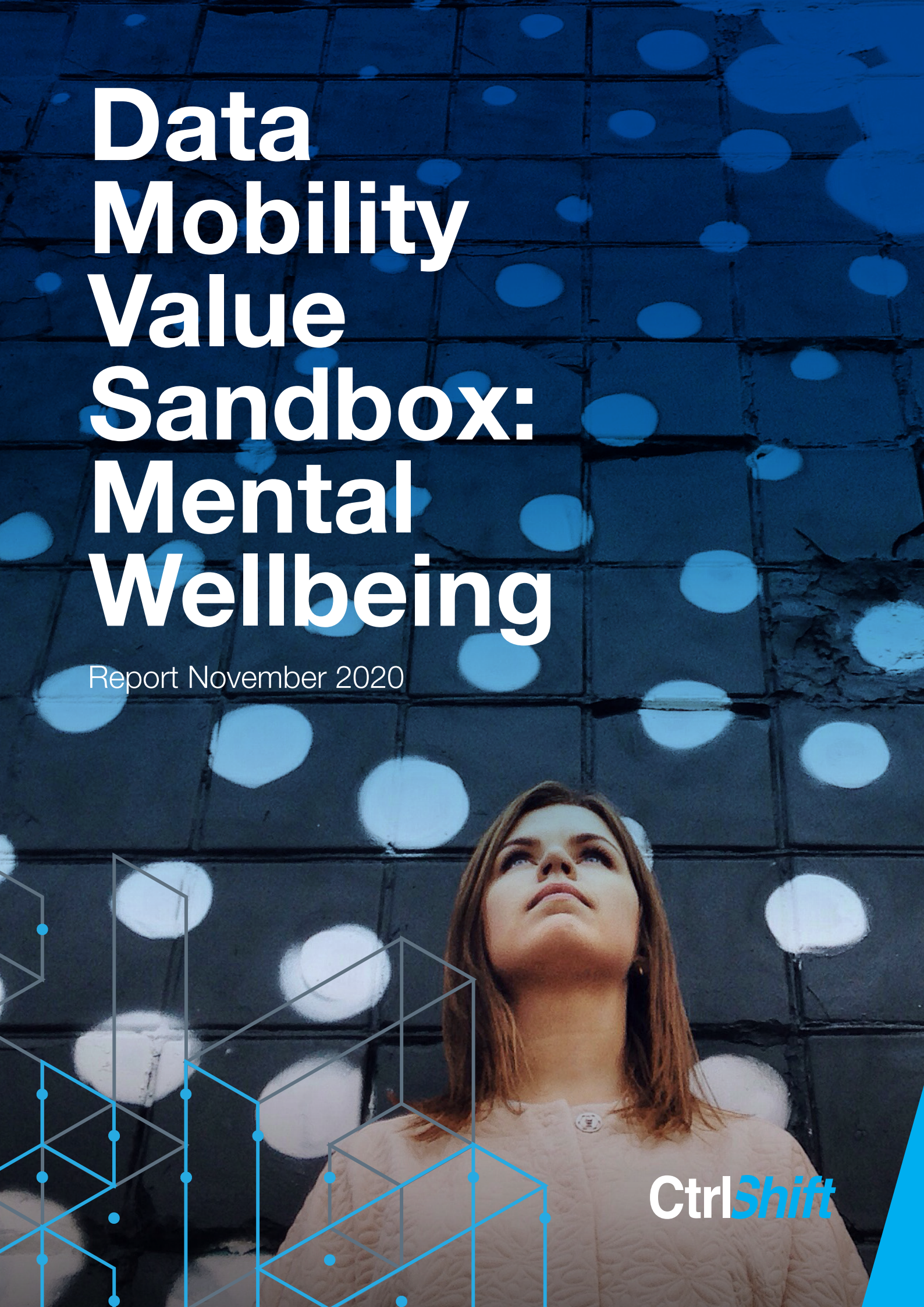
Data Mobility Value Sandbox: Mental Wellbeing

Report November 2020



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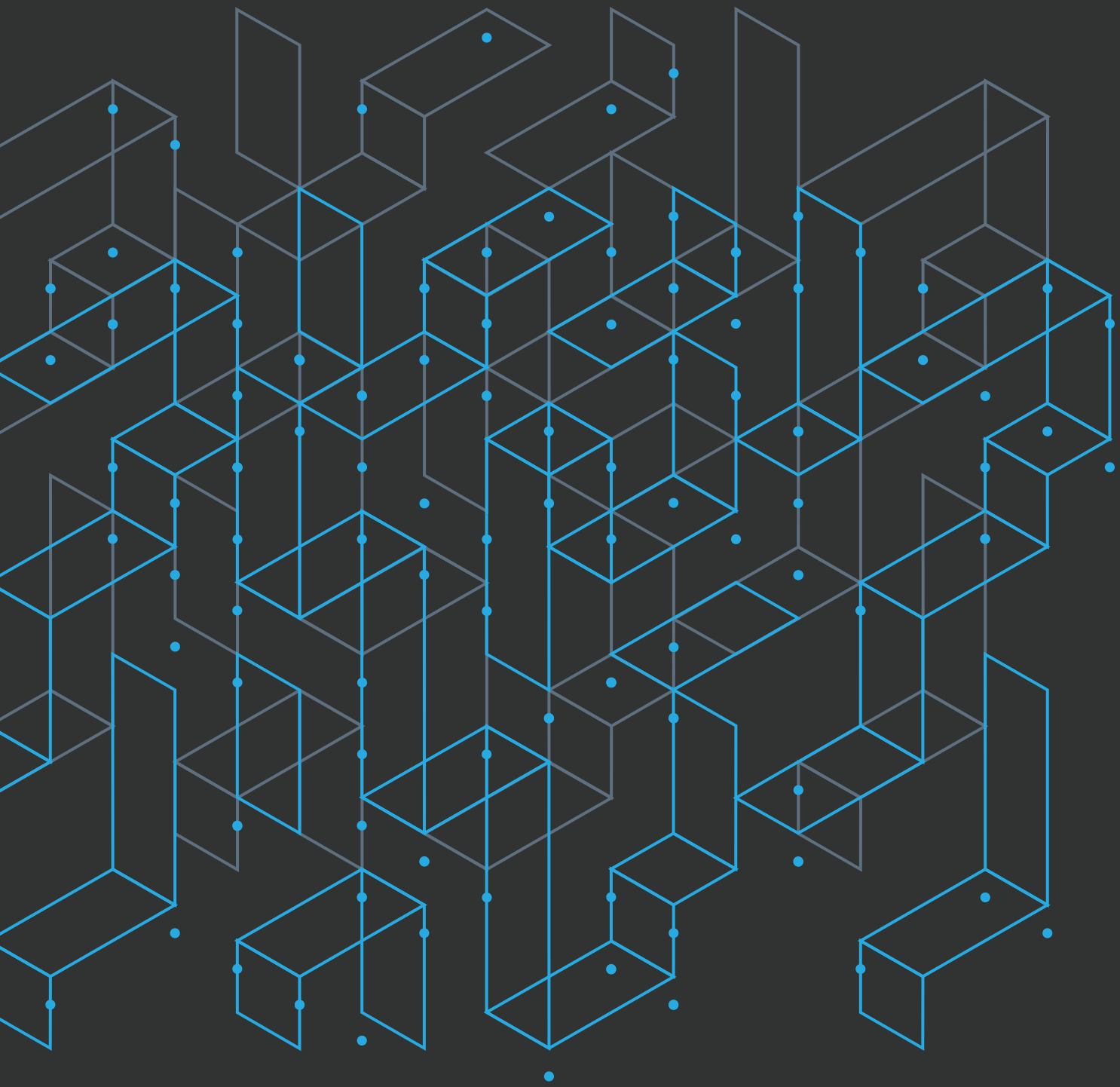


Foreword.

CtrlShift

Liz Brandt,
CEO

“Mental wellbeing is an important area where Data Mobility can bring significant value to people, society and the economy, so was ideally suited to this first Data Mobility Value Sandbox. The contributions of our Sandbox stakeholders helped us to navigate a diverse challenges and complexities, to help explore the desirability of a mental wellbeing service driven by personal data.

togetherall

Henry Jones,
CEO

“The social and economic impact of mental ill-health is predicted to increase significantly as a result of the Covid-19 crisis. We believe there is a huge opportunity for leveraging people’s personal data safely and securely to develop a population based preventative service that helps many more people than current provisions allow.

facebook.

Stephen Deadman,
Facebook

“This Sandbox has enabled Facebook to engage successfully with a multi-disciplinary and cross sector consortium of organisations to help unlock the challenge and opportunities of collectively mobilising personal data. This type of partnership working has been a catalyst for us to identify new ways of working at scale.

HSBC

Ranil Boteju,
HSBC

“The regulatory landscape around personal data is changing rapidly for financial institutions and more broadly. This presents a variety of technical and commercial challenges, combined with huge opportunities for us to support our customers and provide the best possible service through a collaborative data strategy.

Foreword.

ico.
Information Commissioner's Office

“An individual’s right to data portability is enshrined in data protection legislation, enabling services like Data Mobility to innovate and leverage personal data safely and ethically. By considering data protection principles at the outset, the mental wellbeing service developed through this Sandbox can bring benefits to the public, while ensuring people’s privacy rights are protected.

Sallie Spilsbury, ICO

Public Health England

“This Sandbox proposes a service that empowers people to understand and manage their mental wellbeing more proactively. The service, validated by clinical evidence, works by linking to the individual’s own personal data, through a safe and secure data infrastructure. By mobilising numerous data sources, it gains a deeper insight into what is happening and what will help the individual.

Gregor Henderson, Public Health England

Department for Business, Energy & Industrial Strategy

“Through this sandbox approach we see a way to unlock the commercial value from data mobility through tackling a critical social need. The greater variety and volume of data that organisations have access to will increase productivity and efficiency.

Harriet EgdellPage, BEIS

“I was an observer in the sandbox in my role at Consumers International - it’s clear to me that people will only be able to and want to exercise their data portability rights within a safe and trusted infrastructure, developed with and for consumers. This pioneering Sandbox has great potential to support mental wellbeing and build out the personal data infrastructure in the UK and beyond.

Liz Coll, Independent Consumer Expert

Centre for Data Ethics and Innovation

“New ways for people to control and share access to data about them could unlock great opportunities across the economy. It has been interesting to consider the value proposition for data mobility on a sensitive and complex but potentially very impactful area like mental wellbeing.

