



DATA MOBILITY:

The personal data
portability growth
opportunity for the
UK economy

Report Summary

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/ Introduction

This document is the final report on Data Mobility: the data portability growth opportunity for the UK economy, carried out for the Department for Digital, Culture, Media and Sport (DCMS) by Ctrl-Shift.

The aim of this study was to gain a better understanding of the potential of personal data portability to stimulate innovation and competition, and to develop a tool to demonstrate practical approaches to personal data portability.

The study has examined the opportunity presented by mobility in personal data; evaluated the key challenges in achieving this potential, and investigated the leverage to be gained from emergent solutions and relevant initiatives that could materially enable progress.

/ Authors

Ctrl-Shift

Ctrl-Shift is an innovation consultancy specialising in the strategic value of personal data in the digital economy.

We help organisations realise the transformational growth opportunity in trusted personal data by creating strategic, sustainable and practical solutions that enable them to deliver new value in people's lives.

For a decade Ctrl-Shift has been a pioneer, innovator and authority in the personal data economy. We have amassed a unique body of knowledge and insight which is at the heart of the services and solutions we provide to prominent organisations globally.

Ctrl-Shift has previously published reports on a wide range of topics relating to personal data. These include: Open Banking; Information Logistics; Next Generation Intermediaries; Personal Information Management Systems.

/ In the delivery of this study Ctrl-Shift partnered with two leading organisations in their spheres:

Normally

Normally is a data product and service design studio. They solve complex design problems for some of the world's largest organisations. In this study, Normally worked with Ctrl-Shift to apply a design framework approach to investigate how design-led techniques could support the efficient exploration and development of data mobility solutions.

London Economics

London Economics is a leading specialist policy and economics consultancy. London Economics worked with Ctrl-Shift to carry out economic research and modelling of the personal data mobility market.

/ Executive summary

DCMS commissioned innovation consultancy Ctrl-Shift to carry out this study to develop understanding of the potential that personal data portability holds for the UK economy.

Personal data lies at the heart of many of the most promising opportunities for business growth, consumer benefit, and public good in a fast-evolving digital economy. The GDPR has established data portability rights of the individual over their personal data, creating a firm legal basis for initiatives to promote economic and societal use of personal data. However, the GDPR does not address the requirements of either safe and secure data sharing or value generation from data portability that will be needed to realise the huge potential of personal data.

Therefore, the vision of personal data mobility described in this report goes beyond data portability as specified by the GDPR. Data mobility refers to a world where personal data flows safely and efficiently; where it can create maximum value with personal, societal and economic benefits distributed fairly.

A wide range of initiatives have been progressed which relate, in various ways, to different aspects of data portability and mobility. This study has assimilated relevant knowledge and insight from a broad spectrum of these activities to build a comprehensive picture of the current state of play.

This report lays out the current state of personal data portability and mobility in the digital economy and the potential of data mobility to unshackle personal data, and so stimulate new levels of innovation, productivity and competition.

This report concludes that action on personal data mobility can be a vital stimulus for the next major stage of growth in the digital economy.

Personal data mobility can drive fresh growth by creating an environment where empowered individuals can safely make valuable use of their personal data, and consent to its use by others in new data-driven services and technologies. In short, delivering benefit to individuals and organisations alike, with significant economic and societal gains.

There are however material challenges to be overcome in realising this potential.

A high proportion of personal data is locked in organisational 'silos' - limiting the scope of what the data can be used for, and by whom. Also, there are important systemic issues and market failures at the core of the digital economy (including data breaches, loss of consumer trust of how personal data is captured and used, and uneven sharing of benefits), to which any development of the personal data market must respond.

The GDPR legislation has been an important step in enshrining the data portability rights of the individual over their personal data. But it does not create the structures to support value generation from personal data. And importantly, there are new risks. In the absence of a safe and secure environment for the sharing of personal data, the new data rights that individuals have introduced new risks for both them and the organisations with which they interact.

The economic analysis estimates the impact from productivity and competition benefits enabled by personal data mobility at £27.8bn increase in UK GDP.

The contribution to GDP that digital innovation enabled by personal data mobility, is likely to be significantly greater.

Building on the extensive qualitative research, this study has, for the first time, codified the Core Issues that lie at the heart of the complex web of challenges to personal data mobility.

