducing the need to input the same information in different systems.

As the process becomes more straightforward, the number of people buying and selling could also increase.

The use case

Moverly is part of the Property Data Trust Framework (PDTF), a government and His Majesty's Land Registry (HMLR) endorsed initiative to enable effective data sharing across the real estate industry, encompassing estate agents, banks, surveyors, and conveyancers.

Their platform can collate and process data from a variety of sources, including consumer banking, estate agents, conveyancers, Limited Liability Company (LLC) information, property searches, leasehold information, management packs and planning applications.

This creates a unified digital data source made available to authorised participants in a property transaction including sellers, buyers, estate agents, banks, conveyancers, surveyors.

Benefits

Consumer benefits

The beneficiaries of this use case could be estate agents and home sellers, consumers (home buyers) and lawyers, banks and other service providers.

HMLR's Strategy for 2022[28] reports that more than a quarter of all property transactions in England and Wales do not complete, at an estimated total financial loss of around £400 million. Many fail

[28] HMLR_Strategy_2022+.pdf

due to inefficiencies in the process. Sharing trusted data more effectively between participants will lead to greater efficiency and result in fewer failed transactions and more home moves.

Home movers could be able to move with more certainty, reducing the average time to move from 5 to 6 months to a matter of weeks. This could reduce anxiety for consumers and others involved in the property transaction process.

Additionally, enhanced transparency and reduced risk of fraud could foster greater confidence in the housing market, potentially stabilising or even lowering property prices over time.

More successful transactions could also lead to increased revenues for professions involved in the process, such as estate agents, banks, lawyers or surveyors.

Wider economic and social benefits

Cost of living – this use case could alleviate the cost of living by reducing transaction times and associated costs, enabling individuals to move more efficiently and affordably. However, it should be noted that these benefits are limited to those engaging in the Home Buying process, which for most people happens only on a few occasions. The platform may offer benefits for those engaging in the rental and lettings process, but this has yet to be explored.

Opportunities across the country – this use case could contribute by promoting more equitable access to housing opportunities across regions. By reducing transaction barriers and improving efficiency, it can encourage investment and development in areas outside of traditional hotspots, fostering economic growth and social mobility throughout the country.

Encouraging small businesses to thrive – a high proportion of the organisations involved in the home buying process are SMEs.

Data

Data requirements

This use case requires access to finance data and property data from various sources. Property data should be as granular as possible and ideally accessible in real-time.

The data needs to be accessible to all authorised parties participating in a transaction. (such as banks, lawyers and intermediaries) and its provenance (source, timestamp) clearly recorded.

The core data requirements include:

- consumer banking (such as fund checks and money transfers, mortgage offers, insurance)
- property details, sales particulars
- property agent data (for example estate agents and conveyancers)
- limited liability company (LLC) information
- property searches
- leasehold information and management packs
- planning applications

Future considerations for this use case

Significant barriers to development

In a transaction, information about the property and the participants is contributed, accessed and used by a wide range of different groups. Moving to a digital solution, it is vital to ensure appropriate access to all potential participants. The proposed solution is to create one central source of truth and to provide managed access to all parties.

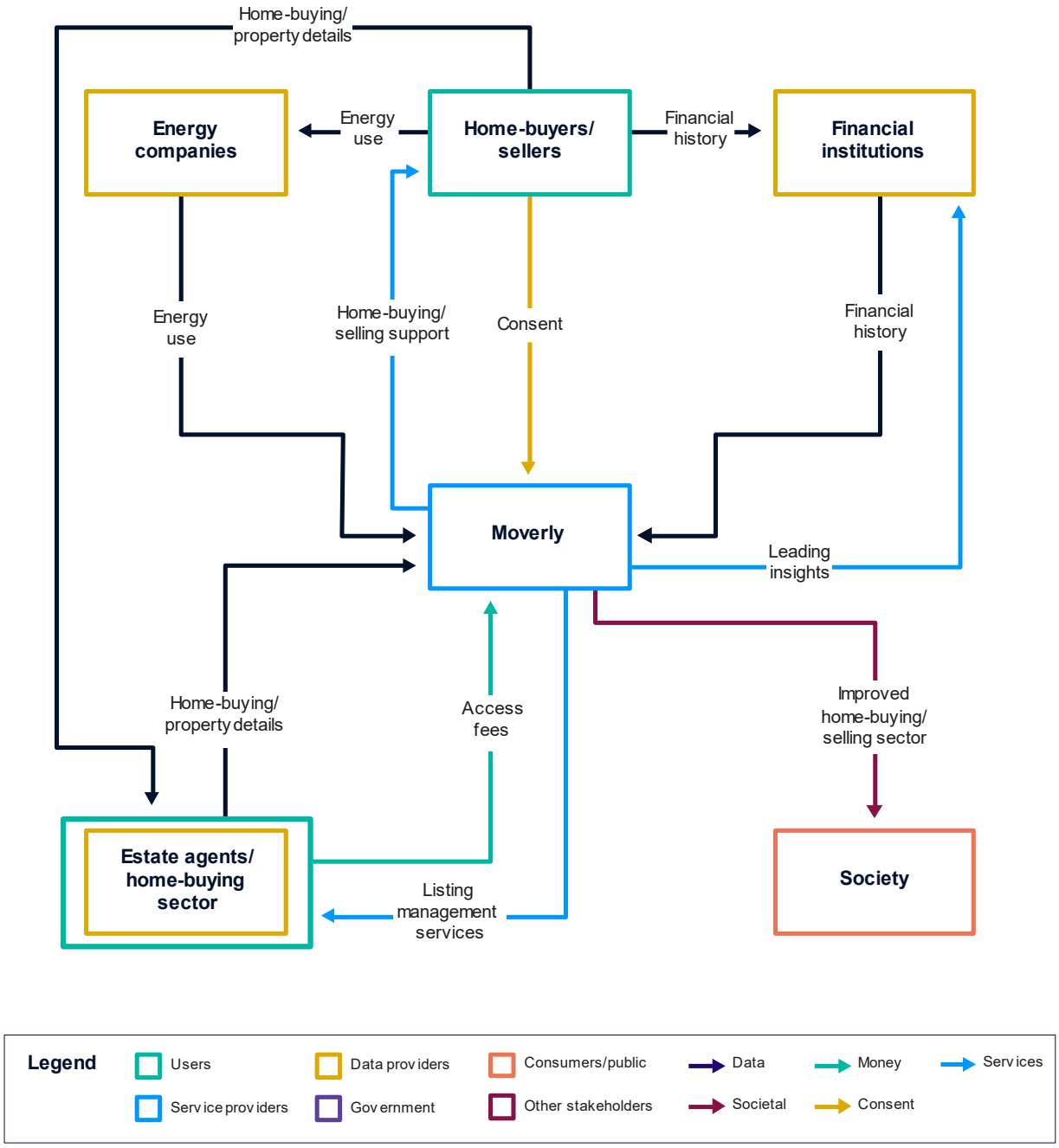
Ensuring data is trustworthy is significant to the success of the use case idea. The main issue is for the data user (as a prop tech, agent, bank, lawyer) to know that the data they are relying on is both up to date and reliable. As in Open Banking, a shared trust framework is required, which could be provided by the Property Data Trust Framework (PDTF).[29] This use case proposes one central data source for all to trust, an idea which has central support and backing from government and regulators. Over time, all participants can be encouraged to adopt and trust the data provided which is significant to transforming the homebuying process.

