



Wellness & Prevention

Alpha phase report

31 March 2022

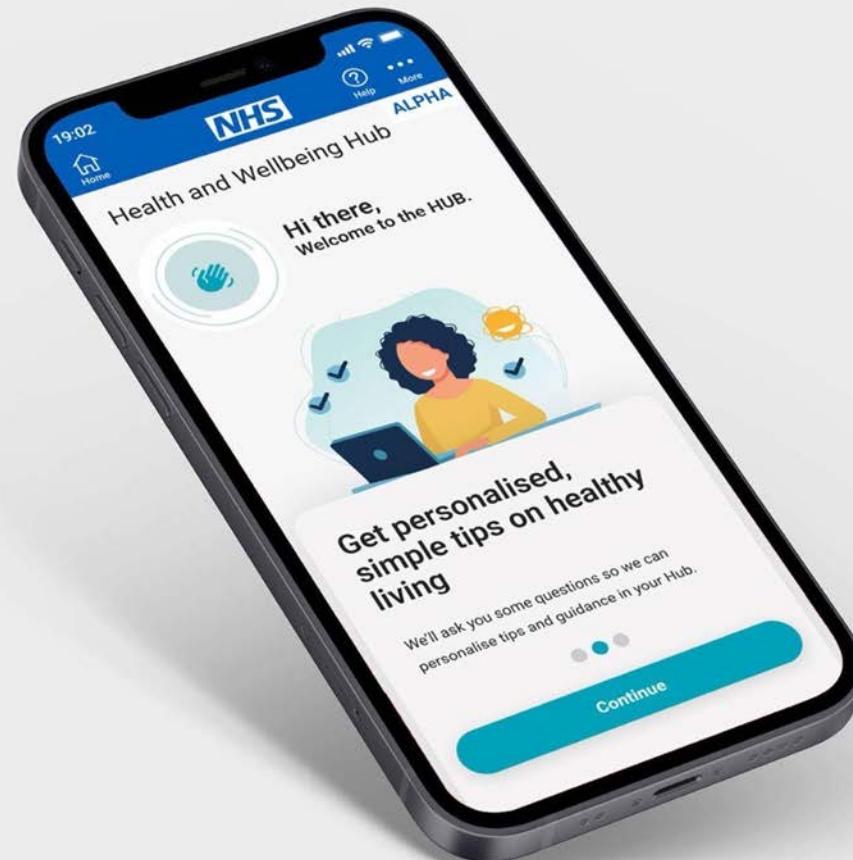
kainos®



Contents



- 1 Executive Summary**
- 2 Context From Discovery**
- 3 The Starting Point**
- 4 Technical Spikes**
- 5 An Updated Scope**
- 6 The Prototype**
- 7 The Platform**
- 8 Recommendations**





Executive summary

Key findings and lessons from Alpha



Introduction

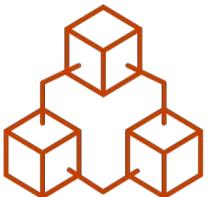


- This Wellness & Prevention Alpha Phase Report provides a summary of work completed in the period October 2021 – March 2022
- It outlines the findings from exploring the proposed Alpha capabilities and progress made with defining, designing and delivering an initial view of the Wellness & Prevention Service
- It concludes with the key lessons and learning opportunities for taking the service forward into subsequent phases of work.

Key achievements



We have designed and delivered a high-fidelity, interactive prototype to test a first potential Wellness proposition beyond the boundaries of the existing NHS App design constraints.



We have tested a functional non-production Wellness platform that is integrated with key supporting services, which offers a technical foundation for a live Beta service.



We have a much deeper understanding of technical dependencies and how the Wellness service could work, and have actively engaged with users and SMEs to design this.

Delivery summary



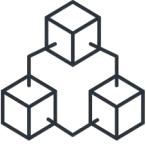
Roadmap Capability	Status	Notes
1. Core Platform Build	●	Technology platform and delivery pipeline built
2. User Experience	●	Designed & developed in HTML prototype
3. NHS App	●	Integration with NHS App successfully proven
4. NHS Login	●	Integration with NHS Login successfully proven
5. NHS/PHE Tools & Services	●	Blocked until tools are redesigned for integration
6. Health Wearables / Devices	●	Integration with HealthKit successfully proven
7. NHS Account	●	Deferred pending further delivery work
8. Data capture question set	●	Designed & developed in HTML prototype



Prototype delivery lessons



	Lesson	Next Steps
1	People trust the NHS and are happy to share their personal health data.	Continue to explore the opportunities to use personal health data in Wellness & Prevention, recognising issues of veracity.
2	Users expect the service to be able to re-use information already known about them.	Undertake a Discovery on potential sources of data to use in Wellness & Prevention to enable reuse of information.
3	Bringing together physical health and mental wellness was seen as a positive thing.	Continue with the current design approach of combining physical health and mental wellbeing.
4	Future iterations of the service need to go further and include more lifestyle factors and clinical priorities to be relevant to a broader audience (i.e., weight management, alcohol, etc.).	Explore and define the range of health behaviour topics that are relevant to Wellness & Prevention and agree which are highest priority for inclusion considering user feedback.
5	People want to be able to set goals, get NHS advice and coaching, and even want to be told what to do to improve their health and wellbeing	Undertake prototyping to test a goal setting capability with users and draw insight from user research to explore opportunities for more directive advice.



Platform delivery lessons



	Lesson	Next Steps
1	NHS Account has the potential to provide a key capability for Wellness and Prevention user preferences and permissions, as well as core demographic data to support personalisation.	Continue to work closely with the NHS Account programme to align plans to support Wellness & Prevention delivery.
2	The reclassification of PHE Tools as medical devices triggered the decision to stop work on the current-state integrations and wait until new versions of the tools including an API are available for use.	Continue to work closely with the PHE Tools redevelopment project to align delivery plans. Also, make a strategic decision if Wellness & Prevention should become a medical device.
3	During Alpha, several limitations with EventStoreDB were surfaced including concerns around maintainability of infrastructure prompting further analysis of the recommended database technology stack for Beta in favour of a more generic Platform-as-a-Service (PaaS) based solution.	Reach agreement on the preferred database technology stack for Beta and plan for changing to a PaaS solution if appropriate as per the CTO strategy.
4	Technical spikes concluded that there would need to be changes made to the NHS App Information Architecture (IA) in order to support some of the features required by the Wellness service.	Continue to work closely with the NHS App team to align plans to support Wellness & Prevention delivery.
5	The NHS Login identity service exposes a mature endpoint and well-defined interface for implicit and explicit identity and authorization management, which simplified the integration with Wellness. This code is reusable for future phases of work.	Continue with plans to use NHS Login for identity verification in Wellness & Prevention.
6	This exercise confirmed connectivity between the Wellness service and a wearable iOS device could be established, and data exchanged bi-directionally.	Continue with plans to integrate Apple HealthKit into Wellness & Prevention.



Ways of working & Service Delivery

NHS

Ways of Working	Service Delivery
A fully blended team model would create more effective joint ownership for service delivery & reduce the risk of final service reviews raising concerns.	Existing public health wellness tools have not been built for integration and will need to be redesigned
Dedicated time is needed from empowered SMEs to work as part of a blended delivery team to enable rapid progress with design and development work.	More advanced personalisation of the service will require significant investment in data sharing capabilities, personalisation rules functionality and content operations
Early access to collaborative tooling would better support joint working arrangements and effective communication between organisations.	A focused period of User Research is needed to increase confidence in the emerging service design from Alpha
Changing governance processes to reflect the chosen delivery method (Agile) would enable more responsive decision-making and save additional work that distracts the team from delivery.	A separate Discovery phase is needed to explore the potential use of data from GP records and other sources in the future

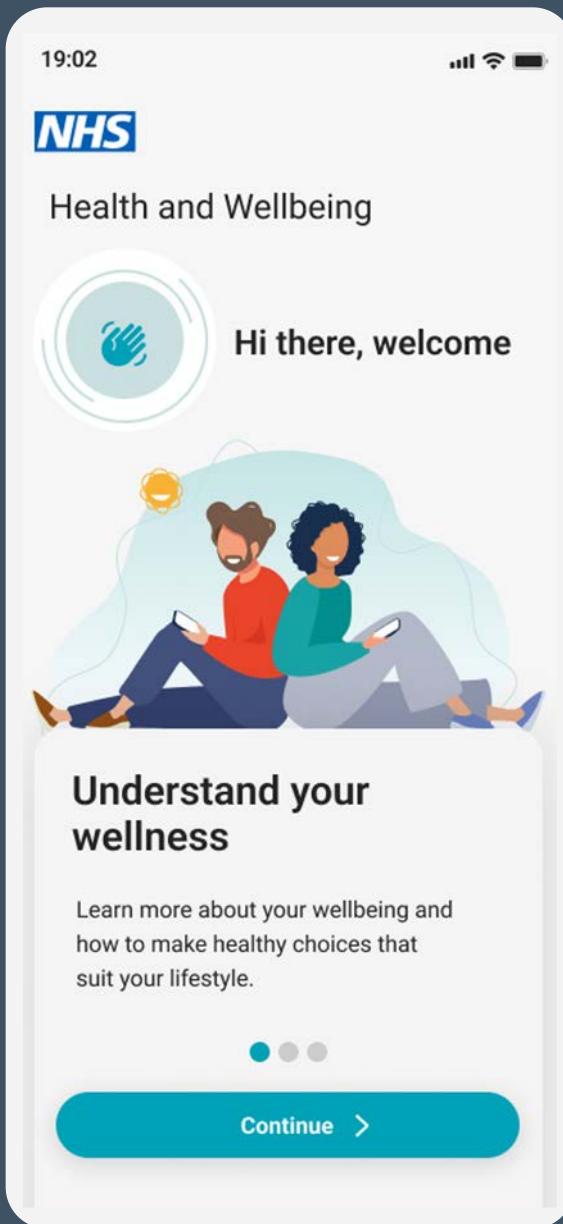
Recommendations



NHSX should undertake a Pre-Beta Phase of activity to:

- Undertake comprehensive user testing of the Alpha prototype and learn more about user needs
- Address key service delivery lessons identified during the Alpha phase
- Explore and define further health behaviour topics of focus for the Beta MVP
- Undertake discovery work on new service capabilities proposed for Beta MVP development
- Align the service with national digital services and channels strategy

Prototype



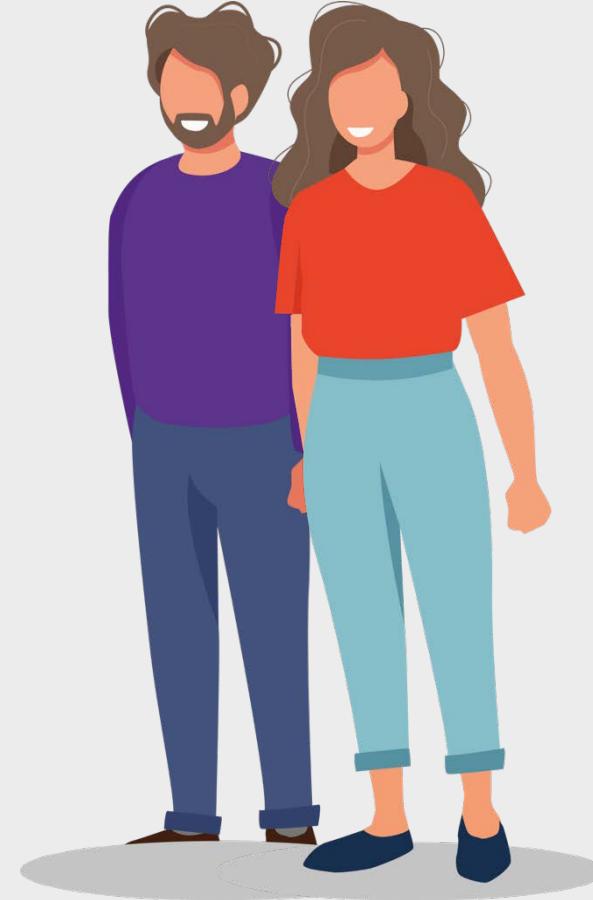
<https://kainos-nhsx-wellness-hub.herokuapp.com>

Username: Kraken
Password: Stranger



Context from Discovery

Discovery work that set the Alpha context



Introduction

NHSX VISION:

The Wellness offer will have a **personalised approach** for example to know what actions (e.g. vaccinations or screenings) to take as well as growing with the person, teaching them over time how to manage their health and care better.