The Core Issues can be summarised as follows:

Core Issue 1: Infrastructure & Standards:	The need for common technologies, standards and services, reflecting a number of Key Challenges that repeat across the stakeholder groups. Progress on these will reduce the cost barriers and risks preventing businesses taking action on personal data mobility. And, by reducing risk for citizens will contribute to the success of the government's Digital Strategy.
Core Issue 2: Individuals' Know How:	Consumers have a lack of know how and understanding of the digital market, and limited knowledge about their data, how it is used, and how they could use it. This makes the individuals vulnerable to abuse and lacking in the skills to access the opportunity.
Core Issue 3: Adaptive Regulation:	Well-functioning markets require strong regulation and legislation. To match the pace of change in a fast-moving developing market such as personal data mobility, regulators and government need new levels of knowledge, skills and adaptiveness to ensure successful market development at pace.
Core Issue 4: Services & Applications:	There is a lack of services and applications that enable Individuals to use personal data to create value for themselves and others. These fall into two categories: Personal Data Management Services, and Personal Information Management Services comprising Decision Support Services and Life Management Services.
Core Issue 5: Incumbent Business Case:	There is not a clear, or compelling enough case for business to embrace personal data mobility with measurable costs and risks created largely by Core Issue 1 & 2. There is a lack of proof points for the innovation opportunity.

The Core Issues analysis delivers two key outcomes. First, it clarifies understanding of the multiple connected risks and consequences of personal data mobility challenges. Secondly, it forms the basis of a co-ordinated and practical development agenda for the successful realisation of the benefits of personal data mobility.

Stakeholder engagement will play a critical and central role in the development of personal data mobility, which will require strong coordination.

The multi-faceted and interrelated nature of the challenges to personal data mobility emphasise the need for active continuous participation from stakeholders.

There are inevitably barriers to achieving this, with conflicts in the motivations of the potential stakeholders including learnt behaviour, existing competitive positions and existing revenue streams.

To achieve the engagement necessary, it is essential to understand the differing motivations of the key stakeholder groups. This study has informed this by examining stakeholder motivations specifically around the impact of the key challenges to personal data mobility – providing valuable input to the development of an effective stakeholder engagement plan.

In the market there are multiple emergent solutions and relevant initiatives that can enable and inform the development of personal data mobility, but none of them approach complete, scalable solutions - there are no quick fixes.

The UK is currently seen as a global leader in data-sharing and usage initiatives, such as Open Data and Open Banking, and in the development of Personal Data Management Services (PDMS), each of which have emergent solutions that contribute to the development of personal data mobility. The UK is therefore well-placed to consolidate and extend this lead, leveraging advanced insights, technologies and capabilities.

However, activity in the market is far from coherent and investment is patchy - varying in depth and pace. If this approach were to continue, and personal data mobility is not deliberately and coherently addressed, it could result in only sporadic development of a high potential market restricting the growth opportunities and potentially creating new challenges.

A Directed Innovation Framework demonstrator was developed to show how the challenges to personal data mobility could be approached using a data-driven approach, focused on creating value for individuals.

The study included the development of a new framework for demonstrating how a 'Directed Innovation' approach can be effective in creating solutions to Core Issues and challenges in personal data mobility.

The Directed Innovation Framework achieves this by blending a rigorous consumer-value-focused analytical approach, together with agile thinking, enabled by design-based techniques.

The key outcomes were:

- Demonstration of new consumer value opportunities and personal data mobility.
- The effectiveness of a Design Jam approach in bringing together multi-disciplinary teams to explore challenges.
- Analysis of the Design Jam output as guiding principles for the design of data mobility enabled services.
- Demonstration of the use of a design Intervention Stack, to determine intervention for the design of the data mobility market.

The Directed Innovation Framework has been validated to a level which demonstrates the merit of its further development to become an effective tool in the delivery of personal data mobility.

The outcomes from this study provide the foundation for a practical personal data mobility market development agenda.

In determining the Core Issues structure, and understanding the leverage to be gained from relevant market initiatives and emerging solutions, the outcomes from this study provide the foundation for meaningful progress on the development of the personal data mobility market.

The main elements of this are:

1. **Establishment of a personal data mobility Coordinating Entity (CE)** – a body which will facilitate and coordinate the delivery of the personal data mobility market. Fully empowered and with the authority and capacity to drive effective collaboration across a diverse stakeholder group. To achieve this, government would have involvement, either in a leading role, or providing active strategic support.
2. **CE-led personal data mobility development agenda** – focused on Core Issues 1 (Infrastructure & Standards), 2 (Individuals' Know how) and 3 (Adaptive Regulation), which cannot be resolved by individual organisations, and which will focus on making the market safe, and easy to operate within.
3. **Business-led personal data mobility development agenda** – focused on the Core Issues can only be led by business: Core Issue 4 (Services & Applications) and Core Issue 5 (Incumbent Business Case), which deliver value to individuals, organisations and the economy.