CDEI

Expert facilitators of the project, and author of this report

CtrlShift

Ctrl-Shift is a business innovation consultancy specialising in the strategic value of trusted personal data.

Contents.

CtrlShift

Executive Overview.

Mental wellbeing was chosen as the focus of this Value Sandbox because it is rich with opportunity and potential value arising from unlocking Data Mobility, and also because this value derives from highly sensitive data that could be easily exploited to the detriment of the individual.

The design of the market and regulatory structures can therefore have a material impact on the ethical challenges. Moreover, the market today, such as it exists, is opaque and lacks clear metrics. Providing mental health services today is also very labour-intensive, hard to scale, and chronically under-resourced. Each individual has very different needs, and sensitive personalisation can bring benefits – not only so that any support may be properly targeted, but also because personalisation can increase the chances that an individual will engage with that support in the first place. A digital service that helps users to track and improve their mental wellbeing must draw from a broad range of data-driven insights to achieve this kind of personalised interaction.

In this Sandbox Module, we created an outline service concept, named WellApp, which we envision as a tool to help an individual track and proactively self-manage their mental wellbeing. It is driven by personal behaviour data from a range of everyday digital services, and the service helps the user track their behaviour and spot patterns to feel more in control of their mental wellbeing.

With Data Mobility, the use of data (or not) should lie entirely in the hands of the individual. This means that the user should be able to easily and meaningfully manage their consent to the use of their data by third parties. We highlight this as a particular area where a clear, well-designed user experience could make or break the service, and by implication, the value of Data Mobility. Part of the job of good design is to simplify complex decisions and reduce the cognitive load of the user to an appropriate level while still empowering them. This kind of seamless, intuitive control by the user is not just something that can be added later: it must be reflected through the market and regulatory structure. We believe this can be achieved by establishing the role of the 'Data Facilitator', a body that acts on behalf of the user with transparency and trust. If this is achieved, it would open wholly new areas of opportunity while preserving the freedom of the market to compete and innovate, moving in this particular case beyond the management of mental wellbeing to an opportunity for preventative healthcare at a population level.

As part of the first phase of the Sandbox, exploring and articulating the potential value of the mental wellbeing service, we created a set of clinical guidelines and design principles which can be used to frame the future development of the service and the Data Mobility markets. The clinical guidelines summarise insights from clinicians and help ensure a high standard of clinical ethics are maintained, and also flag up areas of potential clinical risk and liability. The design principles for the service are equally important for successfully realising value, since the details of the user experience have a direct impact on the level of trustworthiness, perceived value and actual impact, without which the service will fail.

The governance model for WellApp has not been scoped fully in this Sandbox module, but will need to consider the potential for unintended consequences of the new knowledge and insights available through the service. For example, the use of user insight by banks could identify or create new vulnerabilities amongst users – which would in turn create new underserved markets. This may not be universally damaging, however, as it could also create new micro-markets with hyper personalised services.

Business models

We also investigated possible business models and opportunities for financial sustainability of the service.

WellApp could create value for its users, for businesses providing data, and for the economy and society at large. In 2016 the NHS estimated that the cost of providing care for

mental health was £36bn in England, and that the overall cost to the economy of mental ill-health was £105bn. Even reducing this figure by a small proportion would reap significant benefits.

Through discussion with expert stakeholders in co-creation workshops, we created a draft business model for WellApp, which suggests that there could be a strong opportunity for a service free at the point of use, that uses an individual's personal data (but which does not use that data to raise advertising revenues, as this would undermine critical characteristics of the service such as privacy and trustworthiness). Critically, the busines model would rely on the existence of "premium APIs" to support the availability of high-quality data for the service. This would need clarification and alignment with GDPR, and in its implementation should draw on learnings from the UK Open Banking Implementation Entity.

Infrastructure

The value of the service assumes a future ability to access broad and deep data from every-day digital services, in near-real-time.

Technologically this is close to achievable today, but legally and organisationally there is some work to be done before it can be implemented easily and safely. In particular, it may require amendments to the GPDR data portability regulation to enable the market to flourish. For example, the current regulation requires that any data requested by users be delivered to them within 30 days, a timescale which would all but negate the value proposition for WellApp.

The Mental Wellbeing service highlights the need for mature and stable infrastructure if we are to access the value opportunities available. Specifically, there is a need for clear governance frameworks in this space, with, for example, 3rd party identity validation, and methods for validating data facilitators which would support trust in the market.

There is also a need for additional capabilities, such as the ability to train AI models with personal data, which is currently distributed across individual data stores.

The Data Facilitator plays a central role in our market model, being the entity that manages the user's data and data-use permissions and consents – or the user's experience of their data – as it flows from one service to another. Data Facilitators are at the heart of the data-sharing ecosystem, and reduce the complexity and cost of creating services that use multiple data sources. They provide a shared infrastructure for managing personal data, in which the complexity of privacy, safety and user consent can be managed effectively. This, in turn, allows other companies to focus on providing innovative services to users, without the high costs of building their own Data Mobility infrastructure each time, and with greater transparency for the end-user. The Data Facilitator model provides a platform for new transformational data-driven services, and permits rapid scaling of value and features, while greatly reducing complexity and risk for the user. Today, there is a maturing Data Facilitator market which we explore in chapter 4 of this report. Gaps identified are then listed in chapter 5.

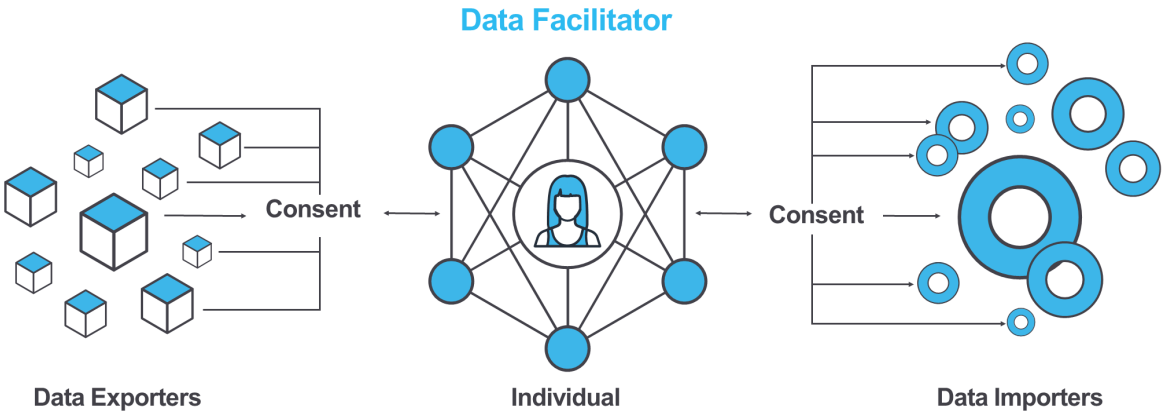
Bridging the gaps

While it is possible today to realise minimal viable value from the WellApp to realise its full potential, we identified gaps in five main areas which, when fulfilled, would not only unleash the WellApp's value but which have the potential to unlock value throughout the data-driven economy.

The five areas are: Ethics, Data consent, AI development and deployment, Data availability and the Governance models of Data Facilitators. Many of these suggest that cooperation and collaboration will be required between businesses, consumers and a range of public stakeholders, in order to reach the required level of market maturity and regulatory sophistication. In future modules of this Value Sandbox we propose to further investigate these gaps and understand the sustainability and feasibility of the WellApp service over time, and to identify a clear feature set that could form part of a Minimum Viable Product (MVP).

01

Introduction.



1.1 Data Mobility Sandboxes

What is Data Mobility?

Personal Data Mobility empowers people to access their data from multiple organisations, while controlling with whom it is shared and for what purpose. This consent-based data sharing enables the privacy preserving creation of new value and digital tools for individuals.

For individuals, these tools offer the ability to manage and use their data which, as our world becomes increasingly digitised, can enable them to save money, make better more informed decisions and manage their lives more effectively.

For businesses, this creates new landscapes of value, making businesses more relevant in peoples lives, creating new and sustainable value from data and creating a wholly new position of trust. For society it opens up even greater opportunities where data-driven insight and decision making can save money, streamline processes, improve quality of life and even potentially save lives.

While an individuals' right to data portability is already enshrined in GDPR, the concept of data mobility goes further by enabling new and existing valuable services that leverage personal data safely and ethically. The economic importance of Data Mobility has been highlighted by numerous Government reports and is a key part of UK & EU data strategies. Its potential contribution to the EU GDP is estimated to 1% to 4% per annum[1,2].

In the first Data Mobility Infrastructure Sandbox (June 2019)[3], we established that cross-sector data can be privacy-enabled and shared safely to allow value creation. However, as data mobility is experienced more as an enabler of other value rather than as an end in itself, it is only possible to demonstrate the potential value of data mobility by exploring it in the context of a specific service.

This report describes the first in a series of Data Mobility Value Sandboxes with this aim.

1. https://www.oecd-ilibrary.org/science-and-technology/enhancingaccess-to-and-sharing-of-data_276aaca8-en
2. https://www.ctrl-shift.co.uk/wp-content/uploads/2019/07/DCMS_Ctrl-Shift_Data_mobility_report_summary.pdf
3. https://www.ctrl-shift.co.uk/wp-content/uploads/2019/06/DMIS_June_2019_Downloadable_Singles_Final4.pdf

What is a Data Mobility Value Sandbox?

The Data Mobility Value Sandbox is an expertly-facilitated collaborative environment designed to enable the rapid testing of the potential value from personal data mobility.

Data Mobility Value Sandboxes build upon the Infrastructure Sandboxes, as illustrated in figure 2 below.

Each sandbox convenes a wide array of stakeholders from experts to end-users, to collaboratively speculate and explore products and services in a given opportunity area.