It will be designed to **empower people** to take greater ownership of their health and wellness through the online access of personalised health records, better health literacy and adoption of healthy lifestyle practices.

“...It is really important that people are at the centre of their health and care so that they feel empowered to make better life choices. We want to do this by connecting health, lifestyle and wellbeing data together...”

NHSX AMBITION:

Our ambition for the wellness and prevention service is to bring together a range of web and app based tools in one place that we can offer to people through **our existing national channels** (NHS.UK and NHS App, underpinned by NHS Login) and drive a **connected marketplace** to encourage innovation that supports consumer choice.



PROBLEM STATEMENT:

People don't **stay engaged** with their health and wellbeing over the course of their life.

They find the services are not always **relevant** to them, they are not always **aware of what actions they are eligible for** or would benefit them the most.

People who are **triggered to think about their health and wellbeing, engage with the prevention services too late**, don't make use of the information available to them and struggle to maintain focus and continue a journey to better health.

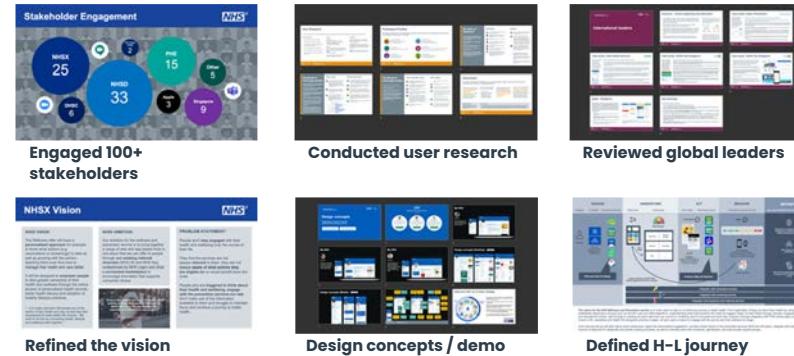
Discovery recap

In Discovery the team explored...

ART OF THE POSSIBLE

Help us develop our thinking and understanding of a future digital service in the Wellness & Prevention space

What the team did...



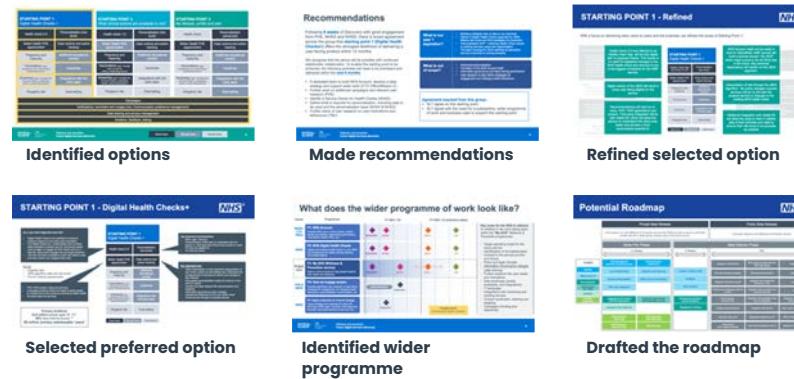
HOW WE COULD PROCEED

Identify options to help us identify the viable starting point towards developing a future Wellness service

The outcome

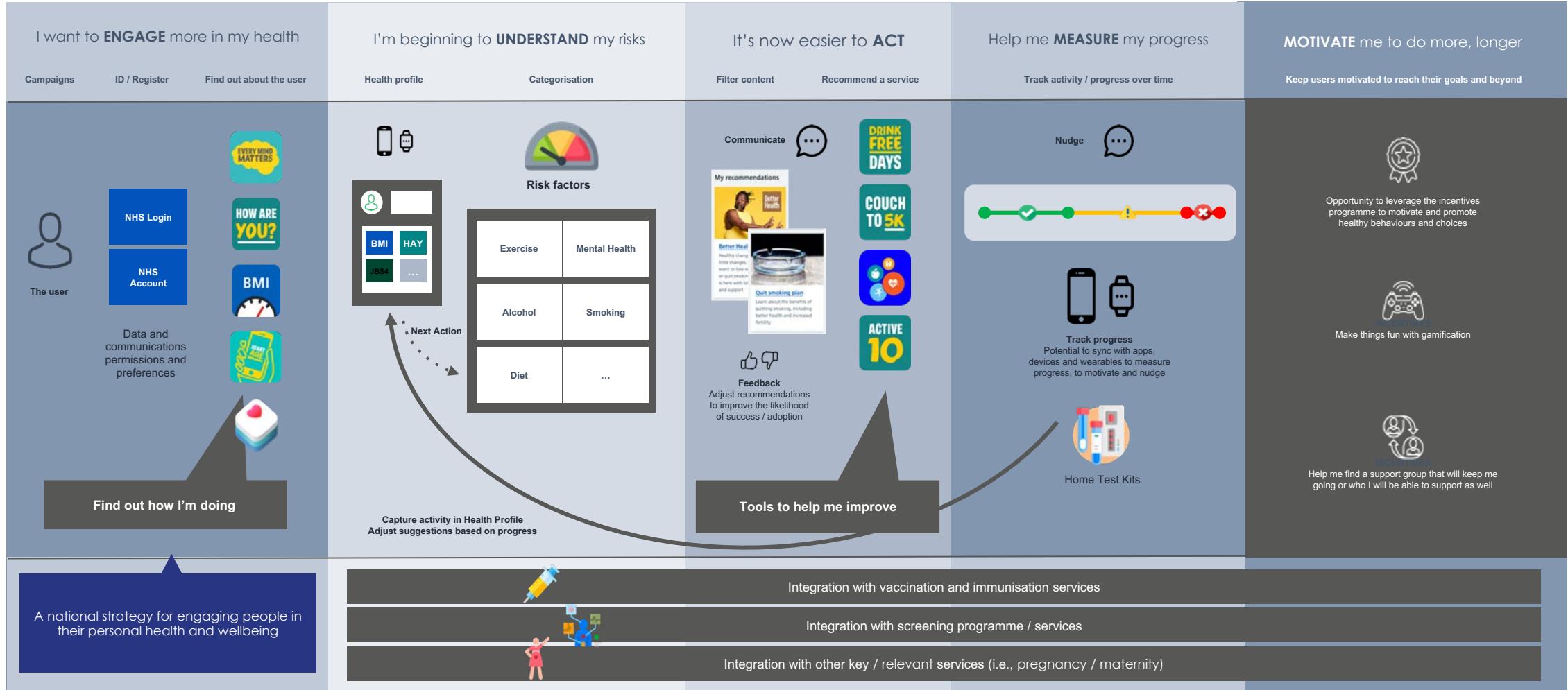
In March 2021 the Wellness & Prevention Senior Leadership Team agreed to:

- **Starting point 1 – Digital Health Checks+**
- The need for a **substantive, wider programme of work and business case** to support this starting point



- Build a lifestyle view of data on an individual
- Deliver a Digital Health Check supported by JBS4 lifetime risk score and RAG strategies for prevention
- Personalisation MVP – matching Health Check results to existing services using user segmentation
- The basic housing for future wellness & prevention service to be built on moving forwards

Discovery service design



Alpha starting points

PROBLEM STATEMENTS

People don't **stay engaged** with their health and wellbeing over the course of their life.

They find the services are not always **relevant** to them, they are not always **aware of what actions they are eligible for** or would benefit them the most.

People who are **triggered to think about their health and wellbeing, engage with the prevention services too late**, don't make use of the information available to them and struggle to maintain focus and continue a journey to better health.

STARTING POINT 1

Digital Health Checks +

In year one, **29 million** people in England would be able to access a digital health check, see their results and receive recommendations that help them kickstart their journey to better health.

Recommended by the W&P SLT

1. These are 3 distinct starting points for the NHS on their W&P journey

2. There is further work required to understand what elements / components will be delivered & ready within 12 months

3. These options are still sizeable problem spaces, so we require a strategic steer in order to further research and validate thinking around each

STARTING POINT 2

What clinical actions are available to me?

There are 26 million people in England who are eligible for at least one screening or vaccination every year. Once breast screening goes live as the first digitised service, in **2 years' time**, this service will be available to **2.2 million** people.

STARTING POINT 3

My lifestyle, profile and plan

In 2020, **1.5 million had registered** with the **NHS app** and **14.8 million** people accessed **NHS or PHE health and wellbeing resources**. In year one, My NHS, would be able to offer each of these individuals the opportunity to build a health profile and receive actions and recommendations that align with their needs.



The starting point

The original Alpha scope and ambition (October 2021)



Wellness & Prevention Hub: Vision



A digital NHS service that **promotes wellness and encourages prevention of ill health to extend healthy life expectancy, reduce health inequalities and increase engagement in personal health management.**

We'll do this by **bringing services together into an accessible, streamlined and personalised hub powered by joined up health and lifestyle data that people choose to share.**

Alpha deliverables

At the end of Alpha, we want to test via a private beta the concept of a 'Health Dashboard' (including key integrations) + the Wellness proposition in order to validate the desirability, feasibility and viability of a future Wellness & Prevention digital service.

Deliverables for the Alpha by the end of this year?

- **Built an MVP of a health dashboard** that looks to deliver a number of core services plus some personalised services
- Users will be able to **connect to certain tools and services** (pending prioritisation) into the wellness hub and manage their healthcare more effectively
- **Identify a cohort in which to deliver a private beta** our thinking at present is around those with CVD.
- **Deliver to users targeted comms around a number of prioritised areas**. starting with the top 5 tools in OHP with top 10 health conditions from NHS.UK, to proactively guide users through that experience based on what users are searching



Alpha learning objectives



- **Users are likely to use an NHS provided digital service** to manage their health and wellbeing in one place
- Our way of providing **personalised health guidance is likely to be effective**, engaging and sustaining
- People are likely to **share their personal health data** with the NHS
- The service offering is **accessible to all groups** irrespective of their socio-economic background or additional health needs
- We have good enough **quality data to drive effective personalisation**
- The current legal limits of data use allows us to **blend NHS and personal data** for personalisation in an effective way
- The effort required to deliver **a service that achieves sought benefits is feasible**

Understanding wellness



The future of health lies in personalisation based on individual-level data insights. Wellness & Prevention offers a first step towards creating personalised health advice.

Recognising the many aspects that contribute towards an individual's physical health and mental wellbeing, we identified a broad range of potential data sources.