The development agendas can enable purposeful progress towards the realisation of the significant opportunity offered by personal data mobility - creating better outcomes for individuals and organisations alike, and becoming a major contributor to the growth of UK economy in the 21st century.

This report makes three major recommendations which directly support the progression of the personal data mobility development agenda

- **Recommendation 1:** Create the personal data mobility Coordinating Entity (CE). The Coordinating Entity requires the following characteristics to be successful:
 - Empowered – have teeth or have the resources to teeth the enforcement of action.
 - Commercially independent.
 - Impartial – be known to be unbiased.
 - Have capacity and funds to support engagement.
 - Be able to coordinate across sectors.
 - Have market authority – strong skills and knowledge and with the capacity to drive the coordination required.
- **Recommendation 2:** Progress priority items from the CE-led development agenda across the Core Issues of Infrastructure and Standards, Individuals' Know How and Adaptive Regulation:
 - Early intervention in three critical Infrastructure and Standards Key Challenges, Safe Data Sharing, Liability, Interoperability.
 - Raise individuals' know how through prominence in related government and regulatory communication activities, work with organisations such as Which?, Consumers International and Doteveryone to design know how development.
 - Create a structure for the development of Adaptive Regulation. Work with innovators and regulators during policy development.
- **Recommendation 3:** Progress priority requirements from the business-led development agenda around the Core Issues of Services and Applications and Incumbent Business Case:
 - Design with industry, how government can best support market development.
 - Support the development of applications and services.
 - Promote the use of the Directed Innovation Framework for use by business.
 - Enable use of government data to support the development of personal data mobility and recombinant innovation.

/ Report overview

1. This Study

Personal data mobility is a complex, multi-faceted and fast-evolving subject that offers great benefits for the economy by enabling innovation and growth. Data mobility goes far beyond data portability as envisaged by GDPR, enabling empowered individuals to safely and easily permit and control the free flow of personal data, to deliver material and on-going value.

This study has assimilated knowledge and insight from business and government leaders, subject-matter experts, and from a broad spectrum of market initiatives that relate to data portability and mobility. From this we have developed a comprehensive picture of the current state of data portability and mobility. Building on this research, the objectives of the study have been to:

- Understand the consumer, business, economic and social opportunities presented by mobility in personal data;
- Evaluate the core issues and underlying key challenges in achieving this potential; and
- Investigate the leverage to be gained from relevant initiatives and tools that could materially enable progress.

All with the aim of determining purposeful recommendations that can form the basis of coordinated action towards the successful realisation of the benefits of personal data mobility.

Research and insight development. In Part 1 of the study we applied Ctrl-Shift's Personal Information Economy research methodology which included:

- Activating our global expert network through a series of structured interviews with senior representatives, covering all key stakeholder groups
- Extensive desk research, applying our broad knowledge-base of relevant data mobility initiatives and the Personal Information Economy to capture key insights
- Economic review: London Economics carried out an economic assessment of the impacts of data mobility on innovation, productivity and competition; including an illustrative quantification of the potential value of data mobility to the UK economy

2. The Current Landscape: Personal Data, Portability and Mobility

Personal data lies at the heart of many of the most promising opportunities for consumer benefit, economic growth and public good in a fast-evolving digital economy. Its importance to the UK economy cannot be overstated.

2.1 Personal Data

The digital economy continues to grow at an extraordinary rate, with exponential expansion in the range and volume of personal data being created due to the proliferation of personal digital devices.

The recombinant and non-rivalrous characteristics of data (the ability to limitlessly re-combine it and never 'use it up' even when used by many actors) can enable a step-change in innovation and value creation. Personal data is also crucial to the success of two of the most exciting technologies - the Internet of Things

(IoT) will become an increasing generator of personal data and Artificial Intelligence (AI) an increasing consumer of it.

There are, however, material barriers to realising the great potential of personal data.

As the data market grew, organisations learned to see exclusive access to the personal data which they collect as a key strategic asset and source of competitive advantage. As a result, a high proportion of personal data is locked in organisational silos where only one organisation can access it - limiting the scope of what the data can be used for, and by whom.