In this process of directed innovation, we have considered how we might build services to deliver:

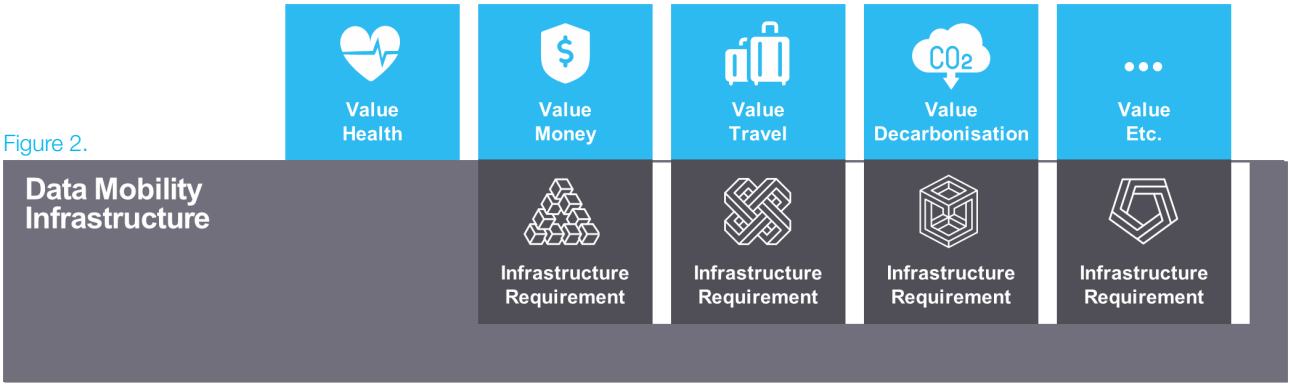
- Value and agency to the individual
- Opportunities for businesses, including workable business models
- Insight into future infrastructure requirements
- Value for broader society

Each sandbox focuses on one value opportunity and is modular - this report describes the first module of the Data Mobility Mental Wellbeing Value Sandbox, in which we explore and validate the desirability of a personal data-driven mental wellbeing service.

Each module of the sandbox is designed to explore the customer and business opportunities and the infrastructure required to support the opportunities. Working with a cross-functional team, we have brought together skills across product, user experience, commercial and business models, governance, technology, standards and regulatory expertise. This has enabled us to co-create leading-edge data-driven services founded on Data Mobility.

This Sandbox has revealed the landscape of a new value opportunity and the related data market requirements, before significant resources are invested into further development.

Figure 2.



1.2 Why mental wellbeing?

An opportunity for value creation

Mental wellbeing was identified as one of three key areas of potential value in the 2019 Infrastructure Sandbox.

Currently there are no services that use multiple data sources to infer insights about the individual's mental wellbeing. This is an area where data mobility can bring significant value to the individual and to society, and the need for scaleable solutions to help manage mental wellbeing has been accentuated by the 2020 coronavirus pandemic.

The financial cost of mental ill-health was estimated at £42bn per year in 2018, in line with the European average of 4% of GDP[4], and the adverse effects are particularly concentrated in ethnic minority and low socioeconomic groups[5]. In 2020, as many countries imposed various forms of lockdown to limit the spread of coronavirus, risk factors for mental health have spiked, such as financial stress[6,7], isolation[8] and changes in media consumption[9].

These factors have also contributed to an increase in domestic violence[10], and are likely impacting the development of mental resilience amongst younger generations[11].

Commentators we spoke to during this Sandbox spoke of a 'mental health timebomb' with effects that could be felt for years, and in many cases decades.

A complex area full of challenges and sensitivities

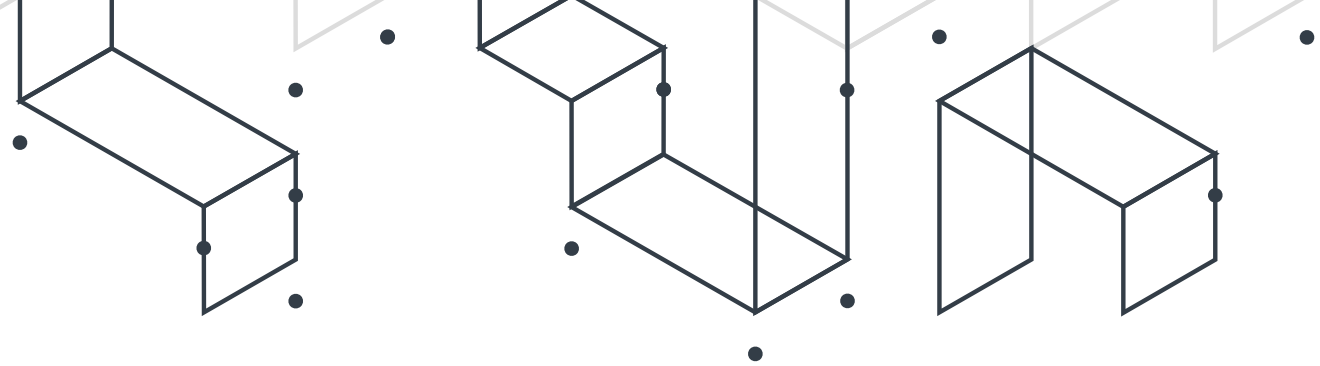
The concept of a mental wellbeing digital service driven by an individual's personal data, throws the ethical and safety considerations of data mobility into sharp relief enabling us to directly address them and access the value which otherwise would be inaccessible.

Identifying the value for business investment

Mental Health is an area that historically has suffered from under supply and a lack of transparency, and the market for mental wellbeing services is fragmented and opaque to the consumer. This is not helped by the fact that providing mental health services is typically complex and labour-intensive, and therefore difficult to scale. A highly personalised and scalable digital service to support mental wellbeing could be transformative – but in order to succeed, it would need vast amounts of personal data. These characteristics make it an ideal candidate for a solution enabled by Data Mobility, offering both commercial opportunities and social value, which were identified as opportunities arising from Data Mobility in the economic study conducted by Ctrl-Shift in 2018[12].

Highlighting the infrastructure gaps

Finally, we will be able, through this specific use case, to define the necessary infrastructure and business capabilities to realise the value of the service, and to determine where the key gaps are before this can be done.



1.3 Objectives of this Sandbox

01
Desirability

Confirm that the service is desirable for individuals, business and society

02
Value

Identify a business model or models and have a high-level business case, with value, costs and risk consideration that will sustain the service.

03
Feasibility

Defined and test the opportunity with potential data partners. .

04
Infrastructure

Identify the potential infrastructure scenarios and priorities to support such a service.

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6. Banks, J., Karjalainen, H., Propper, C. 2020. Recessions and health: the long-term health consequences of responses to the coronavirus. The Institute of Fiscal Studies. https://www.ifs.org.uk/uploads/BN281-Recessions-and-health-The-long-term-health-consequences-of-responses-to-COVID-19-FINAL.pdf
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9. Gao J, Zheng P, Jia Y, Chen H, Mao Y, Chen S, et al. (2020) Mental health problems and social media exposure during COVID-19
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12. https://www.ctrl-shift.co.uk/wp-content/uploads/2019/07/DCMS_Ctrl-Shift_Data_mobility_report_summary.pdf

02

A data-driven mental wellbeing service.

2.1 Key takeaways

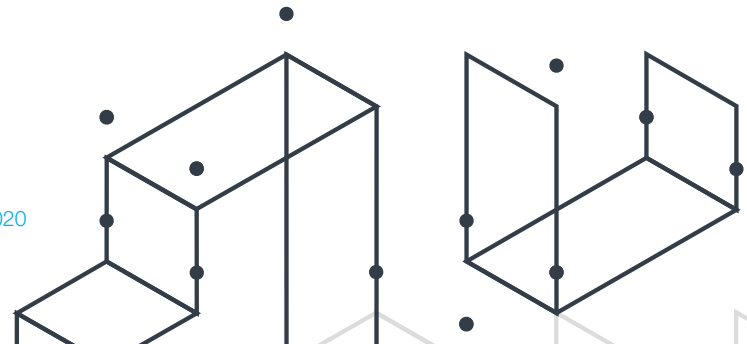
- A unique value proposition has been developed for a preventative service that would assist individuals with their mental wellbeing. The service, with a working name of WellApp, is driven by data flowing from multiple sources in real time. It is therefore an example of value that would be unlocked by data mobility.
- Working with experts, including clinicians, we created a set of clinical guidelines for the service, which articulate its clinical goals and scope and which informed the subsequent work on the proposition development.
- We created a set of six design principles to guide the future development of the service towards the most likely areas of value. These principles inform, for example, what kinds of information are presented to the user, and how and when. They are based on a user co-creation workshop and informed by user insights and the clinical guidelines.
- Important areas for future development include data ethics, clinical risks and technical challenges.

2.2 Objectives

The first phase of the sandbox focused on proving the value and desirability to the individual:

- To work up a product concept from the initial value hypothesis and to iterate the value opportunities
- To validate the concept through qualitative user testing
- To identify and prioritise the main features of the service, enabling the prioritisation of the infrastructural capabilities required to deliver the value and business value
- To develop goals and principles to guide subsequent development of the service

The objective was **not** to develop a functioning product or service at this stage.




“
If I become aware at 80% before I hit rock bottom I can still do something about it.”
Ed (user testing participant)
CtrlShift

2.3 The WellApp Service

Background

A large number of personal digital health services currently exist, but few are backed by clinical evidence.

Moreover, no services currently exist that are fed by multiple sources of user data. There is an opportunity to create true value for an individual by inferring insights from multiple data sources. We also see an opportunity to create value through early-stage warning and prevention, helping to avoid the adverse impacts of mental ill-health and reduce their significant economic and societal costs.

Mental wellbeing is an area rich with ethical challenges: in addition to dealing with issues of clinical ethics, the data and insights around a person's health are sensitive and could be easily exploited to the detriment of the individual. By involving clinicians from the earliest stages of the process, we aim to identify opportunities that are both valuable and ethical.

The service outlined in this report is the result of a process bringing together a wide range of stakeholders including end-users, clinicians, service designers and data privacy experts.

Overview of the service

The service is envisaged as a tool for an individual to track and proactively self-manage their mental wellbeing, driven by personal behavioural data from a range of everyday digital services.

This is a mass-market proposition, intended to act in the first instance as a preventative service for mental wellbeing. It is enabled by streams of personal data from services such as the user's bank account, location data, shopping data, media consumption and so on (Figure 3).

Figure 3.
Selection of possible data sources.

The mental wellbeing service storyboard below (Figure 4) illustrates how the service, driven by these data sources, might work.

We assembled a group of users who currently self-identify as having had one or more episodes of low mental wellbeing in the past, to help us identify how the service might provide value to them. The value hypothesis was that helping them to track their behaviour (and recognise unconscious behaviours), through patterns in their data, would aid self-awareness and help them feel more in control of their mental wellbeing. The qualitative feedback provided by our group of six test users was very positive, and rich with insights about how the service should be designed in order to be effective for the individual.

The storyboard outline of the mental wellbeing service below illustrates one type of user and one aspect of the business model (see the business model section for other possible channels and permutations). This storyboard is designed to bring to life the service showing how an individual may discover and use the service and at the bottom the key steps that take place behind the scenes.