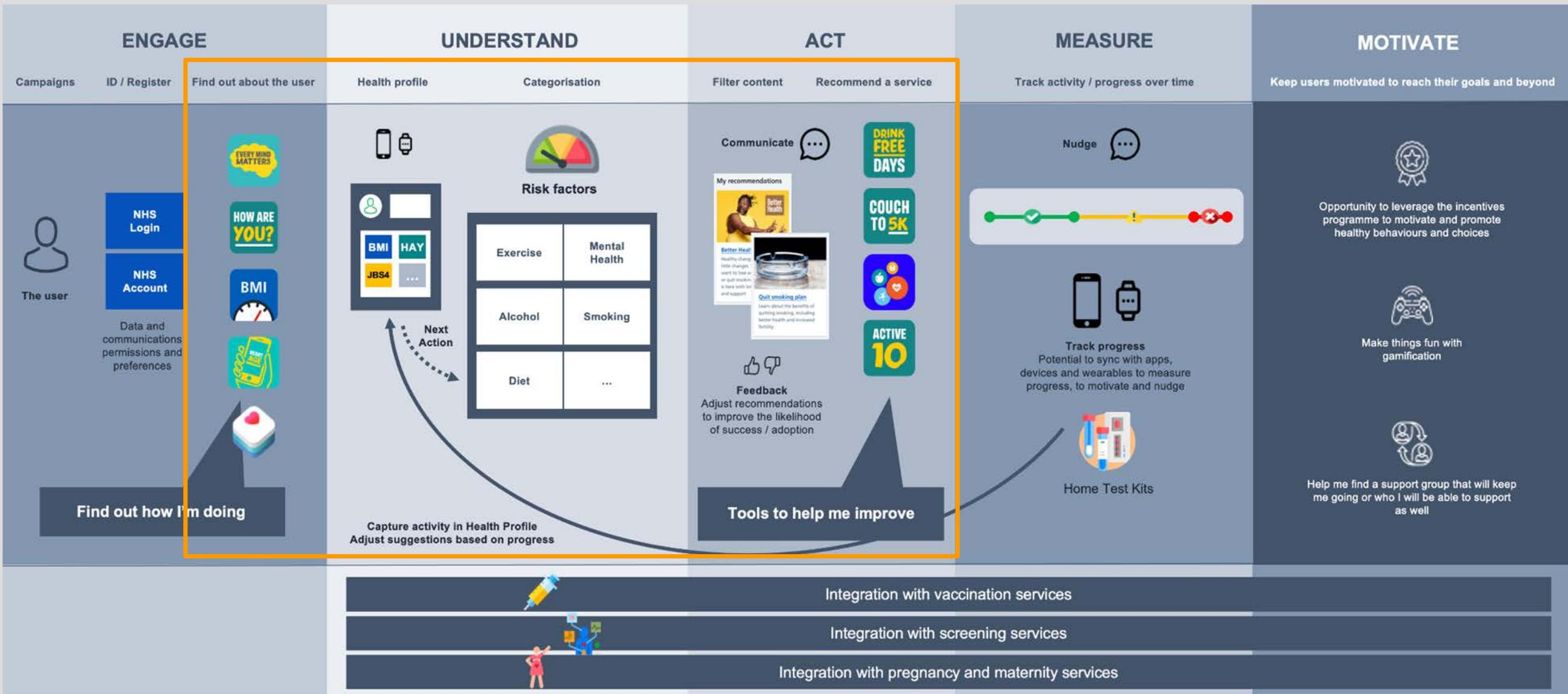
The Alpha service focused on exploring two data sources (★), but there are many more that can be exploited to increase personalisation in the next stages.

The end vision could be to combine Wellness and Health data to create a whole person view (a 'digital health twin').



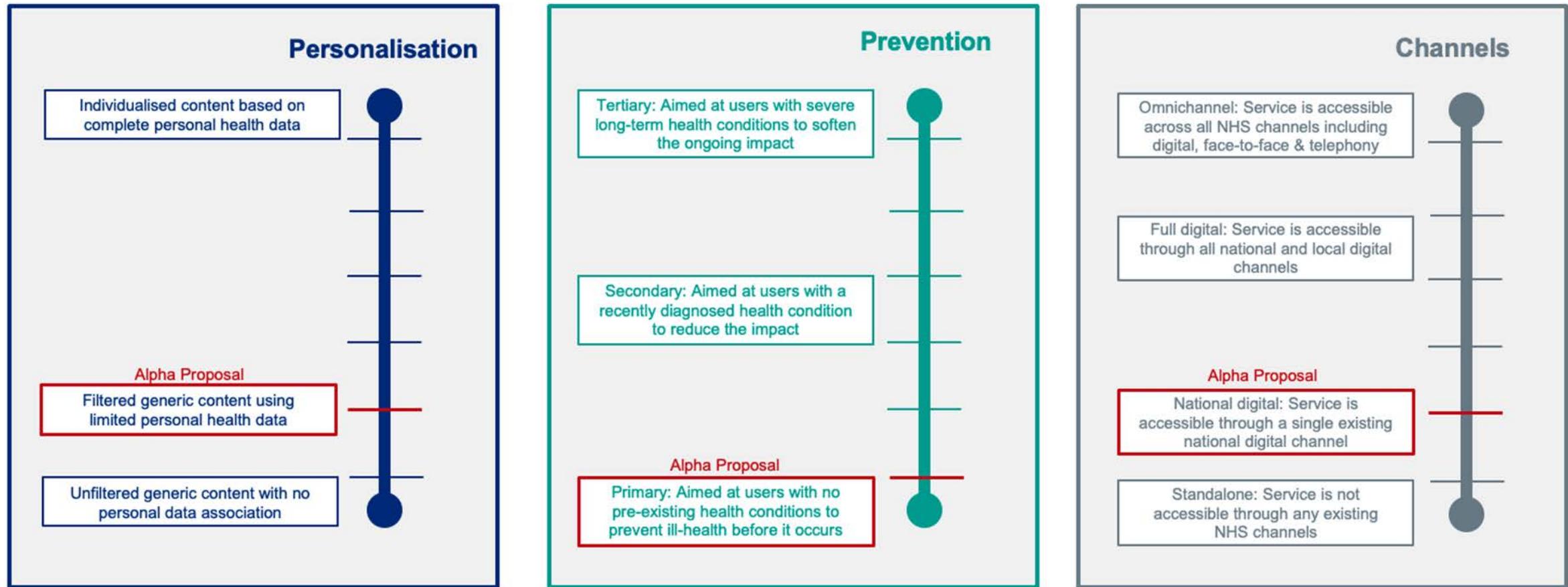
High-level journey (Discovery)

Scope to explore in Alpha



Alpha scope proposals

To support decision-making, we set out a range of proposals for the Alpha scope to help define the ambition for the first version of the service.



Alpha focus areas

We agreed a set of priorities that provided boundaries to the Alpha scope and focus areas for exploring the future service.

Prevention: Focus on Primary prevention (i.e. people who are currently healthy)

Priorities: Focus areas Mental Health, Smoking & Hypertension (CVD)

Personalisation: Alpha is filtering generic content only

Channels: Focus on NHS App (& app online) due to its capabilities

Source: NHSX Wellness and Prevention Programme Board **Date:** 18 November 2021

Alpha scope (original)

Referrals
Family, friends, healthcare professionals, NHS 111, other NHS / OHID services, etc.

NHS Health Check
Not in scope for Alpha
How Are You Quiz
Route into Wellness...?

Campaigns
Better Health, national campaigns, local/regional targeted campaigns, social media, advertising, email, etc.

Wellness brand
Marketing content
Engagement strategy

P
NHS Login
NHS Account
Permissions



Register

ALPHA

P
Share information



Wellness Dashboard

P
Risk calculation
Personalisation rules
...

BMI Calculator

Personal health data

P
P
NHS Quit Smoking
Hypertension tool (TBC)
Other apps and services



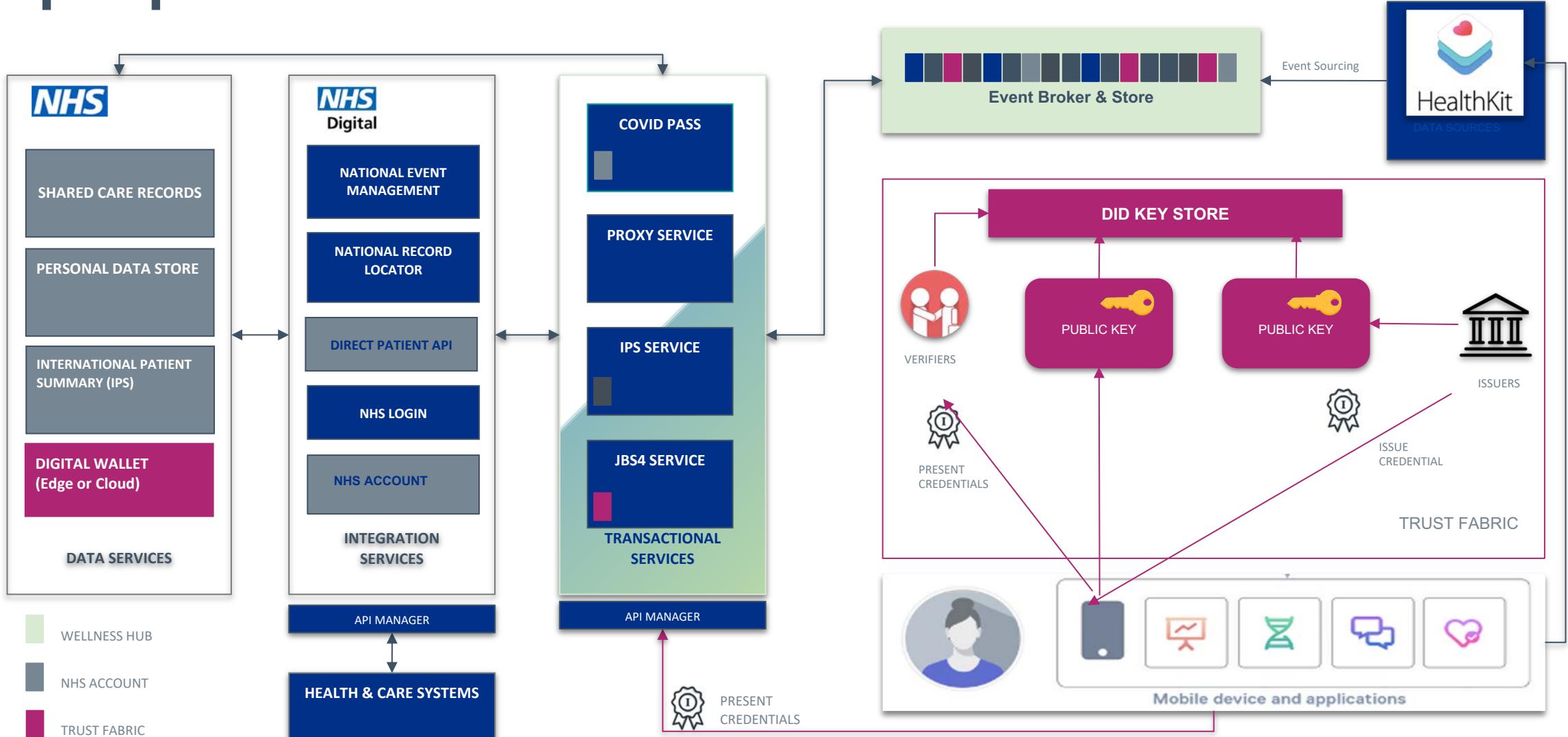
Guidance



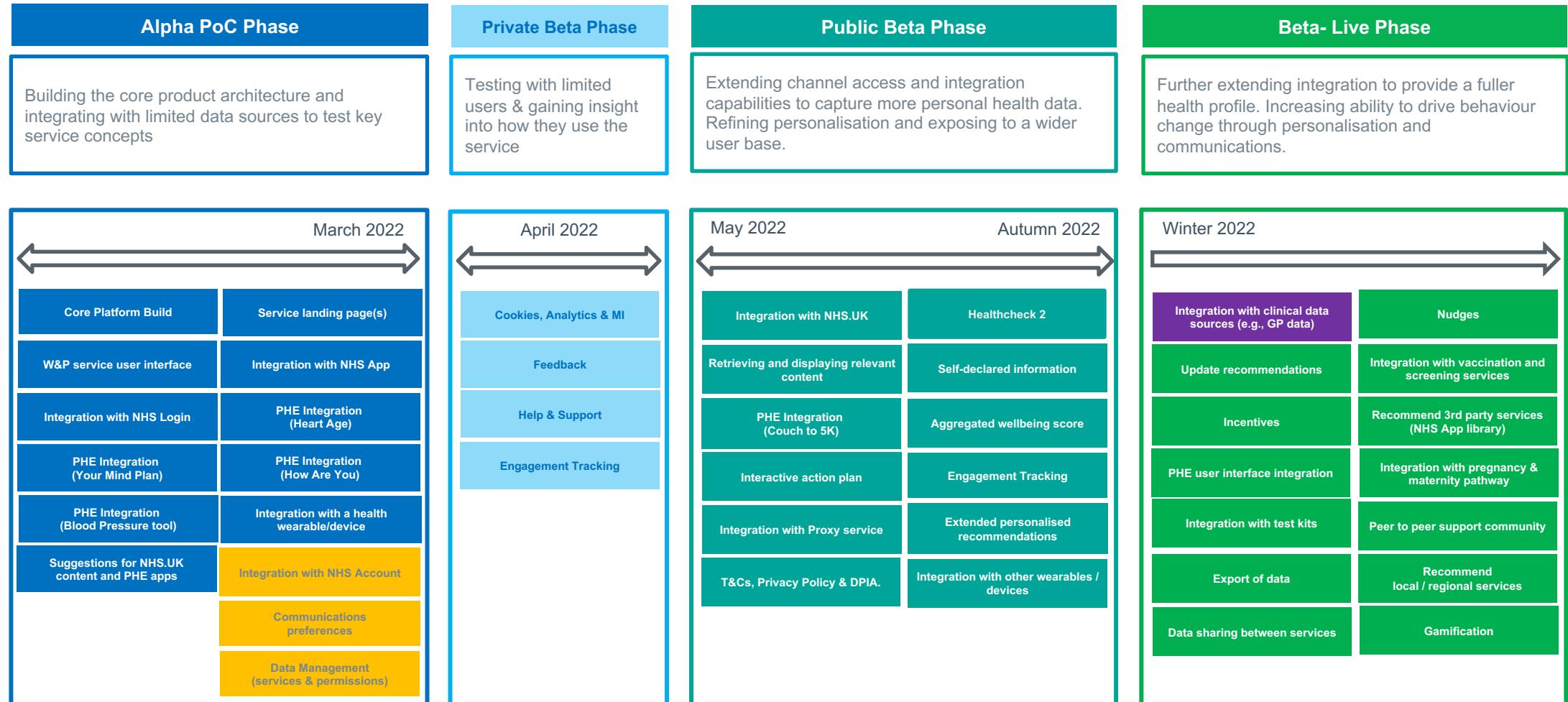
An existing service that has been prioritised within scope for NHSX Wellness Hub Alpha