This would require centralisation and mandating of standards. Closer working and interoperability are fundamental, and it is hard to see a future where this will happen without mandating. The danger of not mandating is that private companies create their own solutions, which become the barriers to future alignment and trust.

The significant challenge is defining a common data standard to ensure a centralised repository of trusted property data can interoperate across various systems. The Property Data Trust Framework provides for this, but further work is required.

[29] Explanation of the Property Data Trust Framework

Visualisation



Users give consent to Moverly to use their bank, energy, home-buying and property information. Moverly can then provide:

- the user recommendations to improve the financial outcomes of their home-buying or home-selling experience
- listing management services to estate agents and the wider sector
- lending insights to banks

Open Property Data Association

Summary

The Open Property Data Association (OPDA) suggests bringing together data from across the property ecosystem to create a fully digital property pack for property transactions. This would enable a property owner to access all the data they need to know and understand about their own property to create a better, more informed, transparent property purchase process for buyers and their service providers, for example mortgage brokers and lenders.

The homebuying process takes 22 weeks on average and is the third most stressful life event for consumers with high failure rates, unexpected costs, fraud, and poor customer experience. The lack of access to real-time, digital, and verified personal and property data is a significant contributor to inefficiency in the home buying process. Each government department and industry participant (estate agents, mortgage intermediaries, mortgage lenders, surveyors, and conveyancers) needs to rely on their own compliance, data gathering and manual checks to complete their part of the transaction. For customers, this creates a lack of transparency, control and confidence.

Smart Data, with verified history of ownership and audited changes, would enable trust between participants in the home buying process, reducing the reliance on static, single use data checks. Using data and standards in this way can solve the lack of infrastructure across the whole ecosystem, meeting the high regulatory standards required by lenders and property lawyers, and making the home buying experience fit for purpose for customers, government, and industry.

The use case

A digital property pack would be created and updated by authorised third parties across the property, energy and utilities, banking and finance sectors, working to a common data standard and trust framework.[30]

Priority data required to maximise influence in transforming homebuying includes: the property address and Unique Property Reference Number (UPRN), titles and deeds, history of ownership, leasehold and ground rent, the results of Local Authority searches, utilities, water and sewerage, Energy Performance Certificate (EPC), and additional property data relevant to insurers and mortgage lenders.

This would allow verified buyer, seller and property data to be sourced and shared with trust across the end-to-end home buying and mortgage transaction, improving efficiency, transparency and trust and transforming the customer experience.

Possible extensions to the use case could include property lifecycle data (for example, energy efficiency upgrades, inspections and certificates), links to other sources (for example, smart meters) and digital identity and financial data (for example, personalised affordability reviews, mortgage offers, anti-money laundering, tax compliance).

---

[30] Explanation of the Property Data Trust Framework

Benefits

Consumer benefits

Anyone engaging in the home buying process could benefit from this use case – sellers, buyers, estate agents, mortgage intermediaries, lenders, valuation services, conveyancing, His Majesty's Land Registry (HMLR) and other government bodies, local authorities, Proptech companies and software providers, and beyond. The implementation of Smart Data solutions in the homebuying and mortgage industry offers numerous benefits, including:

- reduced transaction times
- enhanced trust through increased transparency
- decreased risk of fraud
- fewer aborted transactions
- more informed decision making through insights for buyers on the costs associated with buying and living in their home, and more transparency on the condition of a property
- operational efficiencies are achieved across various industry sectors, accompanied by reduced costs for both industry and government in providing property data.

The OPDA estimates that buyers' access to Smart Data on the seller and the property before making an offer can reduce failed transactions by c.16%, reduce the stress experienced by 85% of customers associated with buying a home, and save millions in lost consumer costs. They estimate that 4 million working days are wasted every year by Estate Agents and conveyancers on failed transactions.[31] Total cost savings across stakeholders estimated at £231 million per year.

Wider economic and social benefits

Encouraging small businesses to thrive – A high proportion of organisations in the homebuying sector are SMEs. By implementing a system of sharing data that is open and accessible to all, this use case could reduce the prevalence of closed systems that impose disproportionately higher costs on smaller businesses. This creates a more level playing field for SMEs to innovate and provide their core services.

Technological Innovation and Digital Transformation – the use case can support government initiatives aimed at fostering technological innovation and digital transformation within the property sector, enhancing overall efficiency and competitiveness. Examples include HMLR's stated objective[32] to support the development of a simpler, paperless, transparent and user-friendly process for buying and selling property.

Net Zero – Potential extensions of the use case, such as the inclusion of lifecycle, retrofit and smart meter data into the digital property pack, could create an opportunity for owners to engage with Smart Data around consumption, energy efficiency and carbon emissions.

---

[31] committees.parliament.uk/writtenevidence/129590/html/

[32] HMLR_Strategy_2022+.pdf

Data

Data requirements

The data included in a digital property pack could span a number of sectors and sources. This could be completed in stages, for example starting with title, deeds, searches, ground rent, energy consumption, EPC, which would be the areas that have the most influence.

Core data requirements include:

- Local Authority searches – planning, conservation data, environmental searches
- basic property data – property titles and deeds, property address and UPRN, leasehold and ground rent
- additional property data – building safety regulations, installation and servicing certificates, utilities, broadband, water and sewerage, home insurance, mortgage offers.
- information to identify and verify all parties in the transaction
- energy consumption data – EPC data

A few of the datasets required are held by public bodies, for example, HMLR. This core data could be extended to include property lifecycle data, for example, changes in consumption, improvements to energy efficiency.

Further work is required to develop secure ways to link the digital identities of transaction participants, to the property and other data sources – UPRN, title number, unique transaction ID, unique meter references, and so on.

Future considerations for this use case

Significant barriers to development

As a transformational cross-sectoral use case, there are significant challenges to be addressed. The homebuying and mortgage industry is intricate, involving numerous participants each with their own regulatory frameworks, closed ecosystems and siloed data models.

Past attempts to enhance the homebuying process have been unsuccessful, fostering cynicism and resistance to change. Industry inertia is high due to established practices still being functional, and customers lack awareness of better alternatives supported by Smart Data.