Furthermore, as demonstrated by the recent Cambridge Analytica issue, there are important systemic issues at the heart of the digital data economy. These include: widespread data breaches; decreased customer trust of how personal data is captured and used; uneven sharing of benefits, and new concentrations of data and market power. These issues will be exacerbated by growing data volumes and the emergence of new technologies. Developments in personal data mobility must address these challenges.

The presence of these systemic issues and associated risks depresses business investment in personal data initiatives, and introduces new uncertainties in the minds of individuals – deterring them from engaging more actively with the personal data market.

The economic analysis carried out in this study identified four key market failures, which provide strong cases for government intervention:

- Barriers to entry: impeding businesses' entry into market.
- Asymmetric information: where some market participants are disadvantaged by having less access to data and related tools.
- Coordination failures: market participants failure to coordinate on issues such as standards and new collaborative business models.
- Externalities: that prevent optimal investment of effort and resources in data mobility.

2.2 Personal Data Portability

At its simplest level, personal data portability is the ability for individuals to access their personal data and potentially for it to be used in multiple applications.

In some business-to-business contexts personal data portability is already a well-established practice. For example, organisations routinely share customers' personal data with other companies for the purposes of administration, analytics, marketing and advertising. However, these business to business transactions have rarely involved the individuals who are the subjects of the data.

A number of important initiatives have paved the way towards establishing the rights of individuals over the use of their personal data. These include midata in the UK, PDMS and PIMS globally, Mesinfos in France, PSD2 in the EU, and Blue Button and Green Button in the USA.

Several of these contributed to the development of the GDPR EU and UK legislation which in 2018 enshrined the data portability rights of the individual over their personal data. This legislation has created a firm legal basis for initiatives to promote economic and societal use of personal data, and for organisational change and policy reform.

GDPR only creates a right to data portability, it does not enable it or create the structures to support value generation from personal data portability. Furthermore, there are new risks. In the absence of a safe and secure environment for the sharing of personal data, the new rights that individuals have over their data introduce new potential hazards for both them and the organisations with which they interact.

2.3 Personal Data Mobility

This vision for personal data mobility goes far beyond data portability as specified by the GDPR. In this vision the range of use of personal data is hugely expanded, empowering individuals to access and use data about them for their own purposes and make it available to others - stimulating far-reaching innovation, and enriching and streamlining existing products and services.

Personal data mobility can enable the true potential of personal data by allowing its safe and efficient use where it can create maximum value. In this way it can stimulate new data-enabled innovation and efficiency in the market, creating better outcomes for individuals and organisations alike. In so doing it can be a major contributor to the UK economy and society in the 21st century.

We are at an inflexion point. Enhancing the mobility of personal data offers the potential for rapid growth in innovation, efficiency and productivity. To achieve this, data mobility developments must also respond to the systemic issues in the digital data market. In doing so, data mobility can contribute to unleashing the full personal, social and economic potential of personal data.

3. Opportunities in Data Mobility

The combined evidence and perspectives from the diverse sources researched in this study strongly support the view that personal data mobility has the power to grow value for all stakeholders – individuals; business (incumbent and new-entrant), and society – and enable the next major advance of the digital economy.

The opportunities presented by personal data mobility for the economy fall into three main categories:

- 1 **Recombinant Innovation:** Combining data traditionally held by different parties in new ways will generate significant innovation across the digital economy, including: product and service design and delivery, business model, platform, ecosystem, technology and infrastructure innovation.
- 2 **Productivity and efficiency improvements:** enabled by economies of scale and scope in the use of personal data; with a multiplier effect due to positive externalities – where increased sharing by individuals of their data can be used for the benefit of all consumers, not just for the benefit of those doing the sharing.

The economic analysis commissioned by this study estimates the impact from personal data mobility enabled productivity and efficiency benefits of approximately £27.8bn increase in GDP. This is only one part of the value opportunity. The contribution to the economy that digital innovation driven by incumbents, new entrants, peer-to-peer markets and individuals themselves is likely to be significantly greater.

- 3 **Competition and market dynamics:** personal data mobility can support healthy and fair markets, with reduced friction that can stimulate competitive innovation, and greater consumer choice.

By enabling personal data to flow safely and efficiently to where it can create maximum value personal data mobility will have multiple benefits for all parties involved in the digital economy.

- **Individuals, groups and communities:** decisions regarding the mobility of personal data will be in the hands of the individual.