The user is prompted to sign up for the app before a problem exists 1, and after doing so they are then able to download and open the app. As part of the onboarding process, they are asked to set goals for their mental wellbeing, and they give consent for WellApp to access their personal data from multiple sources 2. Over time, thanks to this data, the user can be informed of patterns in their mental wellbeing, including possible triggers and aggravating situations 3.

The user is able to give feedback to the service, in order to make it more helpful to them. The service improves as it learns the user's preferences, coping strategies and preferred modes of communication.

This personal learning model would be supported by clinical, environmental and community models which ensure that those alerts, suggestions and interventions were clinically validated 4.

At any point the user can go back to review and adjust their feedback, their goals and so on. Ultimately the user would be empowered to take action and potentially change their behaviour to be more in line with their stated goals.

Over the medium to long term, the efficacy of the service could be quantified on an individual or a population level thanks to changes in the individual's behaviour, and this could potentially form the basis of further discussions with a healthcare professional 5.

Note that the data and its analytics would be only seen by the individual, unless they decide to share it with express consent.

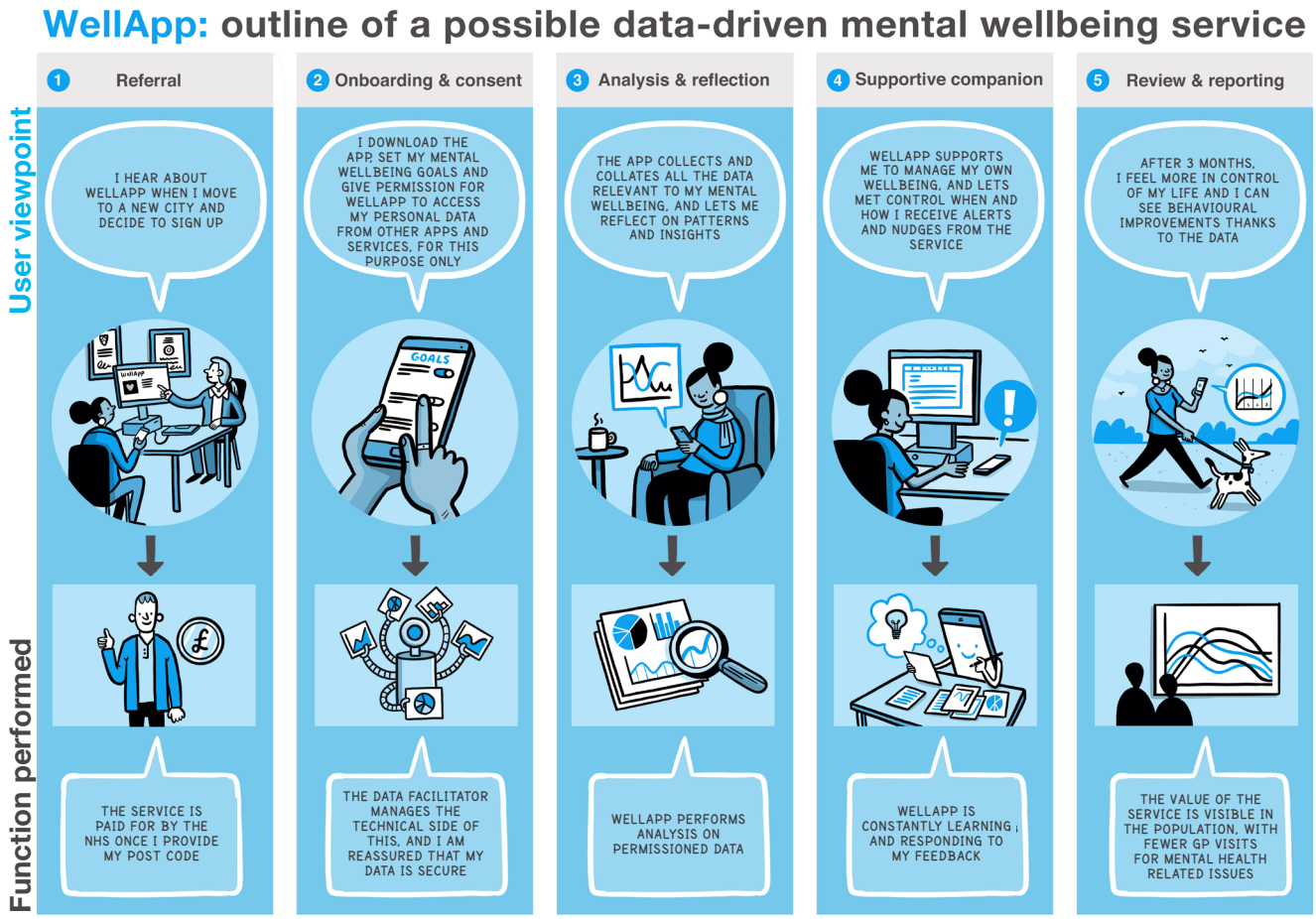


Figure 4.
Storyboard outline for the mental wellbeing service.

> “You can’t change anything without knowing it’s happening in the first place.”
>
> Matthew Rudge, CBT Therapist, Big White Wall

Clinical guidelines

The guidelines listed below were developed in conjunction with Big White Wall, a leading mental health provider and one of the steering group members for this Sandbox, as a way to incorporate key considerations from clinical ethics into the value proposition development.

Taken together with the design principles below, they form part of a set of guidelines for the development of the service and its algorithms to enable it to be as valuable and ethical as possible. The clinical guidelines for the service are as follows:

- To help the individual take responsibility for their own mental wellbeing
- To be validated by clinical evidence wherever possible (for example in the process of inferring characteristics of mental wellbeing from personal behavioural data)
- To avoid relying exclusively on self-reported information from the individual (since self-reporting requires a high level of self-awareness and can be unreliable)
- To avoid disempowering the individual (as this may make the individual less likely to use the service)
- To be guided by the individual’s own preferences when issuing alerts and notifications to them or to others.
- For features to be designed with clinical ethics and responsibilities in mind, particularly in the case of the app being set to notify a trusted third party in a given situation, which could be disempowering to the user.

Design principles

By involving users at an early stage in the process, we were able to demonstrate that, for value to be realised by the end user, the service must meet certain subjective criteria.

Through user co-creation sessions, we validated and refined the proposed service. This process also highlighted some important considerations for the broader ecosystem of Data Mobility that the service rests on.

The vast majority of users will not be technology experts, so it is important that both the service and the market should be designed to enable the user to unlock the value of their own data seamlessly. Good design allows a user to cut through complexity with clarity and purpose, and in the case of the overall design of the market for Data Mobility, it is especially important to avoid overwhelming the user with too much detail or decision fatigue. For example, the consent process for data should be intuitive, transparent and powerful, and should not require more input from the user than strictly necessary.

Any consent control interface should give the user, in one place, a clear sense of their rights and capabilities, and give them the tools to act accordingly. One of the main benefits of the Data Facilitator model we discuss in the following chapters is that the way the market is structured works in favour of user empowerment: once the flow of user data from multiple sources to the Data Facilitator is set up, the user has a single place from which they can control the onward flow of their data to other services. This results in a more seamless and valuable user experience, not just for WellApp but for all services that are enabled by Data Mobility, and therefore adds value to the market overall.

In the specific case of WellApp, the insights from the qualitative research revealed the importance, not just of the functional aspects of the service such as identifying patterns in data, but in how those patterns are communicated to the user. For example, if the app makes a suggestion to a user to help improve their mental wellbeing, the app needs to communicate how that suggestion is based on insights and data. For example, it might enable the user to present each insight with an impartial statement about the data on which the insight is based. It is important that the user feels comfortable and trusts that the service has ‘got their back’ (rather than being an inscrutable black box, or a demanding ‘dictator in your pocket’).

Understanding these sensitivities is more than a ‘nice to have’: it is critical for maximising the value of the service. Taken together, the insights from user workshops have been formulated into a set of design principles (see below), which will serve as a useful guide for future development of any app or service that may arise from this work.

Note that, in addition to these user experience principles, the service should at the outset clearly communicate its value to the user, and how, to access this value, the user needs to consent to having their relevant personal data flow to the service.

01
Observant

- Act as an ‘always-on’ companion
- Analyse the user’s data – with their consent, and under their control

> The concept makes sense, as your entire life is through your phone.

Sol (user testing participant)

02
Approachable

- Avoid both informal, lightweight language, and scientific jargon
- Allow the user to provide information and feedback, for example to contextualise behaviours such as coping mechanisms.

> Sometimes one word out of place can make me delete an app - this is very straight forward, without trying to be too kind.

Mitch (user testing participant)

03
Impartial

- Separate facts and data from insight or conclusions
- Avoid admonishing or alienating the user for “failing” to achieve goals

> What you don’t want is a little dictator on your phone.

Ed (user testing participant)

04
Personalised

- Allow the user to curate their own experience, for example by determining their preferred level of engagement with the service, and/or by complementing other mental wellbeing services including therapy
- Learn the user’s preferred methods for self-management, rather than having interventions and suggestions based solely on research

> The app helps to start those conversations [with a therapist].

Sam (user testing participant)

> Apps can throw lots of info at you, especially when you’re low on energy already.

Mitch (user testing participant)

05
Dynamic

- Recognise the habits, routines, mental models and attitudes corresponding to different states of wellbeing
- Adapt to the user’s needs in the moment, recognising that a person needs different kinds of support and communication depending on their context and current state

> When I’m in a bad place, it’s like someone took out my brain and put someone else’s in.

Ed (user testing participant)

06
Positive

- Work on the basis of ‘positive reinforcement’ - gathering data and positive memories from ‘good’ times, to lift wellbeing during ‘bad’ times
- Recognise that sometimes it might be better not to intervene, or that the service might be being used as a coping mechanism itself.

> My brain changes before I emotionally catch up or my body notices.

Dan (user testing participant)

Areas for further exploration and development

Service KPIs

The use of the data and insights from the service would allow us to quantitatively measure the value of the service to the individual and to society. This would support a sustainable business model. However, as the value to the individual is less clear, and the information could be highly personal and sensitive, careful framing is needed to communicate and obtaining this consent. It is not yet possible to gauge how an individual would truly perceive the value of a service like this, and whether they would need to see personal, societal or monetary KPIs to keep using it, for example.

The WellApp service would also be well-placed to analyse population-level trends, providing aggregated and anonymised insights based on large datasets for broader social benefit. Such anonymised statistics could contribute to mental wellbeing KPIs for public health organisations and employers.

Delivery of AI and ML technologies underpinning the service

With behavioural data one could create new assessment models for mental wellbeing that do not rely on self-assessment. Can we create new mental wellbeing assessment models based on previously inaccessible data? How would we access this data to train the models, while maintaining privacy?