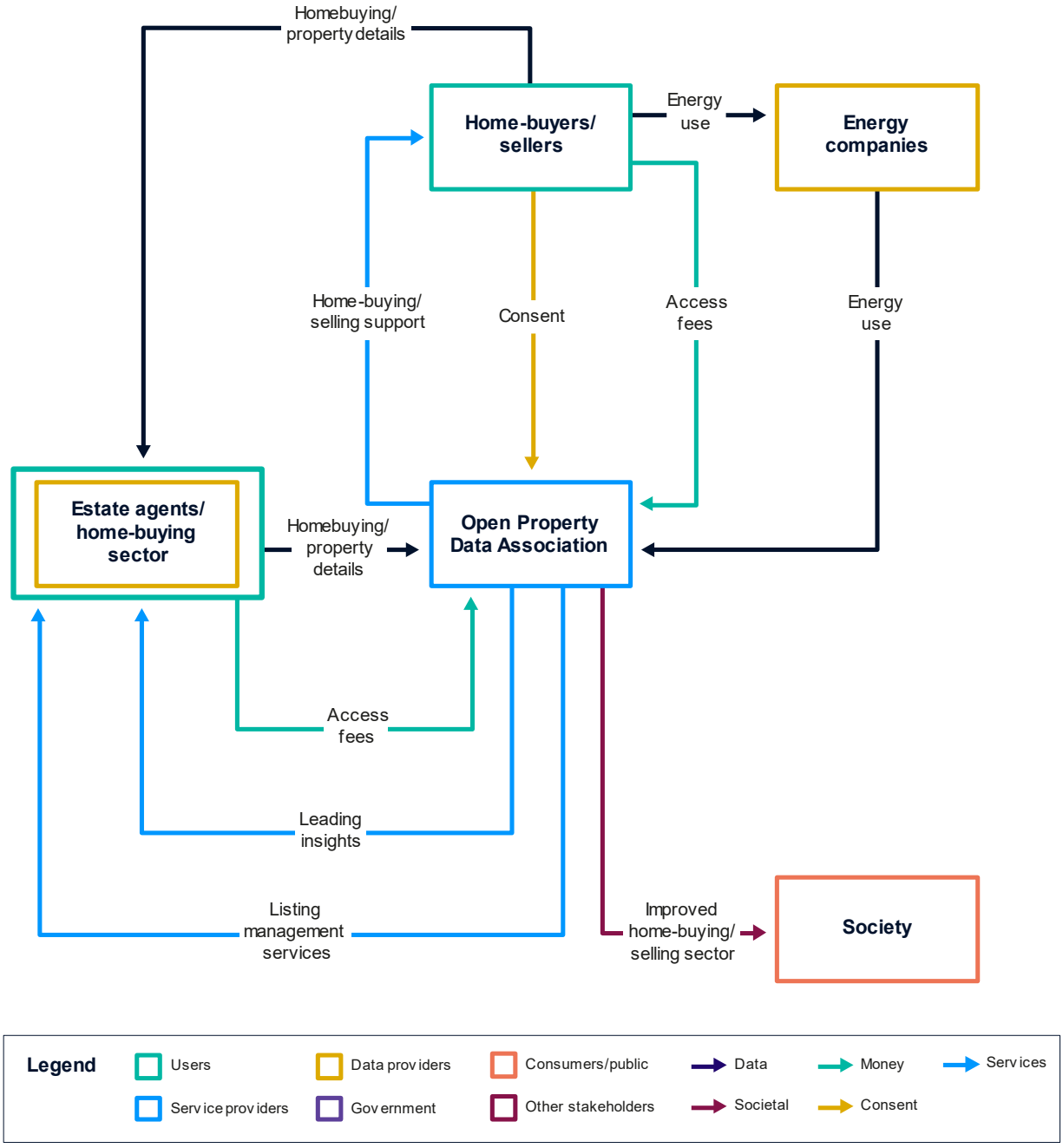
The majority of the primary property data sources are not digital, adding complexity to the process. The high costs associated with digitisation and establishing common standards pose significant barriers.

To improve transparency and create a better experience for homebuyers, National Trading Standards (NTS) are mandating that specific information about a property is included on property listings, but how that data is collected and reused is not prescribed. The data required is drawn from different sources and there is no comprehensive data standard or appropriate trust framework. To ensure a trusted data ecosystem, data needs to be standardised across the industry for each attribute and accessible to accredited parties in real time via API access, digital-first.

Stakeholder engagement (organisations or contacts mentioned)

To share insights and avoid duplication of effort, the entrant must work together with government bodies, such as HMLR and Local Authorities, explore partnerships with other entities working with property data and stakeholders involved in home buying and selling, including solicitors and estate agents.

Visualisation



Users give consent to the Open Property Data Association to use their energy, home-buying and property information. Open Property Data Association can then provide:

- the user recommendations to improve the financial outcomes of their home-buying or home-selling experience
- lending insights and listing management services to estate agents and the wider sector

Loop (Trust Power trading as Loop)

Summary

Loop's proposal looks to combine Smart Meter energy data, and financial services data (such as pensions and mortgages) to facilitate low carbon home energy investments by households. The use case presents a specific opportunity for consumers to unlock cheaper mortgage financing (as an alternative to personal loans) for low carbon home energy investments, offering an affordable opportunity to pursue greener energy options.

The UK's energy system is transforming, providing a significant opportunity for UK homes to transform too. Over the coming years, home energy usage will need to transform in order to reduce carbon emissions, including significant investment in technologies such as solar, home batteries, smart electric vehicle chargers, heat pumps and insulation.

Investment in green energy solutions is costly for consumers, and many need to be supported by financing by banks, through loans or arrangements with their mortgage. However, banks and building societies are not energy experts. Although mortgage providers could have data on the property, they currently do not have access to energy usage data.

By joining up financial and household energy data, Loop could be able to offer consumers tailored financing options for green energy solutions, incentivising greener, more affordable choices.

The use case

Loop has a solar simulator[33] that gives personalised costs and savings from fitting a solar array and home battery. This is based on the household's half-hourly Smart Meter data and is highly accurate. Users enjoy the journey and want to invest in solar energy, but the financing journey is not affordable to the majority of consumers.

Utilising Smart Data, Loop intends to combine data from the energy sector with finance and banking data. Customers could be presented with monthly energy cost savings alongside their finance options, for example extending their mortgage, using savings, a personal loan, and more.

The wider opportunity is to get financial institutions comfortable financing domestic energy upgrades and customers able to access their cheapest financing source.

Benefits

Consumer benefits

The use case aims to increase the availability of lower cost financing options for low carbon home energy investment, to increase low carbon energy investments by householders.