This empowerment will enable people to gain a greater share of value in tomorrow's digital economy; both in their engagement with providers and in direct leverage; of their own personal data.

- **New Entrants:** personal data mobility will open the door to new service providers who are leveraging recombinant innovation, especially where integration of data from previously separate providers is required. Barriers to market entry and risks can be reduced through better insight into consumer behaviours and needs, enabling better targeting of innovative new products and services.

The positive competitive effects of data mobility on markets will enable consumers to more easily switch to new products - reducing friction and accelerating adoption.

- **Organisations:** can build new trust-based relationships with empowered consumers Incumbent organisations (private and public-sector businesses, and government departments in their role as managers of data) can gain new insights to innovate and improve services and products, and to enhance the effectiveness of marketing and operations. Economies of scale and scope of data inputs, and positive externalities can reduce production costs and deliver better tailored products and services. Personal data mobility can also enable closer collaboration between organisations, particularly in building a response to dominant competitors.
- **Governors and regulators:** personal data mobility will be a significant contributor to all of the objectives of government's Digital Charter. Indeed, without it, opportunities to innovate and create new value from personal data will remain restricted. Personal data mobility will also make a significant contribution to the Industrial Strategy – addressing aspects of each of the Grand Challenges, and being directly relevant to the Foundations of Productivity.
- **UK economy:** the development of supporting technologies, infrastructure, skills and capabilities will deliver supply side benefits, enabling the economy to be more productive, and boosting growth. If the UK takes a lead in developing these new capabilities, it will also have increased export opportunity through their deployment overseas.
- **Societal benefit:** Personal data mobility will also bring societal benefit with more personalised, consolidated social services, delivered at lower cost. Tackling poverty and addressing health, human rights, education and environmental issues often relies on access to personal data from a variety of sources. With personal data mobility, data will no longer be restricted to the organisation that originally collected it, enabling the flow of data to the services that require it.

4. Core Issues

Our analysis identified five Core Issues that combined, prevent the successful development of personal data mobility. These were developed by prioritising and amalgamating the more granular Key Challenges to the realisation of personal data mobility which emerged from the study.

The Core Issues analysis provides a clear view of the complex multi-dimensional nature of the challenge space, and can form the basis of a structured approach for tackling personal data mobility - with stakeholder motivations aligned.

Focusing on the Core Issues is valuable because it addresses the interrelated nature of the Key Challenges. The interconnectedness of the market system needed to develop personal data mobility

creates multiple connected risks and consequences. Progressing one challenge independently of others is likely to create unintended consequences and new risks or new challenges in the other parts of the market, or for other stakeholders.

The Core Issues are:

<p>Core Issue 1: Infrastructure & Standards:</p>	<p>The need for common technologies, standards and services, reflecting a number of Key Challenges that repeat across the stakeholder groups.</p> <p>Progress on these will reduce the cost barriers and risks preventing businesses taking action on personal data mobility. And, by reducing risk for citizens will contribute to the success of the government's Digital Strategy.</p>
<p>Core Issue 2: Individuals' Know How:</p>	<p>Consumers have a lack of know how and understanding of the digital market, and limited knowledge about their data, how it is used, and how they could use it.</p> <p>This makes the individuals vulnerable to abuse and lacking in the skills to access the opportunity.</p>
<p>Core Issue 3: Adaptive Regulation:</p>	<p>Well-functioning markets require strong regulation and legislation.</p> <p>To match the pace of change in a fast-moving developing market such as personal data mobility, regulators and government need new levels of knowledge, skills and adaptiveness to ensure successful market development at pace.</p>
<p>Core Issue 4: Services & Applications:</p>	<p>There is a lack of services and applications that enable Individuals to use personal data to create value for themselves and others.</p> <p>These fall into two categories: Personal Data Management Services, and Personal Information Management Services comprising Decision Support Services and Life Management Services.</p>
<p>Core Issue 5: Incumbent Business Case:</p>	<p>There is not a clear, or compelling enough case for business to embrace personal data mobility with measurable costs and risks created largely by Core Issue 1 & 2.</p> <p>There is a lack of proof points for the innovation opportunity.</p>

5. Aligning Stakeholder Engagement

Stakeholder engagement will play a critical and central role in the development of personal data mobility.

The successful development of the personal data mobility market requires strong, coordinated and simultaneous stakeholder engagement. The multi-faceted and interrelated nature of personal data mobility challenges emphasise the need for active continuous participation by stakeholders.