Source: NHSX Wellness and Prevention Programme Board **Date:** 18 November 2021

Alpha potential architecture



Product Roadmap (November 2021)

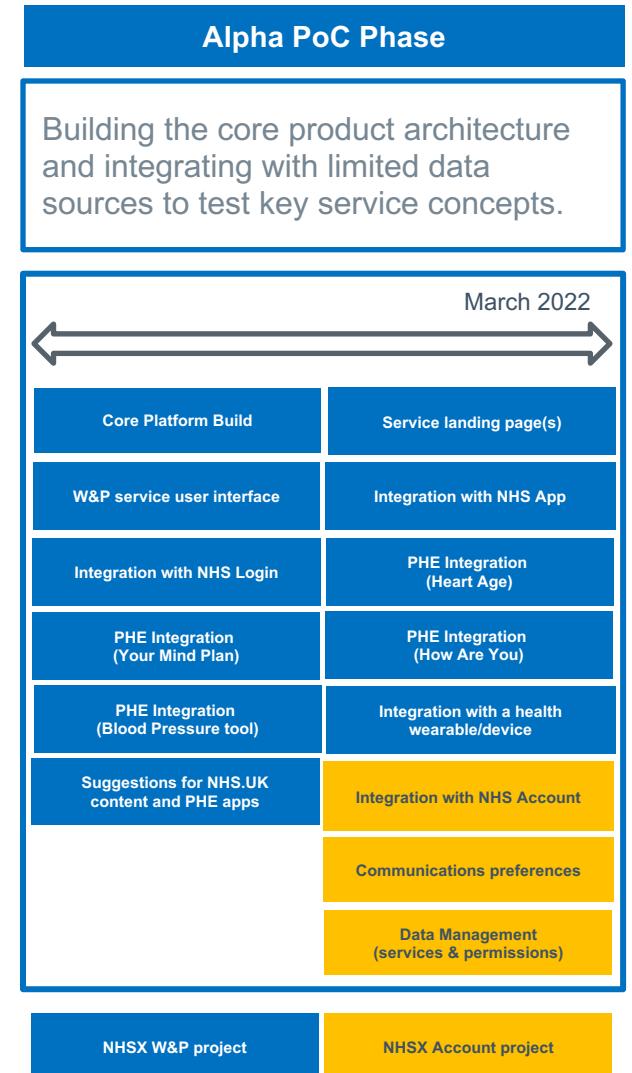


Alpha focus areas

Taking the capabilities identified for Alpha delivery on the product roadmap, we explored each area to understand the related:

- Technical designs & constraints
- Data quality & availability
- User needs
- Stakeholder requirements

This included a series of timeboxed ‘technical spikes’ designed to reduce uncertainty around integrating with existing tools and services to de-risk delivery and provide a clearer way forward.





Technical spikes

Exploring integration with NHS Account & existing PHE Tools

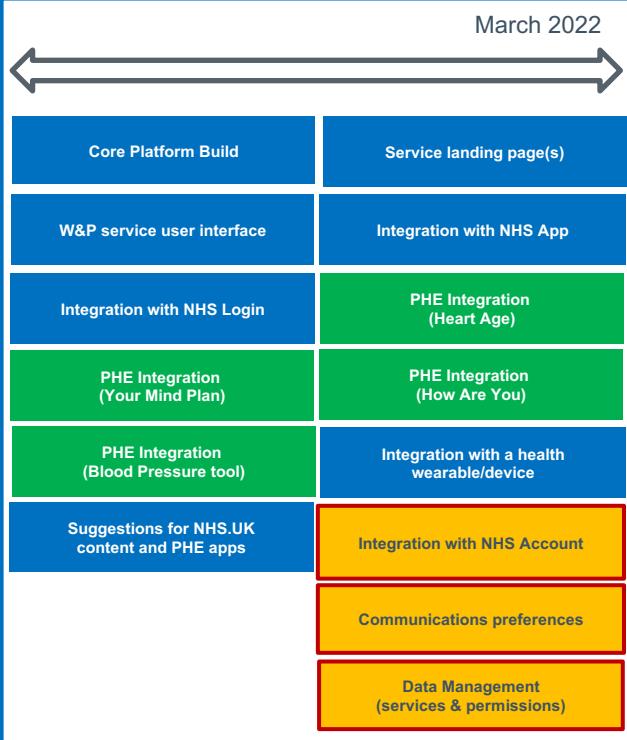


NHS Account: Summary



Alpha PoC Phase

Building the core product architecture and integrating with limited data sources to test key service concepts.



What we did:

- The proposed NHS Account is intended to give users a connected user profile they can control through multiple channels, which is shared across multiple digital services and can be used to provide a rich, relevant and personalised experience.
- A core benefit and priority for the Wellness and Prevention service is to collect individual lifestyle information and then based on business rules personalise content and surface local and national services relevant to the user and their needs.
- To achieve the personalised service requirements Wellness and Prevention would need access to the 'User Profile', 'Consent Settings' and 'Preferences' provided by the Account service.

What we learnt:

- NHS Account has the potential to provide a key capability for Wellness and Prevention user preferences and permissions, as well as core demographic data to support personalisation. However, delivery of this is beyond Alpha timescales, so integration work would need to be deferred.

PHE Tools explored

Forming a central part of the Alpha scope, we explored the technical feasibility of integrating existing PHE public health wellness tools as the primary source of data insight to drive the creation of a personalised Wellness Hub.

EXISTING SERVICE:

Get Your Mind Plan

5 questions to get top tips and advice (over 18 only).

EXISTING SERVICE:

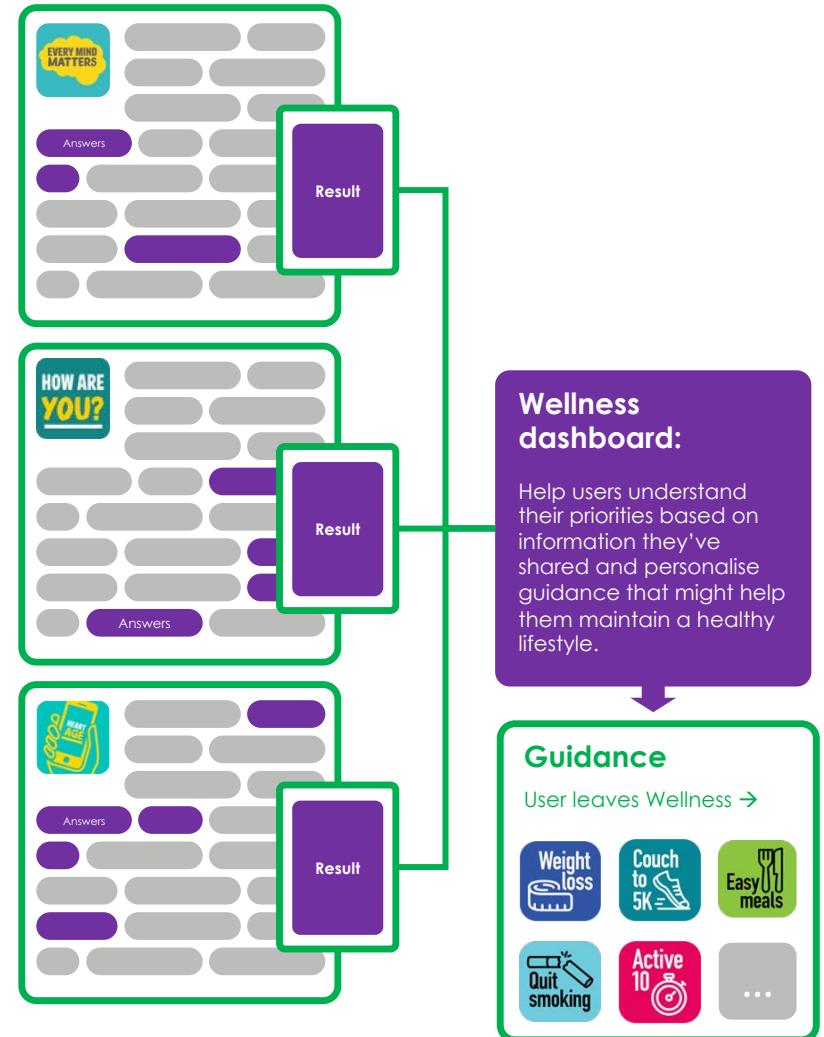
How Are You?

10 minute quiz to get a personalised health score and advice (over 18 only).

EXISTING SERVICE:

What's your heart age

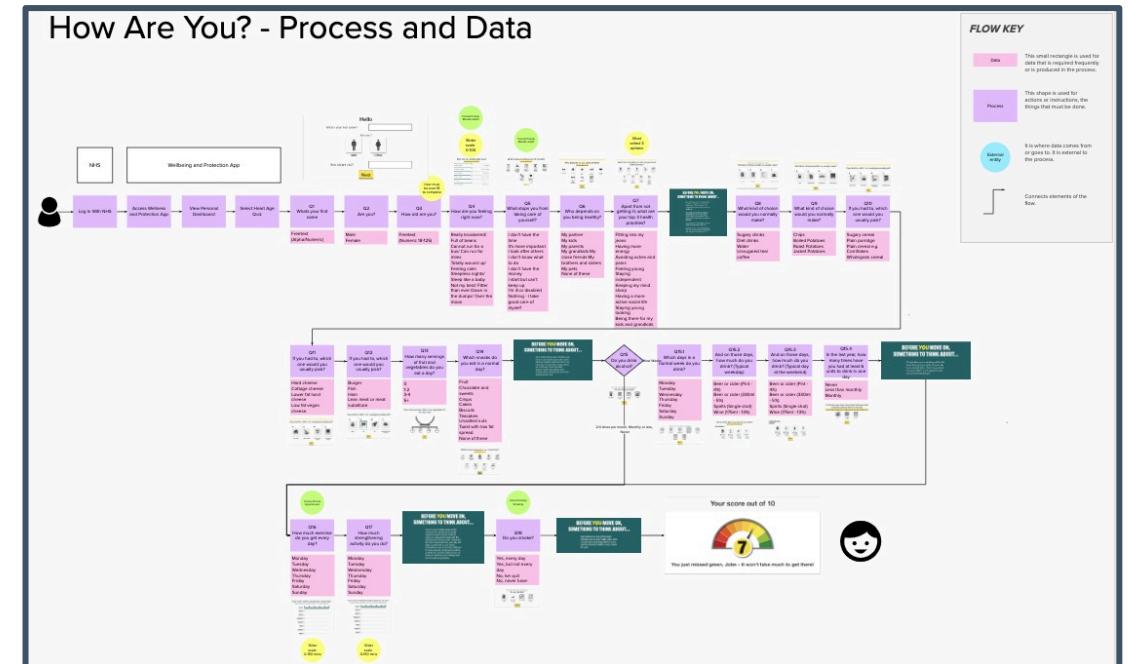
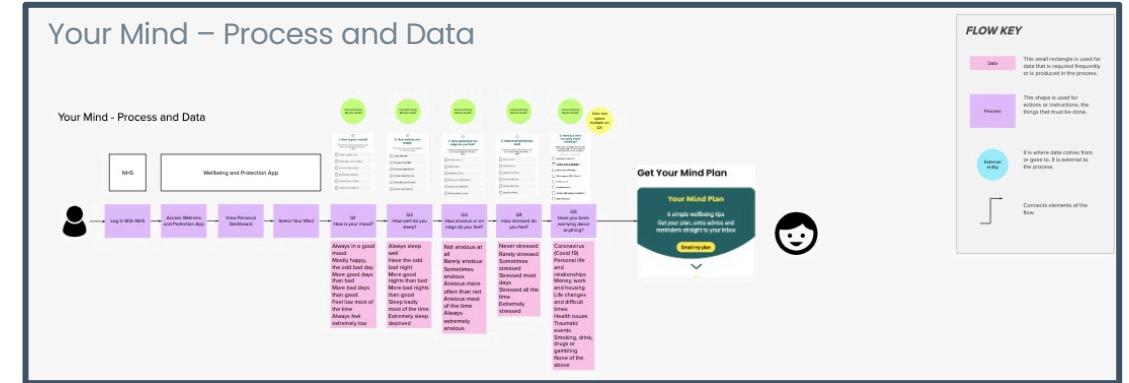
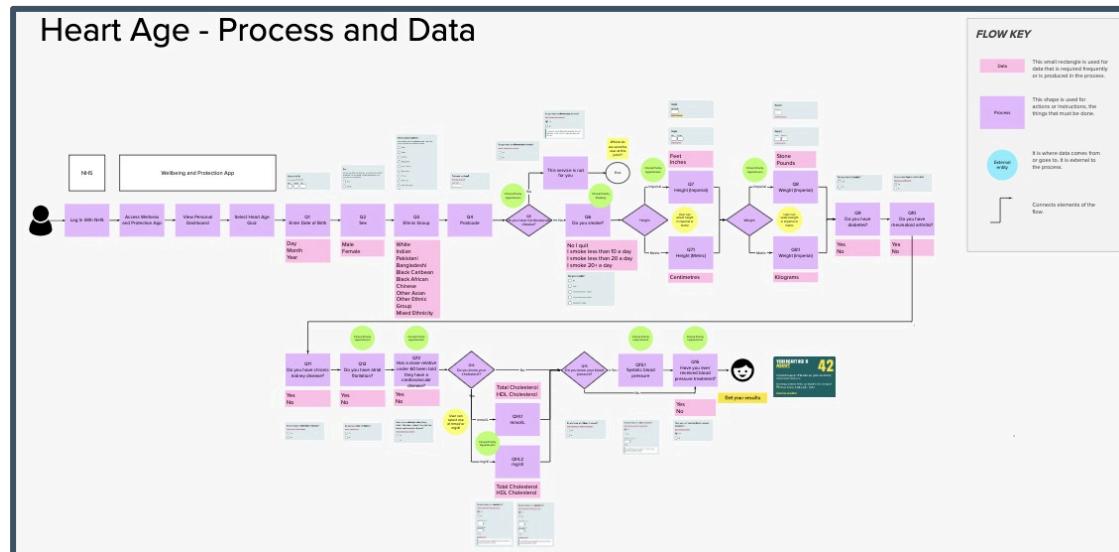
A 'preview' to the NHS Health Check using JBS3 to provide an initial 10-year heart age score (over 40 only).



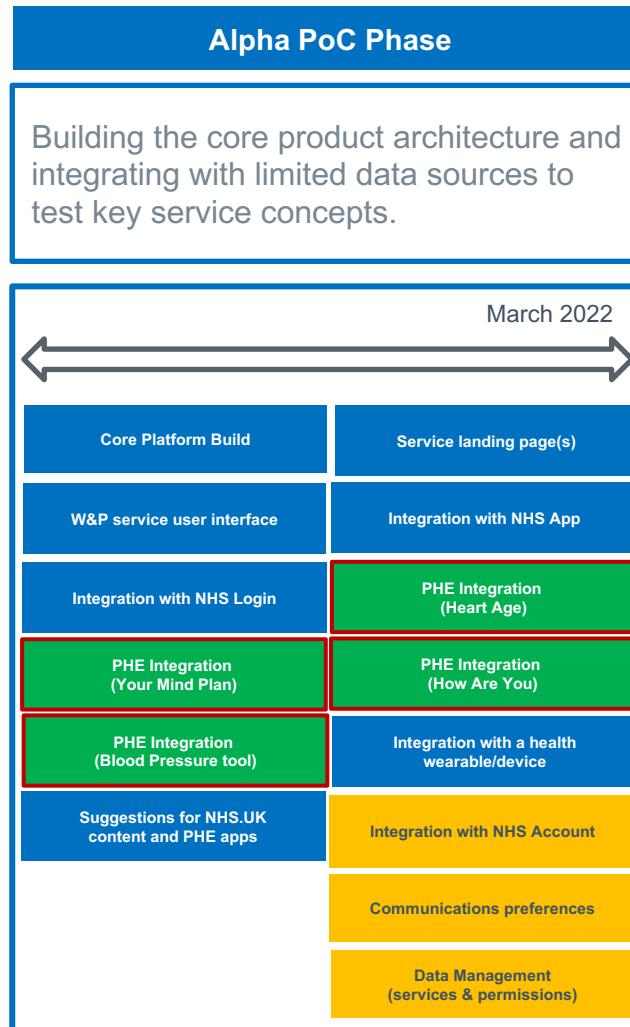
PHE Tools explored



We mapped the user journey for the 3 PHE tools that we were seeking to integrate into Wellness & Prevention, including the data items captured at each stage to understand how this might be used to drive personalisation of content.



PHE Tools: Summary



What we did:

- Technical spike discovered that currently there is no public API that can be used to integrate Wellness and the tools in order to access data and calculation algorithms.
- Alternative integration patterns including embedding the tool(s) and calculations inside the Wellness webpage and ‘scraping’ request/response data collected during user journey for storing in the event store downstream processing and reporting. It was universally recognized that this approach could only be a tactical solution while waiting for the APIs to be developed.
- Developed the technical components required to enable end-user and third-party system access to the processed data via the Query API and Materialized Data Views.
- Not long after connectivity between the systems was proven several of the tools were reclassified as medical devices and needed to be changed to satisfy policy requirements (MDD regulation).

What we learnt:

- The reclassification of tools as medical devices triggered the decision to stop work on the current-state integrations and wait until new versions of the tools including an API are available for use.

Technical spikes: Conclusions



NHS Account is not yet ready for integration with Wellness & Prevention.

PHE Tools cannot be integrated as-is using current application components and integration patterns:

- It is not possible to access users' answers and results from the embedded tools, which precludes any ability to store this information for future use
- It would require taking a local copy of the application source code and changing the structure and behaviour of the core components, creating new versions maintained separately to the primary tools, with associated MHRA approvals.

Service constraints



A future
Wellness Hub

Readiness of components in Alpha

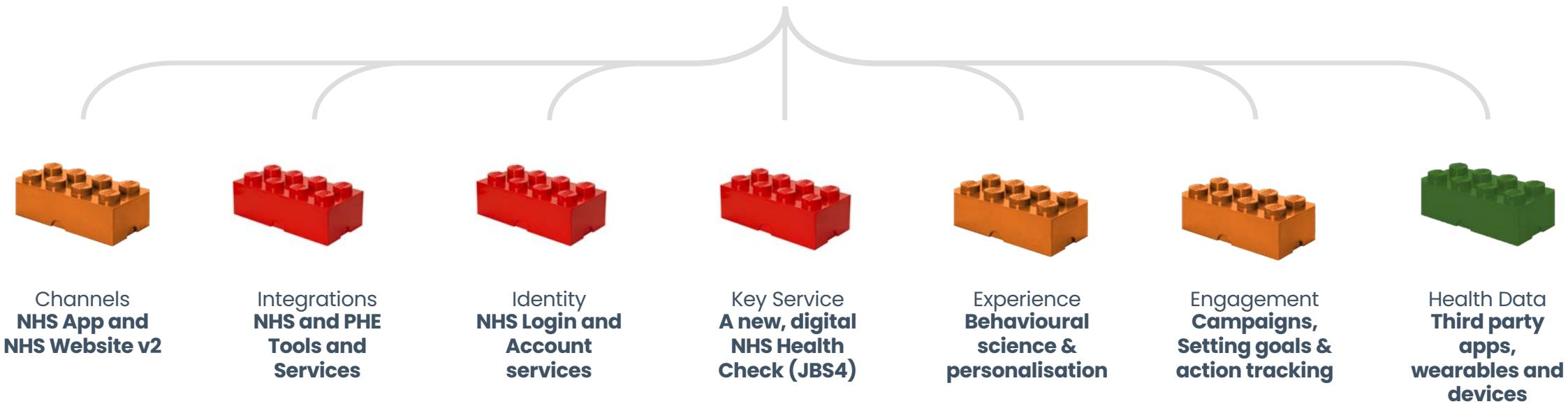
Red = Not ready



Amber = Not fully ready

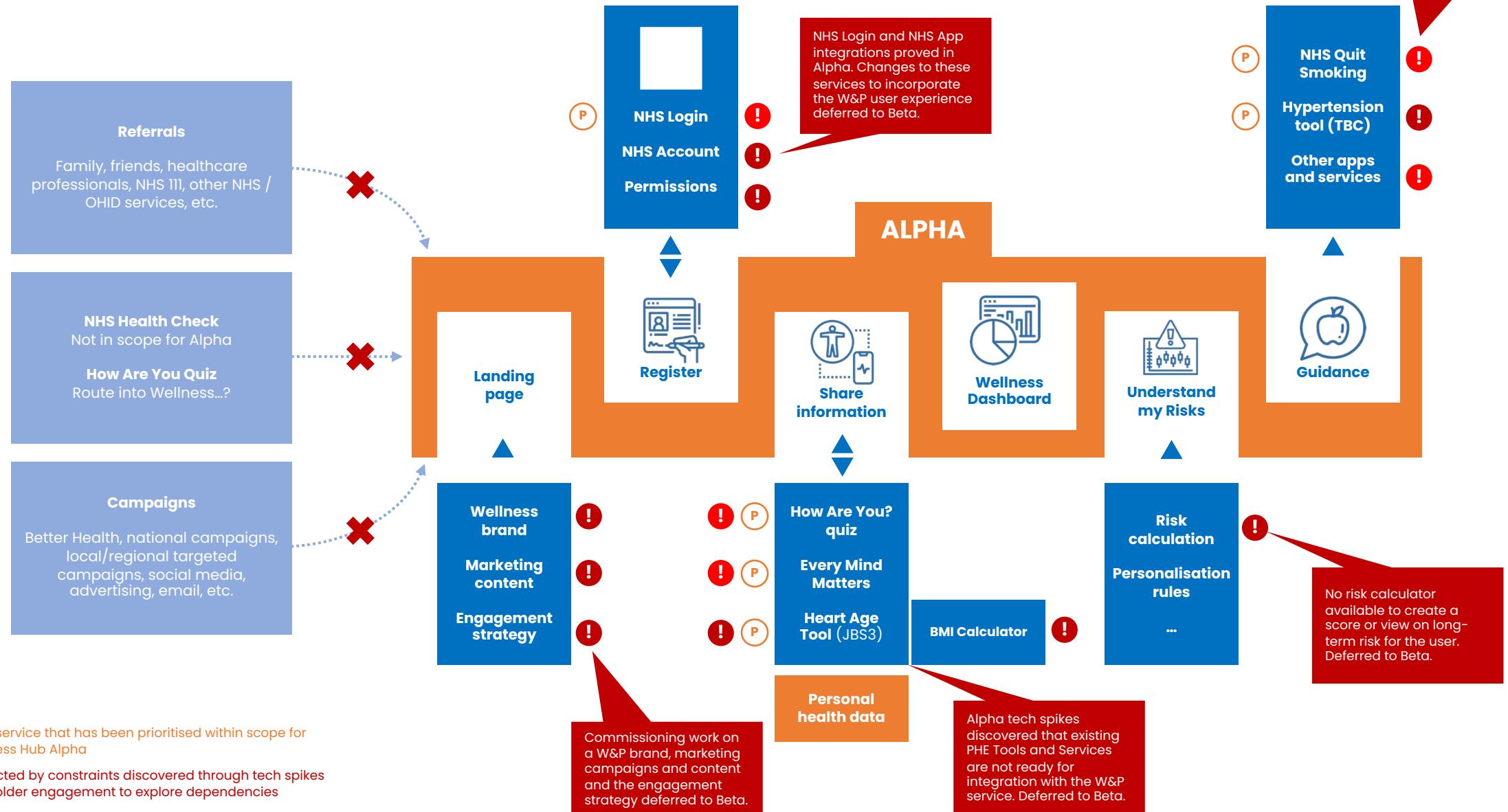


Green = Possible



Alpha - impact on scope resulting in changes

Alpha tech spikes discovered that existing PHE Tools and Services are not ready for integration with the W&P service. Deferred to Beta.