[33] https://loop.homes/

The scale of potential benefits is large

Almost all domestic solar is currently purchased via savings or personal loans with effective interest rates of 10%+. Solar arrays are warranted for 20 years. Funding a £10,000 solar and battery installation over 20 years via additional mortgage borrowing at 5% costs could work out to £66 per month. Funding the same work with a 20-year personal loan at 10% costs £96.50 per month. For many semi or detached houses, monthly savings from this installation could surpass £66 per month today. But they cannot readily access finance close to mortgage rates.

According to Loop, there are an estimated 7 million homes for which solar and a home battery could be a reasonable option. Of these, around 37% have mortgages, so could benefit from mortgage-based financing. If financed over 20 years, paying for these kinds of measures through mortgage borrowing is around a third cheaper than via a personal loan.

According to previous HMG estimates, there are 6 million homes that need cavity wall insulation, and 8 million with solid walls with no insulation.[34] Homes that add additional wall insulation typically save between £200 and £600 per year.

Of those homes that are on gas grid, 85% will need to transition to electric heat.[35]

Loop states that solar and battery installations save homeowners between £700 and £1,000 per year, if properly optimised.

This use case could be extended to other green home improvements that come on the market as technology develops.

Wider economic and social benefits

Cost of living – This use case aims to reduce long-term energy bills and improve energy efficiency, thereby easing financial burdens on households. By promoting sustainable living practices and potentially lowering utility expenses, it could alleviate pressure on household budgets, contributing to overall affordability and financial stability. It could also reduce exposure to energy price rises with less energy reliance on external suppliers, as part of a home's energy requirements can be met with self-generated solar energy, and insulation reduces their overall energy requirements.

Net Zero – The use case would incentivise widespread adoption of renewable energy technologies and energy-efficient practices. By supporting individuals to make sustainable choices and reduce carbon emissions in their homes, this use case could improve the energy efficiency of UK housing stock and play a pivotal role in the transition to a greener and more environmentally sustainable future.

---

[34] https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics

[35] https://www.gov.uk/government/publications/heat-and-buildings-strategy

Supporting vulnerable consumers – By enabling access to affordable renewable energy solutions and improving energy efficiency, this use case could enable vulnerable households to better manage their energy costs.

Future considerations for this use case

Significant barriers to development

While the applicant is familiar with using sandboxes, they have flagged that they may struggle to prototype in one as in them, the data is static, instant and complete. However, in the real world, a lot of the data required is incomplete, out of date and not standardised, so while they can test a proof of concept, it does not help them to work out how to manage the limitations of real world data if this were made available, and they might need to find another way to test their use case.

The applicant also recognises some consumers could be reluctant to share their data with unfamiliar bodies, outside of financial institutions. They believe an authorisation mark could help with this, providing a register of authorised assessors, to build trust.

Stakeholder engagement (organisations or contacts mentioned):

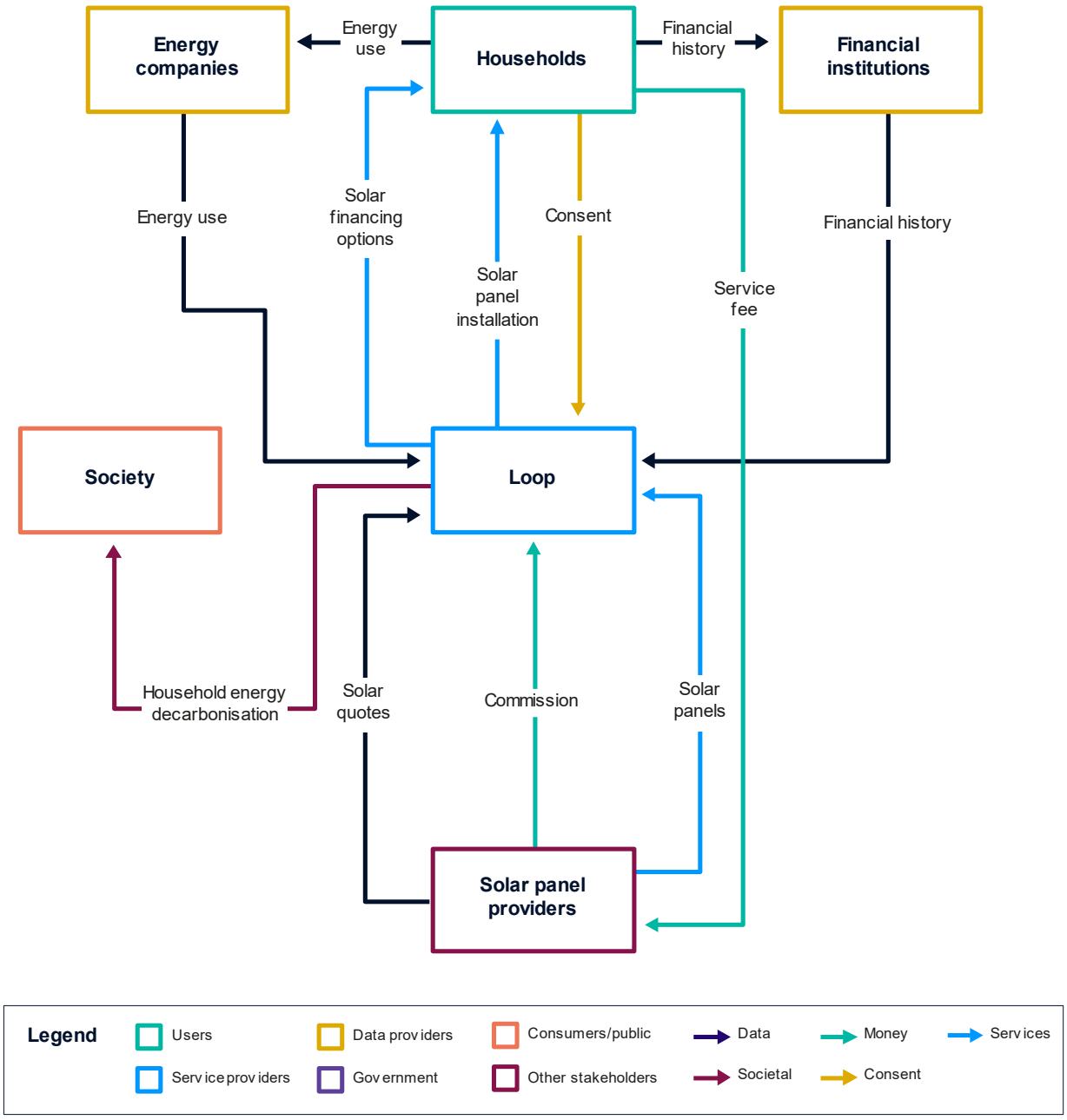
- The applicant has been introduced to TISA, CFIT and UK Finance.