There are inevitably barriers to achieving this, with significant conflict in the motivations of many of the essential stakeholders. Many existing players benefit strongly from the status quo. Often competitive positions based on data assets rely on exclusive access to data. Movement from this position is frequently constrained by risks being more readily quantifiable than the strategic opportunities.

To achieve the engagement necessary, it is essential to have a well-developed understanding of the differing motivations of the key stakeholder groups. This study has provided the basis for this by examining stakeholder motivations specifically around the impact on each group of the key challenges to personal data mobility, as determined from the research. This analysis provides a key component for the development of an effective stakeholder engagement plan.

6. Enablers: Emergent Solutions and Relevant Market Activities

In our research we identified relevant emerging solutions and market activities that could accelerate the development of the personal data mobility market.

In the market there are multiple Enablers that can help progress addressing the personal data mobility Core Issues. However, there are no easy answers or quick fixes - none of the Enablers offer complete scalable solutions.

There are emergent solutions which can be built upon, and market activities that provide invaluable learnings from relevant initiatives and research, but development is largely uncoordinated with investment spread across multiple aspects of the market, services and infrastructure.

The support that can be provided by Enablers varies across the Core Issues:

<p>Core Issue 1: Infrastructure & Standards:</p>	<p>A good set of Enablers with relevant emergent solutions in the Open Banking implementation, digital identity initiatives, and development of interoperability standards. A strong research base evidencing the market need, and the potential for PDMS and recent market initiatives to support development.</p>
<p>Core Issue 2: Individuals' Know How:</p>	<p>Supported by sound understanding of the 'points of tension', identified by research and analysis done by a number of organisations. Multiple standards in development which can reduce risks and improve ease for the individual. As PIMS and PDMS evolve, they can provide tools for increasing individuals' understanding and value.</p>
<p>Core Issue 3: Adaptive Regulation:</p>	<p>Discussed in initiatives such as midata, however, it is early days for this development. The UK Government Regulators Network, the Joint Government Regulator Consumer Forum and the Centre for Data Ethics and Innovation provide market activities with which to work and build. The Open Banking Governance Process begins to create a systematised to managing changing governance requirements.</p>

<p>Core Issue 4: Services & Applications:</p>	<p>Good basis of market and consumer research on the types of data tools that individuals may need to make the market safer or easier. Multiple PIMS and PDMS already in market can provide a foundation to build value and utility for the individual. Market initiatives such as Blue Button provide learnings for the value and utility needed and used by individuals.</p>
<p>Core Issue 5: Incumbent Business Case:</p>	<p>Need for the illustration/demonstration of value from recombinant innovation - not easily apparent from the perspective of a siloed sector business. Some demonstration of this value in market initiatives such as the midataLab and MesInfos. PIMS also provide examples of value proposition for individuals. The Directed Innovation workshops in this study also illustrate the opportunities.</p>

Several Enablers provide building blocks that support multiple Core Issues. Notable amongst these are:

- Open Banking tools which are considered to be 12-18 months ahead of similar initiatives globally.
- Personal Data Management Services (PDMS) and Personal Information Management Services (PIMS), such as Decision Support and Life Management services, where the UK is a market leader.
- Standards development activity, especially for interoperability.

Market initiatives have generated important learnings which can accelerate the development of personal data mobility, such as strategic motivation, effective programme structures, international collaboration, and the environments built for Internet of Things (IoT) and Smart Cities programmes.

However, there are significant gaps where there is little support from Enablers, indeed some of the Key Challenges that make up the Core Issues have no material enablers – in particular Safe Data Sharing.

7. Demonstration of a Framework for Data-Driven Innovation

Design-led approaches have been applied increasingly over recent years to conceptualise new solutions. Whilst these have been helpful in generating new ideas, often it has been proved difficult to translate concept into reality. The Directed Innovation Framework demonstrated in Part 2 of this study has shown how rigorous business analysis frameworks can be combined with design-based techniques to both stimulate innovation and produce focused practical solutions.

The study included the development of a new framework for demonstrating how a ‘Directed Innovation’ approach can be effective in creating solutions to Core Issues and challenges in personal data mobility. The Directed Innovation Framework has been validated to a level which demonstrates the merit of its further development to become an effective tool in the delivery of personal data mobility, and for wider use in the development of other policy explorations.