PHE Tools: Options explored



Option	Description	User Experience	Accessibility	Technical Debt	Alpha Timeline
As-is	Create local copies of the PHE tools and use their existing code bases, UI and journey flows				
Top & tail	Create local copies of the PHE tools and use their existing code bases, but change their entry and exit flows to reflect the W&P service context				
Re-skin	Create local copies of the PHE tools and use their existing code bases, but redesign each UI (with same content) and change their entry and exit flows to reflect W&P service identity				
Re-build	Create new versions of the PHE tools with a modern architecture and redesigned UI, and use APIs to access user data in the W&P service				



An updated scope

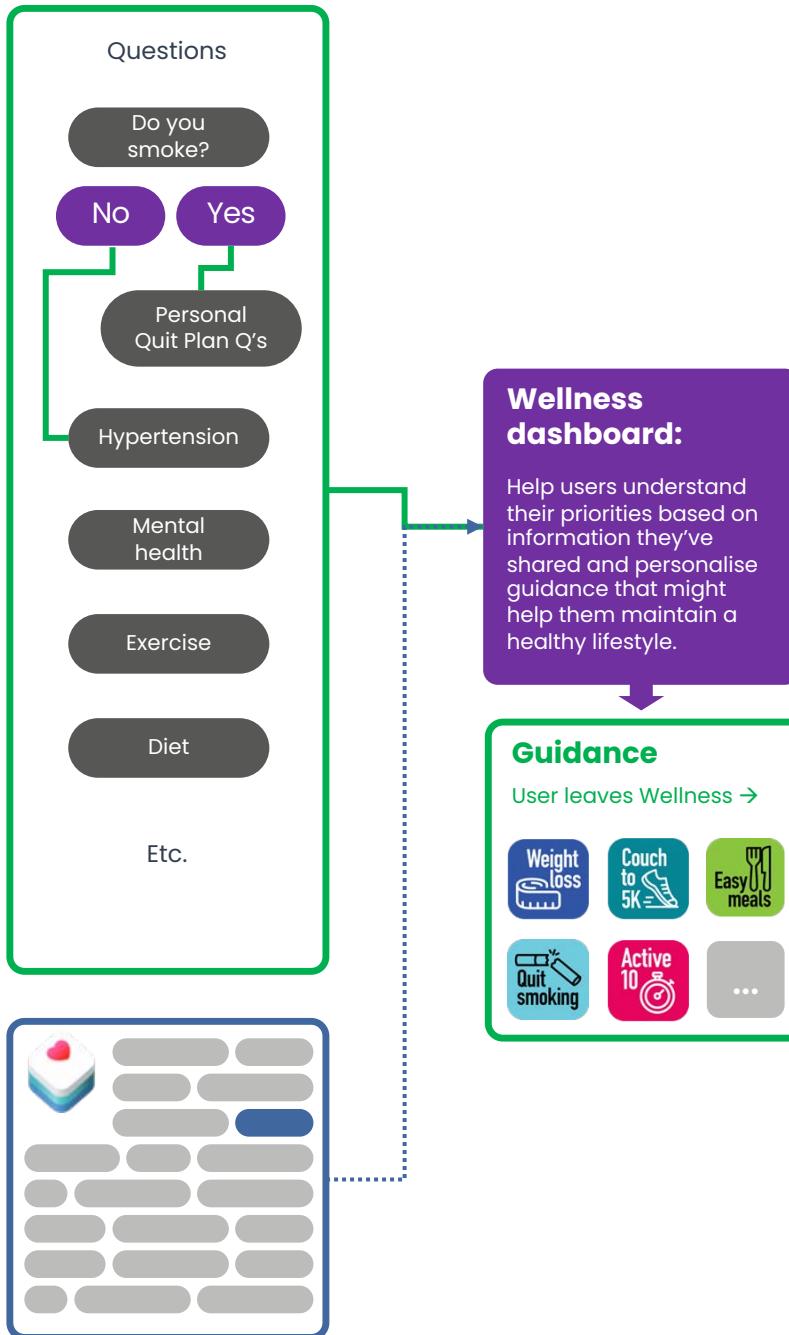
Responding to our findings
(December 2021)





Wellness questions

A new set of 'dynamic' questions to engage the user in their health and wellbeing reacting to new information when provided and tailoring follow up questions and guidance as a result.



RECOMMENDATION:

We proposed creating a data capture question set.

1. A better user experience – shorter question set, more focused on Wellness, ability to take users through questions topic by topic in a more appropriate / elegant way, de-duplication of questions and removal of drop-out points
2. A responsive experience – questions could change based on what you tell us. For example, a smoker would get additional questions taken from Personal Quit Plan (recommended by smoking SMEs)
3. Better outcomes – the guidance we are able to provide could be more targeted based on questions designed to better understand a user's situation and needs
4. Control over our service – W&P can user test, iterate and improve the user experience (and ensure it is accessible which the existing tools admit they have issues with) if we own our own question set within our service.

CONCLUSION:

We recommended refocusing Alpha to define, design and test a Wellness question set in Alpha.

Updated scope

In view of the service constraints and findings from our tech spikes, we decided to change our scope and focus on two workstreams.

The prototype has given us opportunity to test the user experience, while the platform has enabled us to prove integration with related services.

Source: Wellness & Prevention Programme Board **Date:** 14 December 2021

Workstream 1: Proof of Concept Prototype

Creating a high-fidelity, dynamic prototype to test an aspirational Wellness proposition beyond the boundaries of the existing NHS App design constraints.

This will be a stand-alone product for user research and stakeholder engagement only, without any underpinning service architecture.

Workstream 2: Test the Platform

Testing a functional non-production Wellness platform that is integrated with key supporting services and offers a technical foundation for a live Beta service.

This will include a 'preparatory' User Interface that is able to show the outputs from successful integration.

Alpha objectives with updated scope



Alpha Learning Objectives		Original scope	Updated scope
1	Users are likely to use an NHS provided digital service to manage their health and wellbeing in one place		
2	Our way of providing personalised health guidance is likely to be effective, engaging and sustaining		
3	People are likely to share their personal health data with the NHS		
4	The service offering is accessible to all groups irrespective of their socio-economic background or additional health needs		
5	We have good enough quality data to drive effective personalisation		
6	The current legal limits of data use allows us to blend NHS and personal data for personalisation in an effective way		
7	The effort required to deliver a service that achieves sought benefits is feasible		

Re-planning: December 2021



Following the Programme Board decision, we undertook a short period of re-planning to confirm the approach, effort, timelines, and resource profiling.

This provided the basis for commitment to 2 key deliverables in the remaining Alpha phase:

- Prototype Front End proposition to enable user testing
- Functional Beta Service Platform to prove integration points and technology

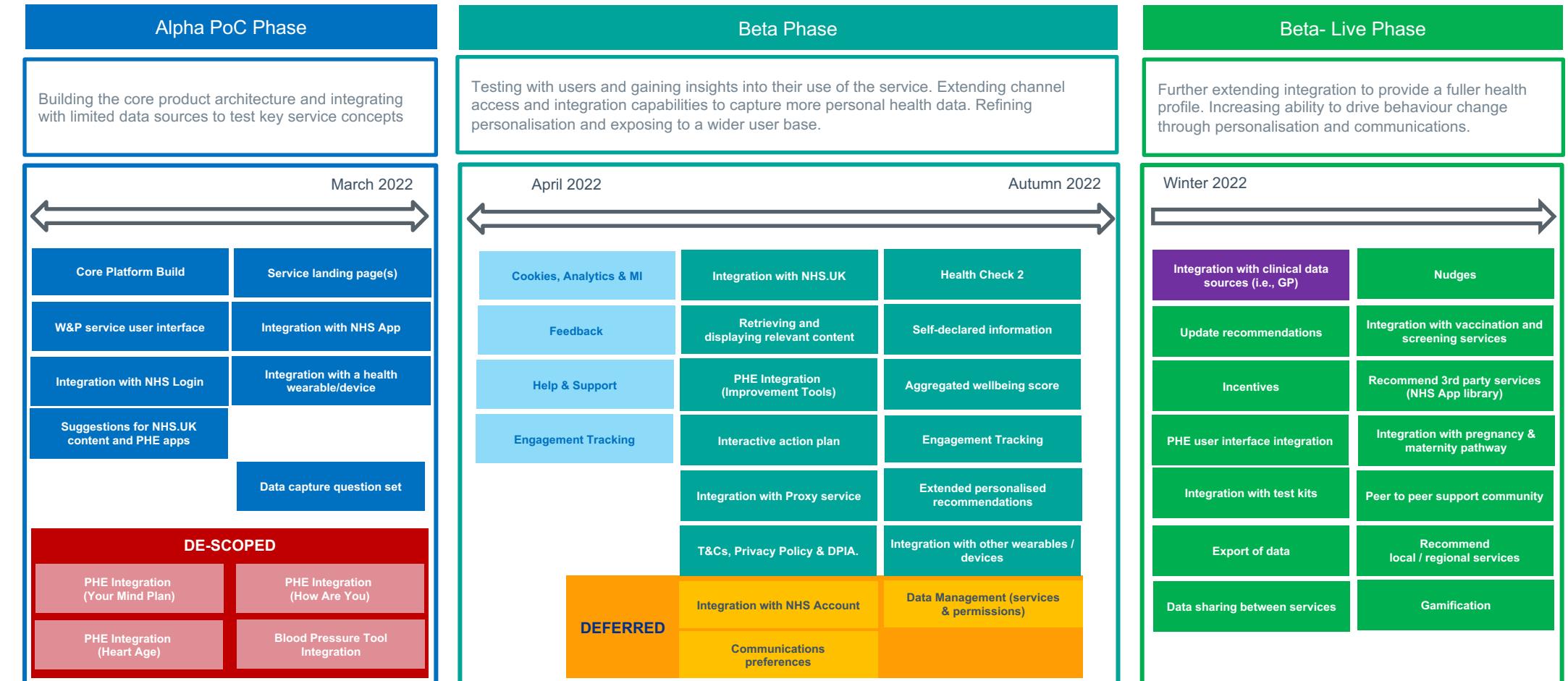
Planning assumptions:

PHE Tools integration would now be **out of scope** for Alpha, instead focusing on prototyping a set of questions to capture user lifestyle data

NHS Account integration would be **deferred** as it was not deliverable within Alpha timelines based on current delivery plans, but there would be continuing engagement for future alignment

NHSX support would be provided to accelerate work with the NHS Login and NHS App teams to enable integration of the service technology platform within Alpha timelines.

Product Roadmap (updated)





The prototype

Define, design and develop a high-fidelity prototype to test (Workstream 1)



A collaborative team approach

NHSx worked closely in partnership with Kainos as well as colleagues in NHS Digital, OHID, DHSC, NHS England and beyond.

Key stakeholders including **expert advisors** and **design authorities** were consulted throughout and helped assure our designs.

In addition, a much larger group of stakeholders were consulted throughout Alpha that included experts representing public health, clinical advisory and safety, policy, technology, information governance and more.