They could also benefit from speaking with experts in supply chain management, carbon footprint assessment, and environmental sustainability; representatives from retail and consumer protection bodies to discuss potential benefits for consumers; and with HM Treasury or the Department for Work and Pensions for potential closer working or participation.

Additional support

The application could benefit from an in-depth review by domain experts to assess the feasibility and potential influence of the proposed solution. They could also be supported to clarify the benefits for consumers and vulnerable populations, emphasising how the solution builds trust and confidence.

Visualisation



Users give consent to Loop to use their bank and energy information. Loop can then give the user renewable energy recommendations so the user can improve the process to finance and install solar energy in their households.

Ubiquitech Solutions

Summary

Ubiquitech's use case integrates electronic tracking of the contents of vessels and containers, and ownership of goods, into online banking and trade finance applications. By obtaining this data in real-time, global shipping and trade processes can be revolutionised – creating efficiencies for all stakeholders, releasing liquidity in international markets, expediting goods movement and minimising wastage, combating organised crime, and reducing environmental influence.

Section 2 of the Electronic Trade Documents Act 2023[36] effectively gives electronic trade documents the same legal status as paper documentation, on the condition that a 'reliable system' must be used to ensure the security of the bill of lading and its use.

The UK has historically provided leadership in international trade and this use case represents an opportunity to build on this legacy with a data-driven system to modernise and streamline global shipping to the benefit of all stakeholders, including financial institutions, businesses, customs authorities and consumers.

The use case

Moving from paper manifests and Bills of Lading to electronic documents could allow Ubiquitech to create streamlined and secure processes and systems in global supply chains, at sea and by road and rail.

As an example, consider a wine shipment arriving in the UK by sea for sale in a supermarket chain. With data-driven supply chain management systems and electronic bills of lading, alongside HM Revenue & Customs' Open Banking portal, any customs duty due on the wine could be settled automatically as the containers move from vessel to dockside. Smart Data could enable the director of the haulage firm to authenticate, and the containers can move directly into landside freight, significantly speeding transit and reducing overheads.

At the point of completion, ownership of goods is transferred to the receiving supermarket immediately, alongside data on providence from the original manufacturer or producers.

By seamlessly integrating electronic tracking of vessels, containers, their contents, and ownership into finance and trade processes and applications, we can create a streamlined and secure system that benefits all stakeholders.

Benefits

Consumer benefits

Estimates from the International Chambers of Commerce and Centre for Digital Trade (2023) suggest that the integration of shipping supply chains and cargo manifests into the Open Banking

[36] https://www.legislation.gov.uk/ukpga/2023/38/enacted/data.pdf

and trade finance sectors has the potential to save the UK economy £224 billion per year, or roughly 10% of UK GDP. This use case could support these contributions to these savings.

Electronic tracking data provides greater transparency and reduces uncertainty, freeing up liquidity in international financial markets. Furthermore, pre-cleared customs under Trusted Trader schemes and optimised supply chain flows minimise delays at docks, saving time and money.

Enhanced visibility and data integration enable customs to concentrate on containers outside of agreed Trust Frameworks, combating illegal activities and reducing organised crime. Optimised supply chain flows and reduced inspections prevent damage to delicate cargo, minimising waste and insurance costs.

Overall, automated processes and reduced delays enhance efficiency in goods trade.

Data

Data requirements

This Smart Data use case combines data from a number of different sources.

From the finance sector it requires business banking, investment, credit product, payment flow, insurance policy and trade finance data.

In the shipping industry, it could incorporate vessel tracking, container, manifest, electronic bills of lading, and customs declaration data, as well as purchase orders and legal entity identifiers.

Finally, it could include road and rail routing, GPS and satellite imagery, and environmental data such as carbon footprint assessments. To be effective, there needs to be significant cooperation to define data standards for interoperability across sectors and systems.

Future considerations for this use case

Significant barriers to development

This ambitious use case has far-reaching implications for global trade and shipping, potentially transforming industry practices and fostering economic growth. Accordingly, there are significant challenges.

This use case requires encouraging cooperation among stakeholders, including financial institutions, businesses, customs authorities, and technology providers, to ensure widespread engagement in the development of the initiative. Given the global nature of trade and shipping, international cooperation is essential to facilitate seamless data exchange and harmonise regulations. They would need to establish standardised data formats for electronic tracking data to ensure interoperability and seamless integration. It also requires addressing potential resistance to change and fostering closer working.

Critically, they will need a strong regulatory framework to ensure data privacy, security, and interoperability. Along with implementing comprehensive security measures to protect sensitive data and maintain trust among stakeholders.

Stakeholder engagement (organisations or contacts mentioned)

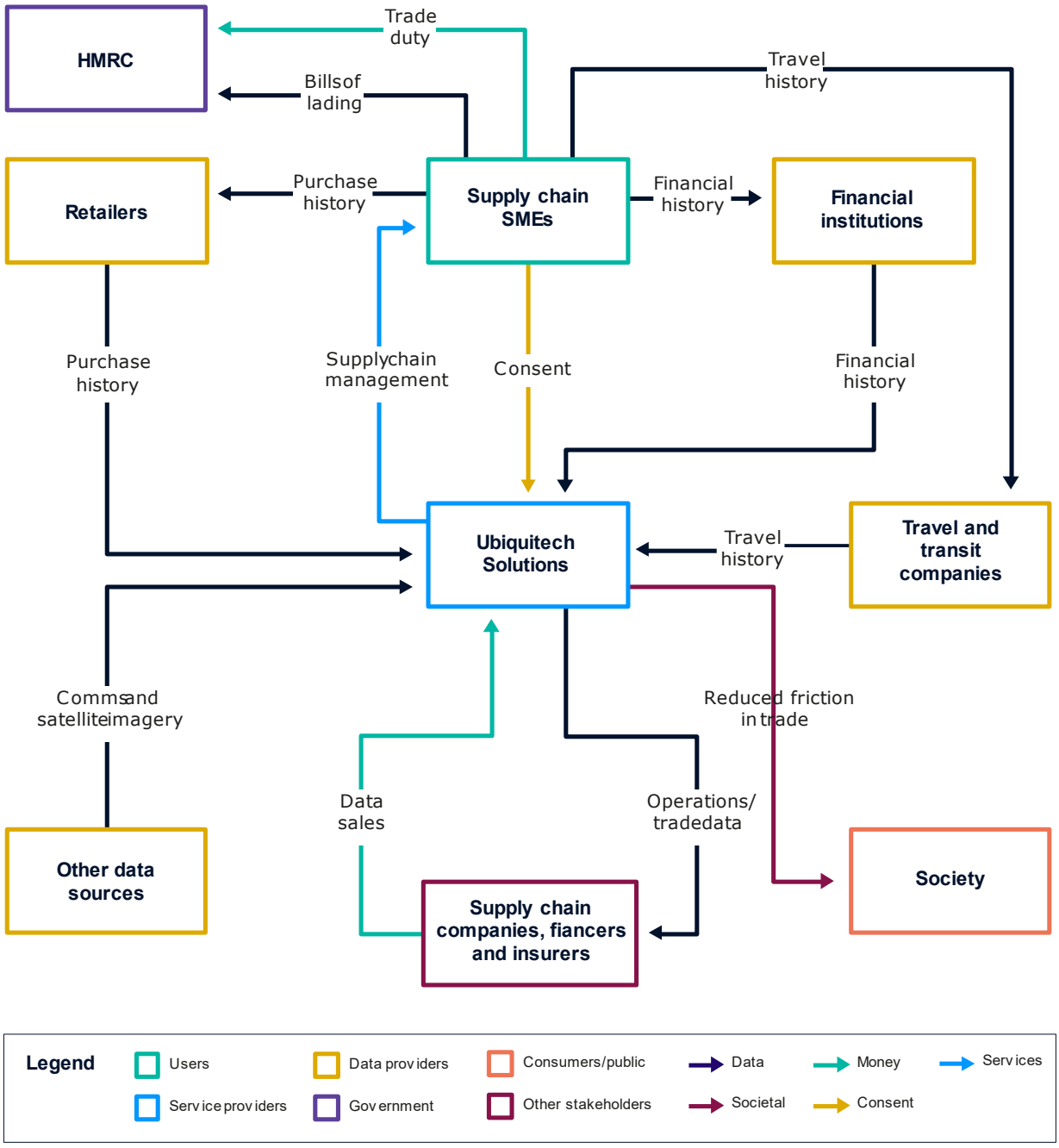
Ubiquitech Solutions could benefit from consulting with experts in supply chain management, carbon footprint assessment, and environmental sustainability. They could also discuss potential benefits for consumers with representatives from retail and consumer protection bodies.