Clinical risks

There are risks inherent in any service that provides a clinical benefit. These warrant further exploration in subsequent development of this proposition – especially relating to the development of liability models.

Data Ethics

Working with organisations such as the Centre for Data Ethics and Innovation, we would seek to understand and apply a trust framework for data sharing, to take account of issues such as security measures, accountability (over and above the Data Protection Act), transparency and control over the data. These points will ensure that value can be delivered to the end user in a safe, transparent and trustworthy way.

Duty of care

The exposure and analysis of new and newly combined data creates new duties of care for providers of digital services. In order to prevent exploitation of vulnerable individuals, and to realise the maximum value from the new opportunities, it is essential to explore this duty and identify where the liabilities lie. In WellApp's case, using Data Mobility it is possible to separate the duty of care for the data and the clinical outcomes, allowing for new business models and growth opportunities. Although this falls under the broad category of data ethics we have specifically called it out here: unless this is resolved, the value proposition becomes unstable, and the burden of liability could fall solely on the individual, eclipsing the value of the service.

Financial and other risks to the individual

It is possible that insights generated by the app could be used to assess their suitability or risk factors for products such as insurance, holidays and so on. This could create new underserved markets, or adversely raise insurance premiums for individuals in certain situations. It is important that the risk of doing so be properly understood and mitigated where possible.

03

Exploring value to businesses.

3.1 Key takeaways

- A complex but compelling business model has been devised for WellApp and is described in detail in this section.
- There are clearly identified flows of business value (both commercial and social) throughout an ecosystem of 'actors' e.g. users, partners and other key players. This suggests a 'platform' model for the service.
- The underlying business model is based on 'premium APIs', whereby data partners sell access to high quality contextualised data. This creates a space in the market for consumer-facing data-driven business models that do not depend on advertising revenue (and which may be, as in this case, free at the point of use).

3.2 Objectives

Having established the potential value to the consumer, the next step was to understand if there is potential for a sustainable business model. Based on the service outlined in the previous phase and the customer value proposition therein we were able to:

- Identify the key stakeholders needed to support the service
- Map the data flows across the service and between stakeholders
- Identify potential data partners
- Develop an initial business model

Working collectively and individually with the network of steering group and observers group members, to create, iterate and evolve a business model canvas together with a value flow model that takes account of considerations around value to the user and possible ethical concerns revealed in the previous phase. To inform the development of the business model a number of relevant data-driven business models were analysed, which were used for comparison and contrast including, data platform businesses (e.g. Facebook, Amazon), payment networks (e.g. Visa, Mastercard) and mobile health and wellbeing companies (e.g. Babylon, Toucan, Evermind).

3.3 Mapping the ecosystem

The WellApp service, as envisaged, brings together many stakeholders or 'actors', which together form an ecosystem. To map the relationships and flows of value between them, we asked the following questions:

1. Who are the key players (actors), and what value do they offer within the ecosystem?
2. How does value flow between these actors?

Actors in the model

Four categories of actors were identified, who each play a different and crucial role in the mental wellbeing service.

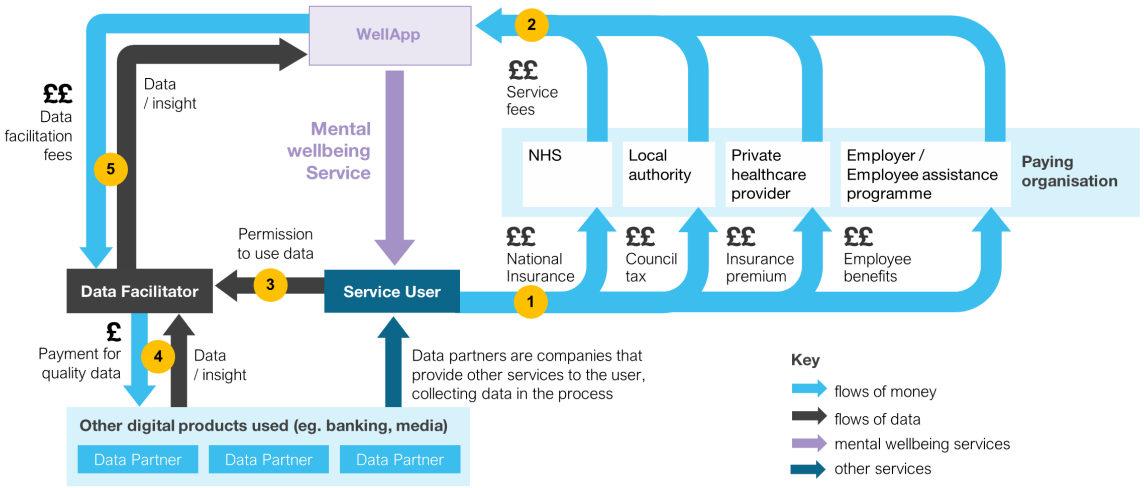
These are listed in Table 1, along with a value proposition that summarises the rationale for that actor being involved in the exchange, and thereby ensures that the business model is sustainable. These value propositions have been hypothetically tested with representatives from each actor and will require further evaluation to ensure there is a sustainable business model. Note that the owner of the WellApp would be responsible for driving the outcomes, to the satisfaction of the paying organisation(s) and users.

With this in mind, we can then map the interactions between the actors to illustrate the network of value exchange, illustrated in Figure 5.

Table 1.
Actors in the platform business model.

Category		Example	Value Proposition
Service provider	The service that uses the data to provide value to the end user	WellApp	• Revenue, eg. from the paying organisation, and/or via referrals to other services
User	The person (or end user) who uses the mental wellbeing service directly	An individual	• Automated monitoring and alerts • Improved self-efficacy in the long term
Paying organisations (channels)	Public health bodies paying for WellApp as part of preventative or patient-centred healthcare policies	NHS	• Assist triage, improve cost-effectiveness of population healthcare • Post-treatment care to prevent recurrence
		Local authority	• Societal benefit: Improve population outcomes • Cost-effective early intervention and preventive healthcare
	Private organisations paying for WellApp on behalf of their employees / customers, to improve welfare and reduce their own costs	Private health insurance Employer Employee Assistance Programme (EAPs)	• Reduce costs of medical treatment • Reduce costs of sick days, low productivity/presenteeism • Improve wellbeing and satistfaction of employees
Data partner	The organisation(s) who gather the user's personal data through providing existing products and services	Financial services, social media services, telecoms and hardware	• Revenue from providing contextual data (premium APIs) • Brand value • Reduce reputational risk • Measurable long-term benefits due to improved customer wellbeing (eg. reduced rate of debt defaults, for a banking customer)
Data facilitator	Key intermediary, acting on behalf of the individual user, managing consent and facilitating access to data for WellApp	Personal Data Management Services (PDMS)	• Revenue from data management • Brand awareness

Figure 5.
Flows of value and data through the proposed platform



The value flows in Figure 5 are described as follows:

The individual is ultimately the customer of the service or service user, and pays for it indirectly through taxes, an insurance premium or an employee benefits scheme [1]. In reality, it is likely that only one of these organisations might actually be paying for this particular individual's service.

The revenue for WellApp is likely to come primarily from the paying organisations, which have an interest in population healthcare [2].

When the individual gives consent for their data to be shared with WellApp [3]. The Data Facilitator coordinates this, as an impartial third party. Data partners who hold the individual's personal data may receive a fee from the Data Facilitator in exchange for providing high-quality or contextualised data (e.g. through a premium API) [4]. Once the Data Facilitator is enabled with the user's permission the data can flow to WellApp [5]. Once WellApp has access to the data, it can in turn provide the wellbeing service to the individual.

Note that an assessment of the magnitude of these flows of cash has not yet been made, and would be part of the next module of the sandbox.

A note on Data Facilitators

Much of the value described in the previous section of this report relies on the service gaining access to the user's data in a safe, impartial and trustworthy way.

This can be achieved by a third party, operating on the user's behalf, which we have named a Data Facilitator.

The role of the Data Facilitator in creating value through data mobility is described in greater detail in our 2019 Data Mobility Infrastructure Sandbox report, and can be summarised in this context as follows.

To remove the complexity of using multiple sources of data

For the service to be successful, the value they receive from this service by hooking up multiple data sources must be greater than the cognitive effort required to do so.

To rapidly scale value for the individual, from a minimum viable product through to a richer service

Once the data flow has started, an individual can reuse data already accessed to unlock value opportunities, and new data sources can be easily added, enabling further value creation.

To enable an environment for innovation

The positioning of the Data Facilitator at the centre of the flows of data allows the marketplace to be more 'modular', since the user permission process is also centrally managed by a Data Facilitator, so each data provider no longer has to create their own consent process (with the resulting costs that that would entail). This modularity lowers the barrier for entry for transformative new data-driven services.Another of the functions of a Data Facilitator is to enable a service provider to rapidly and safely experiment with the available data, to build and test algorithms.

To support the rapid and flexible build-out of an ecosystem of suppliers

Data Facilitators afford users control of the consent and permissions process for their data for many services all in one place, which makes the user experience intelligible and powerful (and therefore valuable). This enables several data-driven services like the WellApp to expand and build on one another with a continued emphasis on safety, agency and value to the end user.

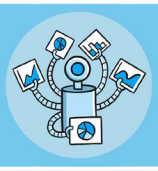
The speed of the transformation needs to be managed carefully, as there is the possibility that this could be highly disruptive of existing markets and business models across the economy, causing major commercial instability. At the same time, however, there is the potential to stimulate innovation and growth and invest in the new digital ecosystem to build out the necessary capabilities and deliver value.