Marc Heasman
Lead Product Manager



Lee Ward
Business Analyst



Harry Ettridge
Business Analyst



Rhys Davies
Experience Strategy



Khush Mistry
User Research lead



Duncan Millar
Service / UI Design



Gavin Wray
Content Design



Roshine Bagha
UX Design



Hannah Vance
UX Design



Pip Hodgson
Head of National Digital Products



Tim Clarke
Assistant Director for Wellness & Prevention



Natasha Lane
Senior Programme Manager



Tina Haigh
Programme Manager



Dan Berry
Behavioural Science Lead



Dorothy Szinay
Behavioural Science



Amber Polley
Senior Service Designer



Ben Cullimore
Service Design Lead (NHSD)



Dean Vipond
Service Design Lead (NHSD)



Emma McLachlan
Director of Digital Experience



Erica Buckley
Head of Digital Product (OHID)



Mark Nutley
Lead Product Manager (OHID)



Geraint Lewis
Clinical Lead



Nancy Willacy
User Research Lead



Chryssa Stefanidou
Behavioural Insights (DHSC)

Public Health & Clinical Advisory Group

We worked closely with clinicians and Subject Matter Experts in a dedicated Public Health & Clinical Advisory Board to make key design decisions.

This included a series of sub-group working sessions to address considerations around:

- User autonomy
- Topic prioritisation
- HealthKit data
- Service eligibility

As we completed user testing, we presented the outcomes to group members and worked with them to iterate our emerging user journeys.



SME engagement



Public Health & Clinical Advisory Group

Martin Dockrell

Tobacco Control Programme Lead (OHID)

Erica Buckley

Head of Digital Products & Data (OHID)

Gemma Clifford

Senior Programme Manager, CVD Prevention, Clinical Policy Unit (NHS England)

Lia Ali

Clinical Advisor (NHS England)

Krishnaveni Anil

Head of Prevention Services Strategy (DHSC)

Rosie Taylor

Digital NHS Health Check programme manager

Mark Nutley (left OHID)

Lead Product Manager, Health and Wellbeing Directorate, Marketing (OHID)

Jade Clark

Programme Lead Predictive Prevention (OHID)

Katherine Thompson

Head of the Cardiovascular Disease Prevention Programme (OHID)

Jemma Kehoe

Head of Digital Mental Health (NHS)

Elspeth Henderson

Tobacco Control Information Manager (OHID)

Karen Pinder

Head Of Marketing, Mental Health (OHID)

Conrad Eydmann

OHID, Improvement Lead – Personalised Prevention

Geraint Lewis (left NHSX)

Clinical Lead, W&P, NHSX

Smoking SME's

Martin Dockrell

Elspeth Henderson

Mental Wellness SME's

Lia Ali

Jemma Kehoe

Ayesha Rahim

Karen Pinder

James Woollard

Heart Health SME's

Katherine Thompson

Gemma Clifford

John Deanfield

Sam Finnikin

Thomas Gardiner

Conrad Eydmann

Mark Owen

Michaela Nuttall

Policy SME's

Krishnaveni Anil

Connor Rohan

Clive Richardson

Alpha focus areas

We worked closely with clinicians and Subject Matter Experts in the Public Health & Clinical Advisory Board to make key design decisions.

This included a series of subgroup working sessions to address considerations around:

- User autonomy
 - Topic prioritisation
 - HealthKit data
 - Service eligibility

We presented the outcomes to the full group for ratification and reflected these in our emerging designs.

User autonomy

Where on the spectrum do we want the Wellness & Prevention service to be?

High choice

Low choice

Users given complete freedom to self-select health topics of interest & choose which content they wish to explore

Users given limited freedom to choose their health priorities & content is prioritized by clinical needs

Users forced to address every clinical health priority & all content restricted according to agreed prevention priorities

HealthKit data

- HealthKit provides access to a wide range of potentially useful wellness and prevention data points
- Which data points are most relevant to our clinical priorities?

Topic prioritisation

Wellness priority 1

Wellness priority 2

Wellness priority 3

Guidance

- Which clinical area should take priority when presenting guidance?
- Are there priorities for guidance within specific topics?

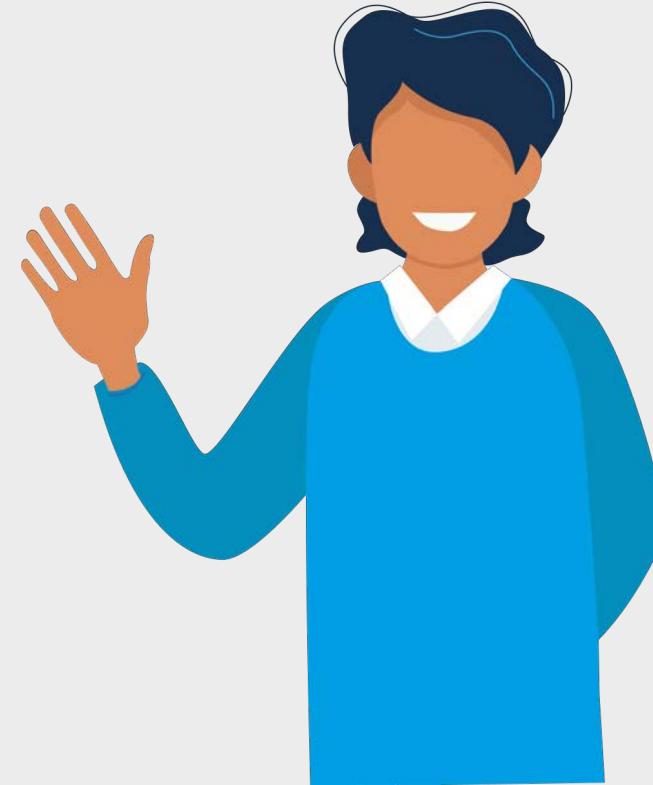
Quitting smoking "trumps" all other conditions as a guidance prioritization rule

Service eligibility

- What eligibility criteria should be used to ensure the clinical safety of users?
- Are there specific groups that should be excluded from its use?
- What is the minimum age that should be applied to the service?



User research



Our approach to user research

Mixed-methods research to understand our users and their needs was a key activity since Discovery – focused on engaging those people we most need to reach

In **Discovery**, primary research through user interviews and surveys alongside a review of existing research in the digital health prevention. Broadly focused on identifying the priorities for alpha.

Post-Discovery, additional qual and quant research to stress-test assumptions; explore the users' contexts and priorities; and do this with greater numbers of users. In addition, further review of secondary research and behavioural science.

In **Alpha**, articulated user personas to inform service design and research recruitment; conducted four rounds of iterative testing of prototypes and various design options; articulated user needs; and planned for post-Alpha testing.

The next couple of slides provide additional detail.

User personas



Characteristics included in all personas:

- Age, ethnicity, marital status, location and socio-economic status
 - BMI, weight, height, blood pressure reading
 - Level of interest / motivation in health and wellbeing / frustrations and risk awareness
 - Past / present engagement with the NHS (from low-income groups)
 - Data sharing concerns
 - Level of proficiency with digital services
 - Interest and/or use of health wearables / devices
 - Conditions where a user has learning difficulties, physical or mental disabilities.

COVID-19 context:

- General increased anxiety and negative feelings
 - Reduced access to social events – increased feelings of loneliness
 - Worry about children's future
 - Worry about fewer employment opportunities
 - Problems of working from home – home office not great, increased costs, blurred boundaries between home and work means burnout
 - Increased bereavement as more death in the community
 - Loss of income in some cases
 - Problems with homeschooling, and needing to take time off when children are more likely to have to isolate
 - Lack of affordable childcare

Research and data to used to support the personas:

- User Profiles (NHS Health Check 2.0) by OHID / NHS Digital
 - User research report: Wellness and Prevention Future Digital Services (Discovery) by NHSx
 - NHS Health Check research by OHID / NHS Digital
 - The Wellness Hub Quantitative Summary, October 2021 by NHSx
 - Wellness and Prevention Future digital services discovery by NHSx
 - Davis Dyslexia Association International
 - British Dyslexia Association



Personal data

Age: 32
Ethnicity: White British
Occupation: Furloughed builder
Location: East London, UK
Socio-economic status: C2
Height: 183cm
Weight: 79kg
BMI: 23.2

Smoker

No pre-existing health conditions
Family history of high blood pressure and CVD

About

Will is 32 and a builder. He lives in East London and is married with 2 children. He has already downloaded and used the NHS Quit Smoking app without success. He has tried to quit multiple times and lacks motivation. In his profession he often smokes socially and has a cigarette as a reward when completing a task. Will was furloughed and added stress has affected his motivation to try and quit smoking again.

Digital capability

- Has a smartphone and a personal computer - he is confident using technology
- Has used the NHS app to manage his health digitally
- Uses his smartphone to count his daily steps, however, he feels like he does not need more exercise due to his job

Motivation

- Wants to live longer, be healthier and is interested in improving his health
- Wants to stay physically active for longer to do his job

Frustrations

- Does not trust NHS to help him quit smoking as both himself and his friend had a negative experience with progress tracking
- "I started smoking when I was very young, and I feel like it's very hard to stop now."

External influences

- Worries about COVID-19 affecting his employment opportunities and being able to support his family
- His family budget is now a lot tighter, and he can't afford to use a lot of data on his smartphone

Platforms they currently use for their health:

- YouTube
- Google

 <p>MENTAL HEALTH</p> <p>Jenny Redford</p> <p>"I feel like I don't want to bother the NHS with my problems. My condition is like physical, and I just need advice."</p>	Personal data	
Age:	72	
Ethnicity:	Black - British	
Occupation:	Retired care home carer	
Location:	Barking, UK	
Socio-economic status:	C2	
Height:	172cm	
Weight:	84kg	
BMI:	28.3	
Sleeping problems		
No pre-existing health conditions		
<p>About</p> <p>Jenny is 72, and she is from Barking. Her family moved to the UK from Nigeria when she was a child. She lives alone after her husband died few years ago and her son is living in Scotland. She loves her community and cares about the people around her. She often feels very lonely and under a lot of emotional stress. Jenny is retired and feels that she can look after herself now that she has got the time.</p> <p>Digital capabilities</p> <ul style="list-style-type: none"> • Jenny has often tried to use the NHS website to find help on how to cope with loneliness and anxiety. She is unaware of NHS apps and thinks that the NHS is only for "serious conditions". • She uses her smartphone all the time and can download and use apps. <p>Motivations</p> <ul style="list-style-type: none"> • Jenny wants to be healthier and be there for her son but does not know how to deal with her worsening mental health. • She suffers from episodes of insomnia. She wants to improve her sleep and find ways to cope with stress and anxiety. <p>Frustrations</p> <ul style="list-style-type: none"> • Sometimes she struggles to get up in the morning and feels hopeless, which affects her eating habits. She recently put on extra weight and finds herself eating more junk food as it is "comforting" and helps with anxiety. • She tried to contact charity and support groups for mental health but felt like it was not enough, and support was "more general". <p>External influences</p> <ul style="list-style-type: none"> • Jenny feels especially lonely during isolation because of Covid-19 when her son was not able to visit. • She is constantly worried about her son's future and how pandemic might affect it long term. 		



Priyanka
40
British
Bangladeshi
University administrator

Personal data

About
Priyanka is a mother of 2 young children and is struggling to eat healthily. She has tried to lose weight multiple times but lost motivation after her second child was born. Priyanka feels lost and does not know how to eat healthily and look after herself when cooking every day for her 2 children.

Digital capability

- Priyanka has used the NHS BMI calculator and understands her risks.
- She uses her smartphone all the time and is very tech savvy.
- Uses a Fitbit to calculate her daily steps.

See next slide for a full-sized view of this persona

ADONAVASCULAR DISEASE

Priyanka
Find it difficult managing time around caring and cooking for kids and choosing healthy options or myself!

Sleeping problems

BMI: 36.1

Family history of:

- diabetes
- coronary heart disease

External Influences

- She faced additional pressures caused by homeschooling her children because of Covid-19 and constant lack of time forced her to skip exercise and limit time on cooking healthier options.



HEALTHY INDIVIDUAL

Jemma Taylor

"I don't want to give my personal details to someone as I'm not sure it might affect my childcare allowance."

Personal data

Age:	19
Ethnicity:	White
Occupation:	SAHM
Location:	Manchester, UK
Socio-economic status:	E
Height:	165cm
Weight:	76kg
BMI:	27.9

No pre-existing health conditions.