Government bodies that could be useful to speak with further include HM Treasury, HM Revenue and Customs, and the Department for Transport.

Additional support

To explore the concepts and implementation approaches in a sandbox environment, they could prototype an app to obtain standardised data on shipping movements, cargo manifests and customs duties to demonstrate automated, real-time settlement of tariffs and duties. Synthetic data has also been used to test anomaly and fraud detection, with mixed results. They could also explore the optimal methods for accessing, processing, and presenting the data to users.

Visualisation



Small and medium enterprise (SME) users give consent to Ubiquitech Solutions to use their bank, transport and purchase history information. Ubiquitech Solutions can then:

- provide the user supply chain management recommendations to reduce friction in the supply chain
- sell operations and trade data to other supply chain companies, financiers and insurers

Unbanx

Summary

Unbanx proposes a service that gives consumers the choice to earn from their purchase data, in particular their retail loyalty card data, enabling them to share in the data's value creation. Under a Smart Data scheme and with consumers consent the service could be enabled by a rewards app which returns rewards to the consumer, when the aggregated data insights are sold to data buyers.

Currently (without Smart Data) loyalty scheme data for consumers is underutilised. The data is available via a Data Subject Access Request (DSAR) that is complex and time consuming which means it is not very portable. The current bank transaction data available through Open Banking is purely at a transaction level it only includes data on the merchant's name and the amount spent on the overall transaction. Its utility and value are limited since it does not contain information such as the itemised list of what has been purchased and at what price. This means consumers do not truly recoup the potential rewards of their purchase data.

If this bank transaction data is enriched with retailers' Stock Keeping Unit (SKU) level transaction data, it could enable this aggregated data to be significantly more valuable to both consumers and businesses. SKU is a scannable code to help vendors automatically track the movement of inventory. This code often appears as a barcode or QR code along with alphanumeric digits on an item for sale. When a customer buys an item at the point-of-sale (POS), the SKU is scanned, and the POS system automatically removes the item from the store's inventory as well as recording other data such as the sale price.

A retail Smart Data scheme offers several avenues to generate additional value from retail product and consumer behaviour data and to allow consumers to share in this value. Organisations like Unbanx are already demonstrating the demand for and value of insights from personal data, but the greater potential is out of reach without more effective data portability.

The use case

Unbanx is a rewards app that gives people the choice to earn from their purchase data. By using Open Banking, Unbanx members consent to share their bank transaction data anonymously via the Unbanx mobile app in return for rewards when the aggregated insights are sold to data buyers.

To start, the use case proposes to import SKU-level transaction data from closed retailer loyalty schemes like Nectar and Tesco Clubcard. Unbanx are proposing to make this process API based and something a consumer can engage with Unbanx or another third-party provider to do on their behalf.

Generating APIs, through a Smart Data scheme, from existing loyalty schemes could enable a much more effective method to enable smarter and enriched data use cases.

Small businesses could be able to access more granular consumer spending data through Unbanx or another authorised third party provider.

Benefits

Consumer benefits

Adoption of this service is likely to be limited, in the first instance, to digitally savvy and thrifty consumers who are already members of retail loyalty schemes, such as Nectar and Tesco Clubcard. The use case could then be extended to more retailers and maybe employee rewards.

This service offers a unique proposition by creating a mutually beneficial economy where consumers can earn rewards by consenting to share their purchase and shopping data. The value generated from this data is passed on to consumers. Not only does this support consumers by giving them greater control and ownership of their data, but it also provides them with access to high-fidelity spending insights, allowing for better budgeting and spending forecasts.

For small businesses, the benefits include accessing more granular consumer spending data, they can make decisions more efficiently and effectively. This includes targeting loyal and relevant shoppers more precisely, thereby enhancing their marketing efforts. Overall, this service facilitates a mutually beneficial relationship between consumers and businesses, where both parties stand to gain from the exchange of data.

Wider economic and social benefits

Cost of living – the rewards app could provide an additional source of income, alleviating financial strain amidst the cost-of-living crisis. By incentivising loyalty and providing monetary rewards, this app effectively stretches individuals' budgets, helping users navigate rising expenses and improve their overall financial well-being.

Supporting vulnerable consumers – by offering monetary rewards for their loyalty, this app helps vulnerable consumers stretch their budgets further, improving their financial stability and access to essential goods and services.

Data

Data requirements

This use case hinges on the availability of comprehensive Smart Data from the finance and retail sectors. This includes existing Open Banking data and could also include:

- SKU-level data from supermarkets and retailers, encompassing both physical store and online transactions
- loyalty scheme data, capturing insights into consumer spending patterns, points accumulation, promotions, and reward utilisation

Once consent is provided, shared data could be accessible in near real-time and seamlessly integrable into authorised third-party applications through standardised APIs, mirroring Open Banking's data sharing mechanism.