Design thinking is most valuable when it is rooted in sound analysis and a clear focus on creating value for individuals – avoiding ‘activity without productivity’. The Directed Innovation Framework achieves this by blending a rigorous consumer-value-focused analytical approach, together with agile thinking, enabled by design-based techniques. The application of each stage of the Directed Innovation Framework to Key Challenges for personal data mobility demonstrated the value and relevance of the approach.

The key outcomes were:

- Demonstration of how new consumer value opportunities and personal data mobility challenges can be brought to life most vividly in the context of people's daily lives and everyday needs - enabling the exploration of a rich set of consumer wants across a wide range of data types and market sectors.
- The effectiveness of the Design Jam approach in bringing together multi-disciplinary teams to explore, design, and prototype new digital service concepts to expose the effects of personal data mobility challenges.
- Demonstration of how the Design Jam output could be analysed to determine key themes that can be used as guiding principles around which data mobility enabled services can be designed.
- Demonstration of the effectiveness of the Intervention Stack, which ensured that all relevant types of intervention were considered, in prototyping the service concepts emerging from the Design Jam to bring to life tangible risks related to personal data mobility challenges.

8. Personal Data Mobility Market Development

Drawing together the learnings from this study, specifically in the areas of: core issues at the heart of data mobility; stakeholder engagement and motivation; enabling initiatives in the market, and the value of Directed Innovation techniques, the study has identified the key steps to successful development of the personal data mobility market.

8.1 Establishment of a personal data mobility Coordinating Entity (CE)

Because of the complex coordination and facilitation requirements, and because there are and will be pockets of data mobility development within sectors, there is a need for an entity which can facilitate and coordinate the delivery of the personal data mobility market. To be successful this entity needs the following characteristics:

- Empowered – have the teeth or the recourse to teeth to enforce action.
- Commercially independent.
- Impartial – be known to be unbiased.
- Have capacity and funds to support engagement.
- Be able to coordinate across sectors.
- Have market authority – strong skills and knowledge and with the capacity to drive the coordination required.

To achieve the above, government would need to have significant involvement in the Coordinating Entity, either in a leading role, or providing active strategic support to it.

Action on the development of the personal data mobility market can be effectively structured around the resolution of the five Core Issues identified in this study. These Core Issues group logically into two distinct but closely related Development Agendas for both the CE and for business.

8.2 CE-led Personal Data Mobility Development Agenda

Core Issues 1 (Infrastructure & Standards), 2 (Individuals' Know how) and 3 (Adaptive Regulation) cannot be resolved by a single organisation and when considered together with the market failures described in Section 1.4.3, present a strong case for government intervention and facilitation. Together they form the CE-led Personal Data Mobility Development Agenda.

Action on the three of the Core Issues which cannot be resolved by individual organisations forms the CE-led Personal Data Mobility Development Agenda. Resolution of these Core Issues will make the market safe and easy to operate within, and will enable value to be effectively and sustainably developed.

- **Core Issue 1: Infrastructure and standards:**

The key challenges within this Core issue are: safe data sharing; liability models; inadequate consent mechanisms; digital identity; interoperability; lack of data access standardisation. Without coordinated action to collectively and collaboratively develop the Infrastructure and Standards, access to value from personal data mobility will be slow and will potentially cause increased market risks for all stakeholders. The lack of infrastructure has and will continue to hamper investment in innovation and therefore market growth. Action on this Core Issue can address many of the cost and risk barriers that currently impede active engagement by businesses.

- **Core Issue 2: Individuals' Know How:**

Action on this Core Issue will enable and empower individuals to gain access to new value created by personal data mobility in a safe and secure way. Individuals' know how needs to be built in coordination with the other market developments to achieve maximum stimulation of engagement and demand.

- **Core Issue 3: Adaptive Regulation:**

Adaptive Regulation, in parallel with infrastructure development, ensures that the legislative and regulatory environment reflects the pace and direction of the personal data mobility market and its underpinning technology - dynamically ensuring a balance between growth and safety. Using a collaborative approach, adaptive regulation also develops the business confidence to support innovation and, for individuals, that misuse will be addressed.

8.3 Business-led Personal Data Mobility Development Agenda

Two of the Core Issues can only be led and ultimately addressed by business - together they form the Business-led Personal Data Mobility Development Agenda and their resolution will make the market valuable.

Core Issue 4 (Services & Applications) and Core Issue 5 (Incumbent Business Case) deliver the value to individuals, organisations and the economy, which is the purview of business (private and public sector and new entrants) with involvement from, and coordination oversight between the two Development Agendas also being provided by the CE.