Data Mobility Mental Wellbeing Value Sandbox

Business model canvas

Key partnerships

DATA PARTNERS:
TO PROVIDE ACCESS TO THE USER'S PERSONAL DATA THAT THEY HOLD



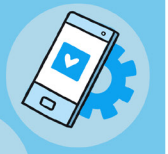
DATA FACILITATORS:
TO GOVERN THE CONSENT PROCESS, ALLOWING WELLAPP TO USE THE PERSONAL DATA, SAFELY AND EASILY

CLINICIANS AND PUBLIC HEALTH EXPERTS:
TO GUIDE CLINICAL VALIDATION AND EFFICACY OF THE SERVICE

Key activities

BUILD RELATIONSHIPS WITH PARTNERS

BUILD & MAINTAIN APP PLATFORM



ESTABLISH & REPORT KPIS TO CUSTOMERS AND PARTNERS

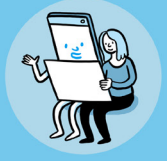
Key resources

USER'S PERSONAL DATA, FROM DATA PARTNERS

R&D EXPERTISE TO DEVELOP THE PLATFORM

Value proposition

IDENTIFY PATTERNS IN MY MENTAL WELLBEING DATA



HELP ME REFLECT ON THE PATTERNS

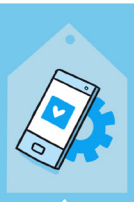
GIVE ME ALERTS AND SUGGESTIONS TO MANAGE MY OWN WELLBEING

LET ME CONTROL HOW MY DATA IS USED

SAFE AND TRUSTWORTHY

BE A COMPANION ON MY MENTAL WELLBEING JOURNEY

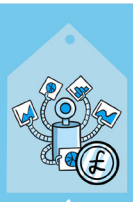
Costs



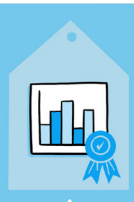
APP / SERVICE DEVELOPMENT

MARKETING AND SALES

CUSTOMER SERVICE CENTRE

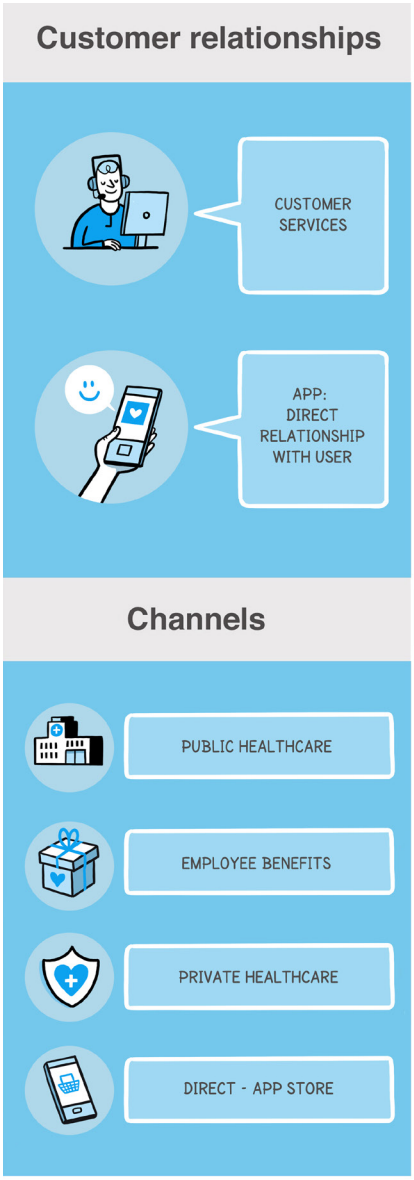


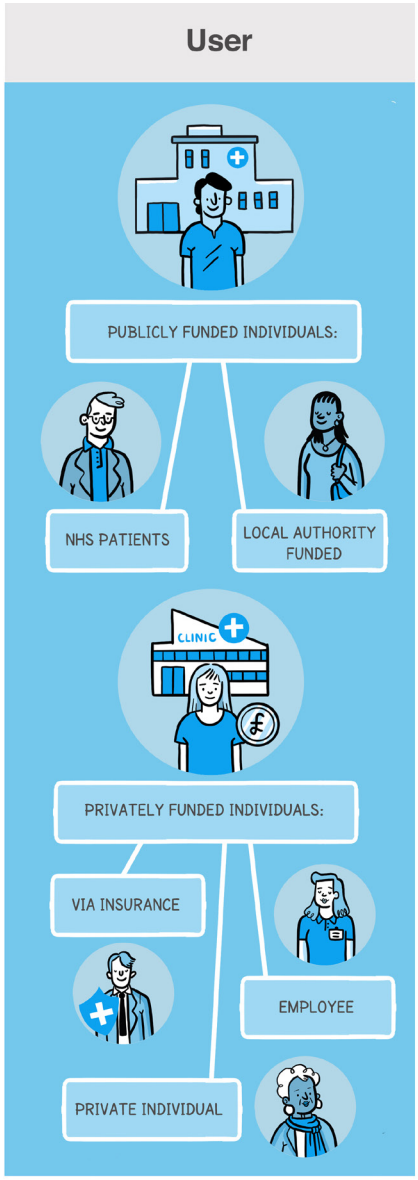
DATA FACILITATOR FEE

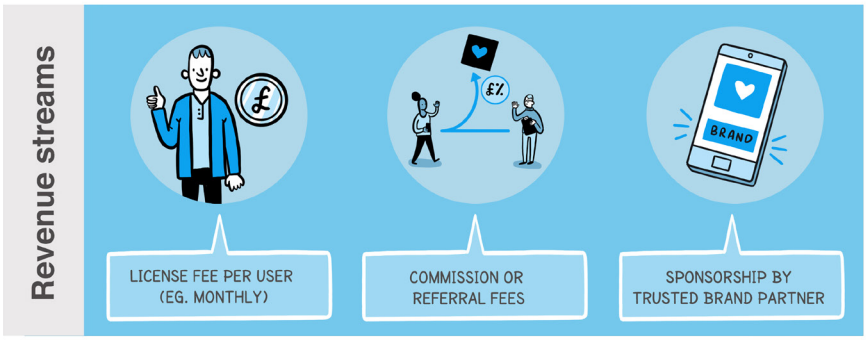


QUALITY PERSONAL DATA

BILLING AND PAYMENTS







3.4 Business model

Once we had mapped out the value flows we used the Strategyzer business model canvas to capture the core elements of the business model canvas underpinning the WellApp mental wellbeing service.

This business model positions the user as the key customer. From this perspective, the person or organisation that decides to pay for the service (eg. the user's insurance company, or relevant public health body) has been categorised as a channel, and the users have been segmented by channel.

In this way the user still has a financial stake in the service, even if as a taxpayer or an employee, and while the channels are important stakeholders and key sources of revenue, the primary relationship is still between the WellApp service and the end-user individual. Importantly this model offers the opportunity for population healthcare perspectives, where the service is not limited to only those who can afford it and the financial barrier to access is removed.

The business model canvas is shown on the left and described in the following sections.

User

These are the individuals who use the service. The value provided to these end users will determine the success of the WellApp service. Here we have segmented the users by channel into two main groups, namely:

- publicly funded (e.g. NHS, Local Authority) and
- privately funded (e.g. Healthcare Insurance, Employers).

While it is possible that private individuals may wish to purchase the service for themselves, we have not included this as a major user segment because the difficulties inherent in selling and supporting a preventative service to a paying end user will make this a comparatively hard market to reach and expensive to serve, at least initially.

Customer Relationships

There are two main types of relationship maintained between the end user and the service:

- directly via the app and
- via customer services, which works to resolve technical and usability issues within the app.

In future it may be necessary to consider whether there is an element of clinical support to be included here too.

Value Proposition

This describes what we do for our end users, the problem(s) we are solving and the differentiated needs we are are satisfying. In this case a **tool for an individual to track and proactively self-manage their mental wellbeing, driven by personal behavioural data from a range of everyday digital services.**

It gives the user the power to identify and understand patterns in their mental wellbeing data, and provides tools for managing mental wellbeing, whilst protecting the user's privacy and confidentiality. This has been tested with users and developed in the previous chapter.

Key Activities

This section describes the main activities that are necessary to deliver the value proposition to the user, that cannot be outsourced. For the mental wellbeing service, this includes:

- the need to build and maintain the WellApp digital platform and AI models;
- the need to identify and report KPIs to users, customers and partners; and
- the need to build and maintain relationships with an ecosystem of relevant partner organisations.

Channels

This section describes how the end users encounter the service. We have identified four primary channels, namely:

- employee benefits programmes e.g. Employee Assistance Providers (EAP's)
- private healthcare providers and lastly
- direct to the end user via an app store
- public healthcare providers e.g. GP.

Key Resources

The strategic resources required to deliver the value proposition and to ensure the underlying channels, relationships and revenue streams include:

- the users personal data provided by data partners, and
- research and development expertise to further develop the platform. This includes machine learning and AI expertise to build the relevant learning models based on clinical insight and user input.

14. https://www.openbanking.org.uk
15. https://openid.net/

Key Partnerships

Successful delivery of the WellApp service requires three main groups of partners, namely

- data partners, those companies who already provide services to the end user and collect the personal data which will be used in WellApp;
- the Data Facilitator as a key enabler of the service, who safely and securely aggregates and shares relevant insights based on personal data, under specific consent from the individual; and
- the clinical and research partners who are involved with validation and development of the service, and those who refer to or use the WellApp service as part of their offering.

Costs

This section describes the main fixed and variable costs and the main drivers of these costs.

In this case the six primary costs are

- app development costs
- sales and marketing costs
- customer service centre costs
- Data Facilitator fees
- fees for quality personal data
- billings and payments costs.

Revenue Streams

We envisage three primary revenue streams:

- a regular license fee per user
- commission or referral fees to and from other related services, and
- sponsorship opportunities from trusted third party organisations who could, for example, add brand value to the trust and reputation of the brand.

Areas for further exploration and development

Data sources

We have made an assumption that the enriched personal data that is required to run the WellApp service will be available through a Premium API model. We will be working closely with organisations including the Open Banking Implementation Entity[14] and Open ID Foundation[15], to identify whether and how this is a viable option for broader data mobility. We have also assumed here that the data would be near real-time, and that the scope of the individuals' data would be both broad and deep. This may benefit from the refinement of the data portability legislation.

Channels and commercial partners

In the next Module we would engage organisations listed in the above canvas as channels: these are the bodies that would pay to license the service on behalf of the individual users. After testing the concept with these organisations we would seek to run a live trial of the service.

Minimum viable product

Once the above points are clearer, it will be possible to outline the scope of a minimum viable product, which addresses the specific needs of the target user group using data that may be available.

Balanced business model

The sustainability of the business model will require further in-depth exploration, to test the balance between costs such as data and data facilitator services, and revenue streams such as licensing and commission fees.

04

Infrastructure: safely and ethically realising the value of data.

4.1 Key takeaways

- 13 functions were identified as parameters on which to assess the maturity of the Data Facilitator capabilities available in the market today
- Across the whole market, the level of maturity required for WellApp is attained by at least one Data Facilitator. However, no one Data Facilitator fulfils all of the requirements
- To deliver the WellApp service may therefore require functionality from a combination of Data Facilitators and or the phasing of WellApp functionality starting with a Minimum Viable Product that builds on current functional maturity.