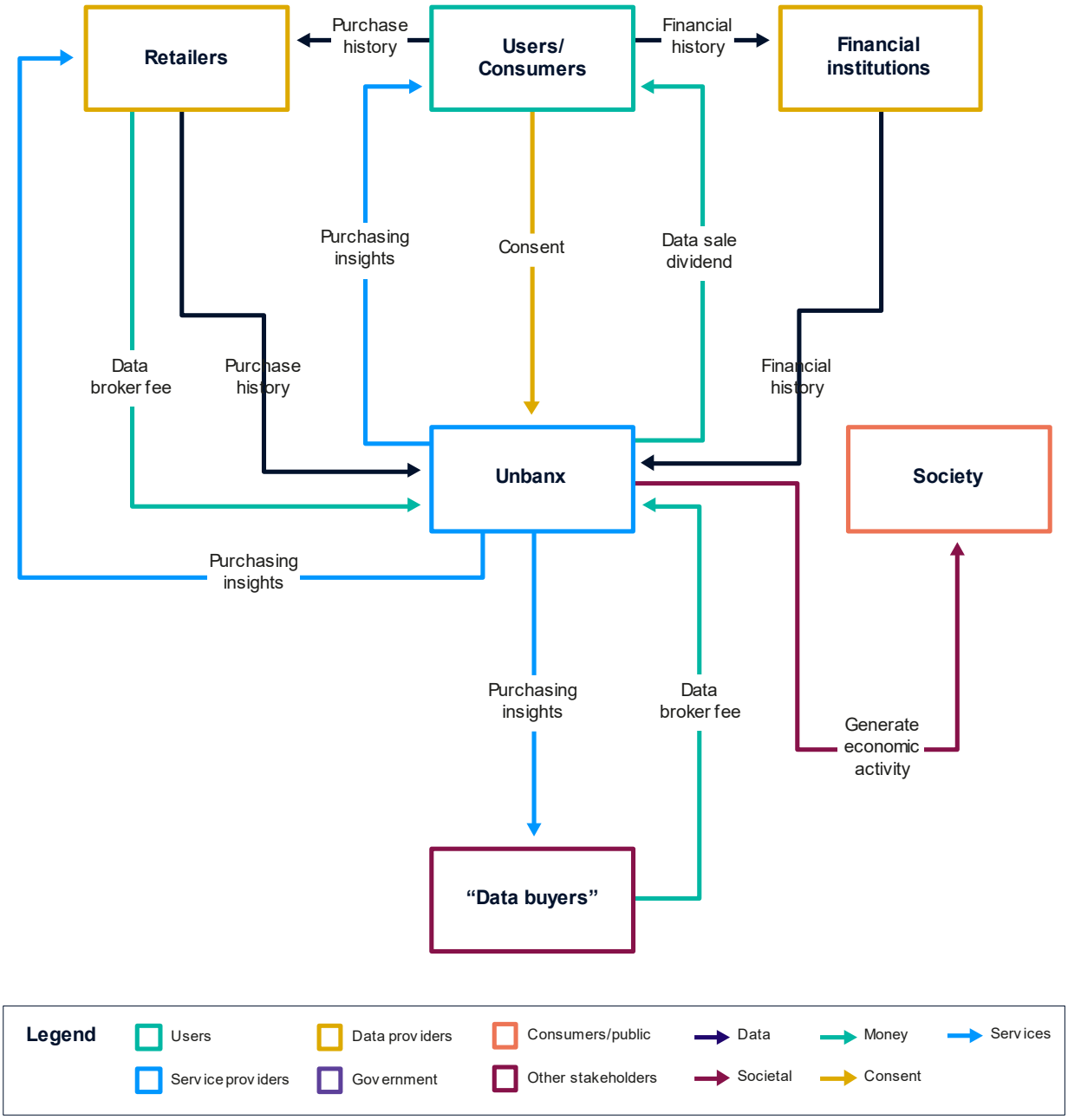
Future considerations

Significant barriers to development

Consumer Trust and Privacy Concerns – It is crucial to prioritise data security and privacy, ensuring that consumers have complete control over the data they share. A rigorous approval and verification process could be required for those handling consumer retail data. Clear and transparent communication about data usage and the value exchange proposition between the consumer and participating retailer can foster trust and encourage adoption. Unbanx are already trusted by existing customers, who share the banking transactions in exchange for rewards.

Standardisation – Consistent data access and provision across data providers via a standard API architecture would be ideal.

Visualisation



Users give consent to Unbanx to use their bank and retail purchase information. Unbanx can then:

- provide purchasing insights to the user
- sell purchasing insights to retailers and other data buyers and provide users with a revenue sharing fee

VoltView Ltd

Summary

The energy market does not work as well as it could for small businesses. Unlike domestic consumers, small businesses are not protected by the price cap and face significant market volatility. Their exclusion from the market stems from the time-consuming process of obtaining quotes and the complexity of industry jargon. Traditional energy brokers, who often add little value yet take opaque, unregulated commissions from suppliers, are failing these businesses.

The proposed use case is for a Smart Energy Marketplace to provide context and enable businesses to compare energy tariffs independently. This Smart Energy Marketplace could be targeted at small and medium enterprises (SMEs), which can combine half-hourly smart meter data, retail tariff data, and credit checks to offer more tailored and easily understood energy solutions for small businesses. These solutions could aim to offer better deals on energy, advice for optimising consumption and opportunities for decarbonisation.

Smart Data could support the development of this use case by improving accessibility of energy and financial data, enabling SMEs to onboard faster and receive the benefits of reduced energy costs and help achieve their Net Zero ambitions.

The use case

By utilising half-hourly smart meter data, retail tariff data, and financial history data, the Smart Energy Marketplace can offer more tailored energy solutions to small and medium enterprises.

This service could include custom recommendations based on energy profiles that can enable users to anticipate future consumption changes before committing to contracts and assist in transitioning to time-of-use tariffs when economically viable. An extended use case could include a payback period calculator for investment decisions, and a repository of relevant grants and support for purchasing and installing low carbon technologies.

This strategy not only aims to reduce energy costs but also assists small businesses in moving towards Net Zero by 2050, as time-of-use tariffs can be the market incentive for some businesses to participate with the varying output of wind and solar.

Benefits

Consumer benefits

The target customers are restaurants and other hospitality sector businesses, as well as councils and trusts such as schools and hospitals. The benefits from actively participating in the energy market are firstly to anticipate future consumption changes before signing a contract use time-based tariffs to purchase energy when rates are lowest. The use case could be extended to include access to data on regulatory changes, subsidies, and incentives related to energy use and sustainability.