- **Core Issue 4: Services and Applications**

New access to personal data will enable the development of new services and applications for individuals that help them be more effective in using their data to make decisions, and manage their lives more efficiently. This will also unlock new value for businesses.

The development of consumer-facing personal data services and applications will help to inform the development of Infrastructure and Standards, Individuals' Know How, and Adaptive Regulation.

- **Core Issue 5: Incumbent Business Case**

Reduction of the costs and risks caused by Core Issues 1, 2 and 3 will foster the development of business cases for incumbents to invest in this market. This will lead to greater participation in the market, be that making data available, accessing the productivity and efficiency, or delivering new innovation, which creates new revenues.

The two Development Agendas should optimally run in parallel. This is because:

- They very valuably inform each other, and independently they don't and won't deliver the value of personal data mobility.
- If run independently they will trigger other risks and challenges. For example, data access without resolving safe data sharing stalls value creation.
- Due to their interconnectedness all stakeholders can make a valuable contribution to both Development Agendas.

9. Recommendations

This report makes three major recommendations which directly support the progression of the personal data mobility market, as described in Section 8 above.

Recommendation 1: Create the Coordinating Entity.

Recommendation 2: Progress the priority activities in the CE-led Personal Data Mobility Development Agenda, specifically progressing interoperability, safe data sharing and liability model while also designing the approach to the resolution of the Core Issues of Individuals' Know How and Adaptive Regulation.

Recommendation 3: Progress priority activities in the business-led development agenda, specifically to engage stakeholders and map a route to long term participation.

9.1 Recommendation 1: Create a personal data mobility Coordinating Entity.

Initiate a personal data mobility industry working group with immediate responsibilities to:

- Design the coordinating entity, with essential characteristics outlined earlier.
- Codify and promote reusable solutions.
- Enable ways of sharing knowledge.
- Use the Directed Innovation Framework to explore solutions, inform the business case, identify government intervention requirements.

9.2 Recommendation 2: Progress priority items in the CE-led Personal Data Mobility Development Agenda across the Core Issues of Infrastructure and Standards, Individuals' Know How, and Adaptive Regulation

9.2.1 Infrastructure and Standards

Progress the resolution of three of the infrastructure and standards Key Challenges which require priority action:

- Support the development of interoperability – identify and promote reusable solutions and actively support the development of standards.
- Government and industry to collaborate to identify ways to mitigate the potential harms from data portability as an individuals' legal right. Safe data sharing should be an early focus of this approach, to tackle the threat of misuse of data increased by data portability.
- Work with OBIE to establish a liability model for Open Banking that would be transferable to other sectors and applications.

9.2.2 Individuals' Know How

Consumer demand for data mobility will be vital in developing the case for business investment.

- Work with DCMS, NCSC, the ICO and other regulators to ensure that the right to data portability is prominent in communications. Data sharing skills should also be included in digital skills programmes.
- Work with consumer groups such as Which?, Doteveryone, and Consumers International to support the development of individuals' know how.

9.2.3 Adaptive Regulation

- Create a structure to enable the development of iterative and adaptive regulation that utilises the Directed Innovation Framework.
- Close collaboration between government, innovators and regulators using the Directed Innovation Framework to highlight areas of regulation required.

9.3 Recommendation 3: Progress priority requirements from the Business-Led Personal Data Mobility Development Agenda

It is for businesses and industry to lead on building the products and services that populate the data mobility ecosystem, however, government also has a role to play in the facilitation of the development of the business case.

- We recommend that an industry working group, as described in Recommendation 1, is convened to agree how support from government would be best focussed.
- Support developers of applications and services:
 - Create a Sandbox, similar to the FCA Sandbox using the Directed Innovation Framework at its heart.
 - PDMS/PIMS businesses and organisations such as TechUK and InnovateUK, actively participate in designing the Sandbox.
- Promote the use of the Directed Innovation Framework outlined in this report by making it available for use by businesses seeking to create new services encouraging its further iteration and development.

Work with government departments and with initiatives such as Smart Data Review and the National Data Strategy to release government data and encourage the private sector to follow suit. Establish a set of standards and solutions that will lower the development burden for incumbents and innovators. This section of the report describes the approach, concepts and structures used in this study to undertake the research and analysis of the personal data market in relation to portability and mobility, and the demonstration of a 'Directed Innovation' Framework to explore solutions.



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