4.2 Objectives

The Objective of this phase was to identify the level of maturity of the Data Facilitator market in support of the development of the WellApp.

To assess the in-market capabilities and gaps in the current infrastructure and regulatory landscape which would enable or curtail the success of the WellApp service. By Infrastructure we refer to the market functions and technology through which the value can be delivered. This is explored in depth in the Ctrl-Shift Data Mobility Infrastructure Sandbox[16], the first of which identified the need to explore further the capabilities of the Data Facilitators. The role and scope of the Data Facilitator is new and critical to the success of the WellApp service, for this reason we chose to focus on capabilities of the Data Facilitator component of the infrastructure requirements in this phase of work.

Activities undertaken in this phase:

- Develop Data Facilitator market scenarios
- Define high-level Data Facilitator requirements
- Assess in-market Data Facilitator capabilities
- Identify gaps, risks and mitigations

The first Data Mobility Infrastructure Sandbox found that the process of sharing data can be made safe. However there remain a number of gaps which require coordinated intervention, all of which can be resolved through a combination of market labels, service features, the value of the service itself, standards, infrastructure and governing frameworks.

The role of the Data Facilitator in enabling many of these requirements is critical and understanding the scope of current supply in the market is therefore critical to the success of the development of the WellApp service. In this Value Sandbox we have therefore chosen to explore further the capabilities currently in market of the Data Facilitators and how they meet the requirements to deliver the WellApp service.

16. https://www.ctrl-shift.co.uk/wp-content/uploads/2019/06/DMIS_June_2019_Downloadable_Singles_Final4.pdf

In this value sandbox we've taken the requirements of the proposed mental wellbeing service, WellApp, and used this to probe the capabilities of the market today and explore the gaps that must be bridged before this value can be delivered in the future.

It is important to note that our analysis here is based on publicly-available information about these organisations.

4.3 Market scenario

For a proper functioning market using a Data Mobility model, we envisage a 'separation of powers' between Data Facilitators and those organisations that are providing and using the data to create value. This is in contrast to the model implemented in the UK Open Banking ecosystem, and would support the development of a dynamic and innovative services market involving data from across multiple sectors.

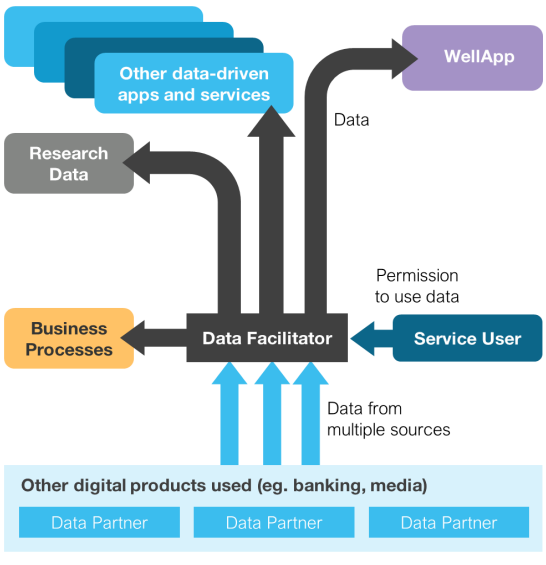


Figure 4.
Data flows: the data facilitator acts as a hub, enabling the market to be modular and placing the user in control

In this context, a formal 'separation of powers' removes conflicts of interest between the data infrastructure and value creation, and enables value to grow freely in the market.

The separation also focuses the data facilitator on the important and emerging function of acting on behalf of the individual; and it offers greater clarity for the individual, by providing a specific organisation to act on behalf of them and their data. It also enables a simple, clear governing framework whereby a regulator can hold a Data Facilitator to account for the management of an individual's data across the economy. This then unlocks further opportunities for other data-driven apps and services to generate yet more value from that data across public and private sectors (including research), as in Figure 4.

The core function of a Data Facilitator is to enable the user to control their data and the insights derived from it, while minimising the effort required by the user, and maximising their privacy and safety. Through our ongoing analysis of this market, Ctrl-Shift have developed a Data Facilitator capability analysis framework which has identified a functional stack as illustrated in Figure 5 below:

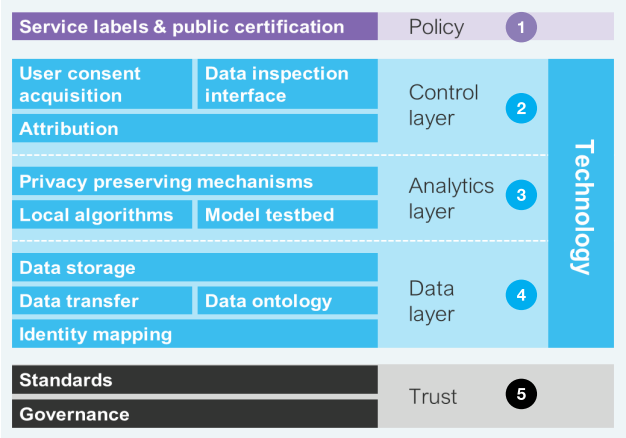


Figure 5.
The stack of functions in a Data Facilitator

The layers in the above diagram represent different organisational functions of a Data Facilitator, with those closest to the user placed towards the top, while internal organisational functions are at the bottom.

The layers 1 Policy and 5 Trust deal with "people" issues, namely the creation or communication of policies and features. The blue layers, 2 Control, 3 Analytics and 4 Data consist largely of the implementation of technology to deliver those features. All of these layers are necessary for the effective operation of the Data Facilitator.

1. **Policy communication layer**, the 'surface' level of interaction with the rest of the world outside the organisation. This layer consists of labels, certificates and standardised communication frameworks, to communicate with the end user that they are operating within a "Trust Framework" and the risks associated with a given action
2. The **control layer** gives the user control over, and an understanding of, which of their data is used when, by whom and for what purpose.
3. An **analytics layer** enables insights to be derived from the data, while to the greatest degree possible preserving the user's privacy.
4. A **data layer** refers to the ability to access, transfer and store users' data. This layer is also responsible for the data's mapping to a unified ontology to enable further processing.
5. **Trust layer**, which oversees the above operations, sets the policies, and thereby acts as the design and trust anchor. The Governance and standards layers here define the ethical, legal, technical and commercial rules by which the Data Facilitator (or "PDMS") operates.

Each of the above layers can be further divided into several functional blocks, as indicated in Figure 4. Our capability analysis tool examines the maturity of the Data Facilitator against each of the functional blocks. The state of maturity of each service is assessed ranging from "basic" (maturity level 1) to "state-of-the-art" (level 4).

For example, for the governance functional block the maturity levels were defined as follows:

- **Level 1:** no clear governance framework
- **Level 2:** Governance is dominated by the Data Facilitator provider. Partial liability and dispute processes exist.
- **Level 3:** Governance is open and clearly embodies the interests of all participants. Partial liability and dispute processes exist.
- **Level 4:** Governance is open and clearly embodies the interests of all participants. Well-developed liability and dispute processes operate.

Functional Layer	Function	Functional Blocks	Maturity Level required by WellApp	Predominant level of maturity in the market
Policy communication	Communicates to the user the risks of any given action they may take, and the trust framework of the service		3	2
Control	Provides the user with control over their data and how it is used	**User consent acquisition –** how flexibly can the consents be gathered?	3*	2
		Attribution – how can the truth of consents or data be validated?	2	2
		Data inspection interface – can the user view and explore the data they hold?	2	2
Analytics	Allows insights to be derived from the data	**Local Algorithms** can be executed on the data within the Data Facilitator	3-4*	2-3
		A testbed for model building exists, containing some form of user data	3*	1
		Privacy preserving mechanisms exist to avoid algorithms inadvertently disclosing data	2	2
Data	Transports and flattens the data	**Identity mapping** to enable the right person's data to be sent to the Data Facilitator (NB this is not Digital Identity but could be facilitated by Digital Identity)	3*	3
		Data transfer from the data partner	2	3
		Data storage location and flexibility	3	3
		Data ontology and how it is flattened into a standard data model	2*	2
Trust	Design and trust anchor	**Governance –** being a trust anchor, liability models, dispute resolution, strategic evolution	4*	2
		Standards - the degree of technical openness of the Data Facilitator solution	2	3

Table 2.
Capability requirements and analysis of existing market
(* = critical requirement of WellApp service)

4.4 Infrastructure requirements

Assessment of infrastructure / existing market

By defining the capabilities representing each level of maturity for each block, we can create a framework to analyse a given Data Facilitator's strengths and weaknesses, and assess the overall maturity of the market and its ability to provide the services required for the WellApp service. A summary of the analysis is show in Table 2 and visualised in Figure 6. Note that the functions in Table 2 marked with an asterisk (*) are those which are anticipated to be critical for the provision of the service.

The biggest gaps in the capabilities of any single Data Facilitator are in governance, policy, and the local algorithm and testbed functions within the analysis layer. For the other functions, most of the marketplace met or exceeded the maturity level required. Mapping the requirements of the WellApp with the in-market capabilities allows us to identify where there is apparent shortfall or gaps in the current market capabilities.

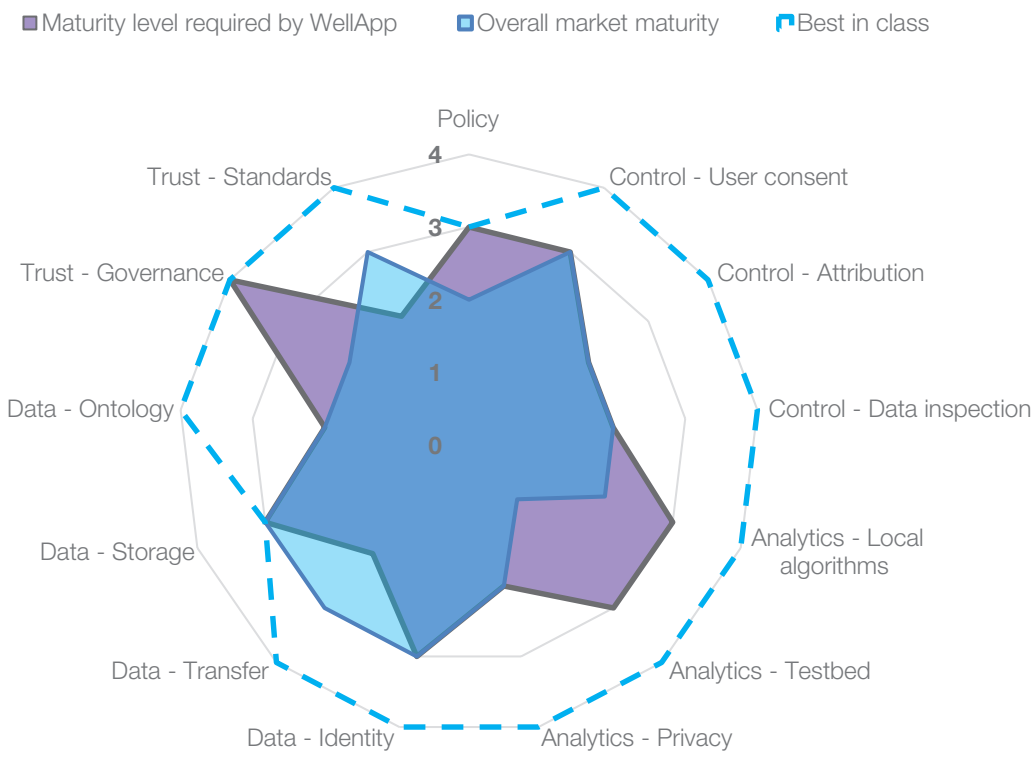


Figure 6.
Analysis of capability gaps in the market (each axis represents the maturity level of a functional block).