VoltView estimates that Smart Energy Marketplace could help UK SMEs save £600 million a year nationally by reducing energy brokerage fees, calculating that:

- electricity brokerage fees for SMEs range from 1 to 10 pence per kWh and average 2 pence per kWh
- on average SMEs have an annual electricity usage of 20,000 kWh[37], which equates to savings of £400 per year per business across 2.1 million targeted trading companies

Smart Energy Marketplace could also allow small businesses to be more competitive against larger enterprises who can use economies of scale to secure lower unit rates, by eventually aggregating energy profiles and having suppliers compete to win the energy contracts. Small businesses will have more time to tackle energy efficiency and sustainability requirements.

Wider economic and social benefits

Encouraging small businesses to thrive – Smart Energy Marketplace aims to help SMEs to make informed decisions, ensuring they secure cost-effective utility contracts and maintain competitiveness. By enabling businesses to efficiently meet and report on their Scope 2 obligations (on indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling) with Project Perseus, which includes VoltView, this service enables automated emissions reporting for every SME in the UK.

Net Zero – The Smart Energy Marketplace could allow SMEs to make informed decisions that prioritise energy efficiency and lower carbon emissions, thereby contributing to the achievement of Net Zero targets. SMEs could be incentivised to purchase energy at times of peak renewable availability, such as wind and solar. The extended use case could make the purchase and installation of low carbon technologies more affordable.

Data

General data requirements

This use case concentrates on access to data held in the finance and energy sectors. The data should be readily accessible and interoperable through APIs with standardised pricing structures, tariff names, terms and conditions, and applicable times. Consumers could expect straightforward explanations of pricing, terms and conditions, and any fees.

Core data requirements

Core data requirements are:

- energy data - half-hourly smart meter data, business energy consumption data and retail tariff data across all energy suppliers
- financial services data – financial history data such as account transactions and credit checks

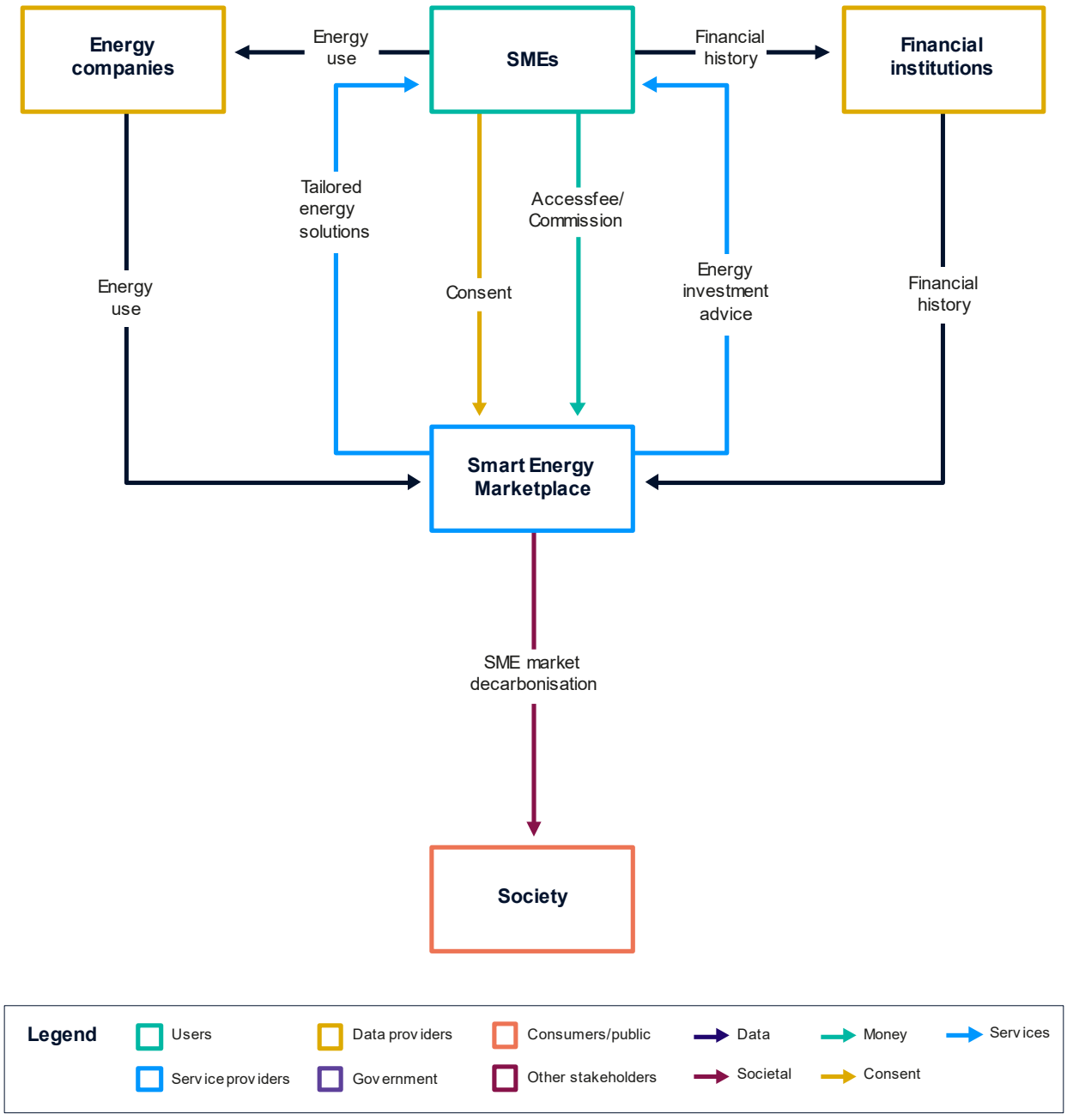
[37] According to Bionic.co.uk

Data requirements for an extended use case

Data requirements for an extended use case are:

- standardised grants offered to businesses by councils
- returns of energy efficiency investments
- synthetic credit profiles of businesses
- datasets mimicking SME energy consumption patterns over time, energy tariffs, responses of SMEs to changes in energy tariffs

Visualisation



Small and medium enterprise users give consent to VoltView to use their bank and energy information. VoltView can then use their Smart Energy Marketplace to give the user recommendations so the business can:

- improve the efficiency of their current energy use
- invest in higher efficiency and lower carbon energy technologies

Department for Business & Trade

Legal disclaimer

Whereas every effort has been made to ensure that the information in this document is accurate, the Department for Business and Trade does not accept liability for any errors, omissions or misleading statements, and no warranty is given or responsibility accepted as to the standing of any individual, firm, company or other organization mentioned.

This document is also available on our website at gov.uk/government/organisations/department-for-business-and-trade

Any enquiries regarding this publication should be sent to us at:

enquiries@businessandtrade.gov.uk.

Published by

Department of Business and Trade

21 March 2025