Key gaps were found in four areas: Governance, policy, and two functions within the analysis layer, namely local algorithms and testbeds.

The minimum requirements for the service are as follows:

Trust layer - Governance

Governance is open and clearly embodies the interests of all participants. Well-developed liability and dispute processes operate.

Analytics layer - Testbed

The Data Facilitator curates a pool of synthetic data that mirrors the real data is available for model building.

Analytics layer - Local algorithms

The ability of third parties to run and deploy algorithms locally – this becomes more important when the Data Facilitator is dealing with requests from multiple services in addition to WellApp, so could be a consideration in future.

Policy communication layer

Standardised consent request presentation, certification of relying party services and standardised labelling of risks associated with a relying party service.

Important note: this is based on an assessment of publicly available data on ten existing Data Facilitator services, aggregated into an overall level of market maturity. It is also worth noting that this is an assessment of the overall maturity of the market. While there is no one Data Facilitator that meets every requirement, in every function analysed, there was one or more Data Facilitator ('best in class') that exceeded the level required for the service.

It may be possible to combine the capabilities of more than one existing Data Facilitator to deliver the service. In the course of this analysis we also created a list of Data Facilitator services (otherwise known as Personal Data Management Services or PDMSs), prioritised by functional capability, operational experience and scalability, that we believe could deliver the service, subject to development in certain areas.

We will engage with these organisations and assess this landscape more fully in the next module of work.

Areas for further exploration and development

Assessment and engagement

In the second Module of this project we will conduct an in-depth assessment of potential Data Facilitator partners. In the course of this analysis we already created a prioritised list of existing organisations, ranked by an assessment of functional capability, operational experience and scalability. We will engage with these organisations and assess this landscape more fully in the next module of work.

Minimum Viable Product

Gased on the existing Data Facilitator(s) and other infrastructure we will create a WellApp product roadmap identifying which delivery partners we will work with and how.

The features proposed for a MVP may be constrained by the infrastructural capabilities, availability of data and the priorities of the paying entity. The product development roadmap will then incorporate additional functionality to keep pace with the maturity of the market.

05

Bridging the gaps.

5.1 Key takeaways

To support the development of the Mental Wellbeing Service we have identified five gaps that require further analysis, these are ethics, data consent, AI development and deployment, data availability and the governance of Data Facilitators.

Our analysis of the five clustered gaps highlights the kinds of interventions required, and which stakeholder group may be best suited to lead the bridging of these gaps.

5.2 The Intervention Stack

The mental wellbeing service described in this report is a specific use-case of data mobility, developed to demonstrate the value of unlocking the data mobility.

Understanding the barriers and gaps in delivering this mental wellbeing service helps us to identify opportunities for future value creation, and to target our efforts toward resolving the key challenges.

In our 2018 report on unlocking the value of data mobility, we introduced a model to support the development of solutions that can bridge gaps in infrastructure capability, that we call the 'Intervention Stack', Figure 7. Solutions can, and should, consist of a range of response types and mechanisms – from small labels or discrete features to full services, industry standards, open infrastructure and governing frameworks. Whilst some challenges may be served by a single layer of the stack, it is likely that many will require the interplay of several mechanisms. Through this analysis we can ensure that solutions and interventions are appropriate and proportional to the need of the market.

Figure 7:
The Ctrl-Shift Intervention Stack

5.3 Gaps identified

Unresolved issues and areas for future work identified throughout this Sandbox Module have been summarised here and are grouped in five themes.

Principles and ethics

The liability frameworks for data and clinical ethics must be further explored and incorporated into the design of the service and its business model. This includes:

Clinical risks

Explore possible clinical risks in delivering the service, and develop appropriate clinical liability models

Data Ethics

Apply a trust framework for data sharing, to ensure safe, transparent and trustworthy delivery of value, and develop appropriate data liability models

Duty of care

Preventing exploitation of customer vulnerabilities and ensuring transparency around responsible corporate behaviour

Measurement

Population level data can prove the benefit of WellApp and boost research in public health, but specific consent will be required from users to share their data to generate these KPIs.

AI development & deployment

Mental wellbeing assessment models will need to be developed based on behavioural data, which must be trained while maintaining privacy.

Data sources

The data must be accessible, should use a standard ontology, and should be sustainably supplied and paid for through models like premium APIs.

Data facilitator policies and governance

Operating a service like WellApp that relies on data from multiple sources would require a more sophisticated set of capabilities than we see in most of the Data Facilitators today, particularly in terms of transparent governance and communicating policies.

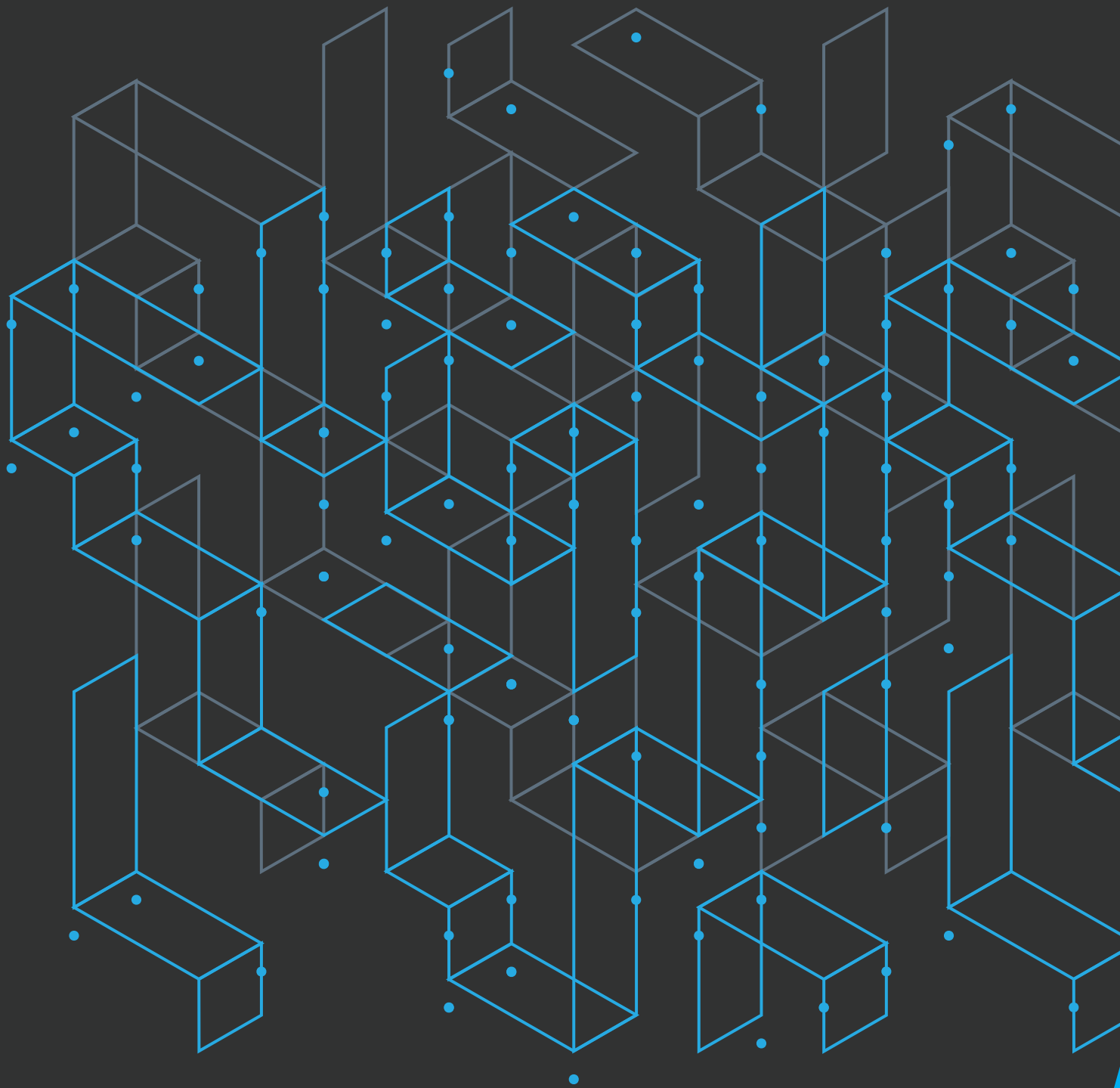
5.4 Bridging the gaps

In the table below we apply the intervention stack to the five areas identified in this Sandbox Module where the market or product specification is lagging behind what is required to run WellApp effectively. This framework allows us to focus on the types of intervention that are most likely to bridge the gaps effectively for WellApp.

Table 3:
Relevant intervention areas for each of the capability gaps identified

Gaps	Labels	Features	Products & Services	Standards	Infrastructure	Governing Frameworks
Principles and ethics						
Measurement						
AI development and deployment						
Data sources						
Data facilitator policies and governance						

The intervention analysis highlights the fact that all five of the above clusters are likely to require coordination and collaboration from multiple stakeholders. This will include business (particularly Data Facilitators, data providers, and clinical bodies, and potentially others such as insurance providers), as well legislators, regulators, consumers and consumer groups, and independent standards bodies. By collaborating on solutions, these groups can unlock the significant value from Data Mobility, for which this Sandbox Module has begun to explore just one application area.



CtrlShift

Get involved.

If you would like to become involved in any of the Sandbox initiatives, please contact:

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