About

Jemma is a new mom and after having her baby she finds herself slightly overweight and struggles to manage home life and her weight loss goals. She is generally healthy, eats well and enjoys being active but when she goes out on the weekends and drinks with friends, Jemma feels overwhelmed by her recent lifestyle changes, caring responsibilities and having a drink at the end of a long day feels like a reward. At the weekend she would consume around 7/8 drinks while her family or partner takes care of the baby. She feels like she has her drinking under control as it is her chance to relax and socialize with friends without any pressure or responsibilities waiting.

Digital capability

- Jemma uses her smartphone regularly and likes downloading and trying new apps.

Motivations

- She would like to cut down on alcohol and lose some weight and is aware that she needs to move more. One of her main reasons for getting a personal trainer is "to have fun" and join in group fitness challenges but Jemma feels it might be out of scope of her budget.
- Gemma's big motivation is her social circle and her best friend who is in a very good physical shape.

Frustrations

- She would like to improve her health but the burden and pressure of adjusting to family home life leaves her in a struggle to keep a consistent routine.

External influences

- Gemma is overwhelmed with trying to maintain a social and home-life balance with a young child. She feels that she won't progress with her weight loss goals as she is too busy and constantly feeling tired to be motivated.

Personal data	
Age:	28
Ethnicity:	White British
Occupation:	Painter-decorator
Location:	Northampton
Socio-economic status:	C2
Height:	182
Weight:	87
BMI:	26.2
• Moderate Dyslexia	
About	
Jason is very self-conscious when speaking in a group. He often has difficulty getting thoughts out – pauses frequently, sometimes speaks in halting phrases, or leaves sentences incomplete. For Jason, this gets worse with stress or distraction.	
He is struggling to cope with anxiety as a result of his reading and learning difficulties. Jason is a painter-decorator and is often eating unhealthy foods to compensate for stress and demands of his job.	
Digital capability	
Jason likes using his smartphone daily. He likes using different apps and is very curious of new ones to try. He often uses his smartphone's personal assistant which helps him to perform tasks such as writing an email or looking up a contact.	
Motivation	
Jason would like to eat healthier, and exercise more but often finds himself very tired after work and sometimes bought himself a fitness device as it was recommended by his friend. Exercise helps Jason to focus better and clear his thoughts, he is very keen to start moving more but lacks guidance or prompts.	
Frustrations – Perceptions	
Jason tried healthier cooking at home but was overwhelmed by the number of options and struggled to decide what to cook.	
Confusion, stress and time pressure usually significantly increases his symptoms which leaves him unsure of next steps.	
External influences	
Jason has a small social circle and relies on the opinions of his friends. He often asks for recommendations and advice within his close circle of friends.	



Bakula Hakiem

MENTAL HEALTH / SMOKING

"I know that I need to quit smoking, but I have other priorities right now."

Personal data

Age:	34
Ethnicity:	Bangladeshi
Occupation:	Day time: Learning Software testing Night shift: Warehouse worker
Location:	London, UK
Socio-economic status:	C2
Height:	175cm
Weight:	76kg
BMI:	24.8
Blood pressure:	142/83
Lack of sleep and migraines	
Family history of:	
• High blood pressure	
• CVD	

About

Bakula just recently arrived in the UK. He is working in London and is very keen to bring his family over very soon. He works long hours and has two jobs to support himself and his family. Bakula is still settling down in the country and doesn't fully understand what he needs to do if he requires health advice or a doctor's consultation. He is registered with the GP practice and has an NHS number.

Bakula is struggling with stress and anxiety because of the recent significant life change. To stay awake for the night job, he usually drinks a lot of coffee and smokes. He started developing migraines but won't talk to anyone about it.

Digital capability

- Bakula uses his smartphone every day to talk to his family abroad, watch news and even to improve his language skills.

Motivations

- Bakula would like to cut down on caffeine and sleep more. He wants to quit smoking and start eating healthier.
- He has two children and wants to see them growing up in the UK.

Frustrations – Perceptions

- English is my second language; I'm worried that I won't understand what I need to do to improve my health?
- If I share my details will that affect my rights to stay in the country and my visa?

External influences

- Bakula recently met with other immigrants like himself who believe that NHS is for seriously ill people only.



CARDIOVASCULAR DISEASE

Priyanka Hasan

"I find it difficult managing my time around caring and cooking for kids and choosing healthy options for myself."

Personal data

Age: 40

Ethnicity:
British -Bangladeshi

Occupation:
University administrator

Location:
Birmingham, UK

Socio-economic status:
C1

Height: 162cm
Weight: 95kg
BMI: 36.1

Sleeping problems

Family history of:

- diabetes
- coronary heart disease

About

Priyanka is a mother of 2 young children and is struggling to eat healthily. She has tried to lose weight multiple times but lost motivation after her second child was born. Priyanka feels lost and does not know how to eat healthily and look after herself when cooking every day for her 2 children.

Digital capability

- Priyanka has used the NHS BMI calculator and understands her risks.
- She uses her smartphone all the time and is very tech savvy.
- Uses a Fitbit to calculate her daily steps.

Motivations

- She is very interested in improving her health and to live longer for her children.
- She is worried and in fear from her family's history of diabetes and CVD.
- Priyanka's husband bought her a Fitbit to help motivate her and count her daily steps.

Frustrations

- She feels that it is difficult to eat healthily if she needs to cook separate meals for family.
- She does not exercise much during the week because of her job and young children but tries to reach at least 5,000 to 6,000 steps a day. Likes her Fitbit as it helps motivate her to move.
- She often attends family outings and parties where "she cannot control how much she eats" as it stops the fun.
- Does not smoke or drink alcohol because it's unhealthy but does not know which foods are healthier than others and how to choose wiser options.

External Influences

- She faced additional pressures caused by homeschooling her children because of Covid-19 and constant lack of time forced her to skip exercise and limit time on cooking healthier options.

User research activities in Discovery and pre-Alpha

Discovery

Interviews to identify **existing insights** with user researchers from across NHS.

- Irene Barat - Lead User Researcher on Better Health (PHE and NHS.UK)
- Chryssa Stefanidou - Head of Behavioural Insights for PHE
- Lucy Winder - Lead User Researcher on the Transaction Discovery (NHS.UK)
- Dominic Valleye - Lead Researcher on the Health Inequalities Team
- Simon Davis - Lead User Researcher on Screenings Team
- Shabira Papain - Head of Equality, Health Inequalities and Digital Inclusion (NHSx)

Primary research to get a broad view on how people understand their health and how they engage with 'wellness and prevention'.

Research questions:

- Do people understand their health?
- What motivates people to be healthy?
- How are people currently using technology in relation to their health?
- How do people feel about sharing data?
- What are people's perception of the NHS?
- What is the NHS's role within wellness and prevention?

Interviews

6 x 45 - 55 minute semi-structured interviews, conducted over video call
4 x BAME / 2x White British
4 x long term health condition.

Survey

1 survey, comprising of 8 questions sent out to the 3 PHE communities (Youth Talk, Better Health and Change4life), approx. 2000 people
57 responses in total.

NHSX

Review literature of the efficacy and engagement with similar digital wellness support:

- Pilots to develop digital NHS Health Checks
- PHE's various lifestyle apps
- NHS.UK engagement
- Views on data privacy & personalisation
- Health psychology and behavioural change

New user research led by PHE to supplement gaps in existing evidence, notably on wellness hub context:

- Interviews, focus groups and video testimonials
- New survey with 500 people
- Focused on population groups we most need to engage

Recommendations for additional research through Alpha and Beta - including empirical testing:

- Commercial process underway for test-and-learn platform
- Cross-organisational team working well across DHSC, NHSX, NHSD
- Evaluation planning underway

Criteria framework to support the process of prioritisation

Engaging subject matter experts and stakeholders in a process to inform the sequencing of which specific prevention services are included in the MVP [minimal viable product]. This is scored on a criteria of feasibility versus impact on healthy life years and inequalities.

Moving into Alpha we have a view from discovery of what we want but we need to test if it's right and how we go about doing it.

User research activities in Alpha



Alpha

User personas: We defined a set of user personas for Alpha based on multiple sources of existing research to describe groups of users with similar behaviour and needs.

User testing: User interviews and testing of rapid prototypes and user journeys has been conducted throughout this phase to help us learn and continually validate our user needs.

Round 1 Quit Smoking Journey	Round 2 Mental Wellbeing and Quit Smoking	Round 3 Hypertension Journey	Round 4 End to End Journey
6 x smokers living in England Mix of ethnicities White British, Black British, Black African, Mixed white / Asian Mainly confident digitally (range of somewhat confident to very confident) Age range: 19 - 58 Mix of socioeconomic status	7 x NHS App users living in England Mix of ethnicities 6 x White British, 1 x Black Caribbean Mixed digital confidence (with using digital tools, but all are users of the NHS App) All with physical and/or mental health prevention needs Age range: 32 - 66 2 with accessibility needs All C2DE social groups	8 x participants living in England Mix of ethnicities 2 x White, 4 x Asian, 1 x Black, 1 x Other Mixed digital confidence (with using digital tools, but all are users of the NHS App) Age range: 26 - 65 Gender: 5 x Female 3 x Male Users self identified as having low or no activity	Participants with access needs 2 x ADHD 2 x Dyslexia Locations: London, Liverpool, Leicester, Sheffield, Leeds, Bradford, Welwyn Garden City 8 x participants living in England Mix of ethnicities 4 x Asian, 1 x Mixed Race, 2 x Black, 1 x White Participants with access needs 4 x EASL 2 x Dyslexia All rarely exercise
Round 1 - Sprint 4 User research report	Round 2 - Sprint 5 User research report	Round 3 - Sprint 6 User research report	Round 4 - Sprint 8 User research report

Round 1:

- User's expectations of pathways to an NHS 'Wellbeing' service
- User's perceptions and understanding of an NHS 'Wellbeing' service
- User's understanding of the onboarding process into the service
- User's understanding of the smoker's prototyped journey
- User's next steps after the prototyped journey and motivations

Round 2:

- Understanding more about users overall mental wellbeing experience & relationship with NHS App/other digital mental wellbeing products/services
- Feedback on the core prototypes presented - (onboarding questions, mental wellbeing journey & smoking journey) & their value
- Exploring participants' expectations of what an NHS wellness service could look like and where it would be accessed

Round 3:

- User's understanding of what being healthy means
- User's expectations of the NHS 'Wellbeing' service and what it would provide
- User's perceptions of the onboarding questions
- User's perception of the hub before getting into the Hypertension questions
- User's perception and understanding of the hypertension Journey
- User's overall impression and next steps of what the journey should include

Round 4:

- Gain insight into how the new structure of the hub works for the user (e.g. by lifestyle factors over clinical priorities)
- Understand how the new lifestyle-based onboarding questions impact on the user's perception of personalisation
- Gather emotional, motivational and behavioural insight into the use of Crystal as a design mechanism for the Health and Wellbeing Hub
- Observe how users navigate / explore the Hub, topics and sub-topics in the service

How user testing helped us evolve the hub

NHS

Round 1

S Smoking

A list of your answers and your personalised guidance are now available.

Your answers

Q1 You smoke within 5 minutes of waking up

Q2 You smoke 21 to 30 cigarettes a day

Changing your morning routine can help break the habit. Do things differently. Dress before breakfast instead of afterwards. Have a coffee instead of tea. Listen to or watch a different radio or TV station.

Q3 You tried to quit before

Q4 You tried using willpower alone

Many people who quit smoking relapse at some point. Don't be put off trying again. The key is to learn from what went wrong so you're more likely to succeed next time.

Many people try to quit smoking with willpower alone, but it's much easier to go smoke-free with the right help. There are lots of support options available, try a combination that works for you.

Smoking guidance

Get your personal quit plan

You're more likely to quit smoking with the right support. Check out your free plan to find out the best way for you to quit.

Get plan

Download the free NHS Quit Smoking app

Round 2

NHS Health and Wellbeing Hub ALPHA

Welcome to your Hub, Jenny

Your topics

Based on what you have told us:

Mental wellbeing

Smoking

Heart health

Something changed?

Explore more topics

Healthy eating

Pregnancy

Exercise

Alcohol

Sleep and tiredness

"I guess this is from an NHS point of view that cause the most problems"

"I think the topics I am mostly interested in should be at the top of the page first"

Round 3

NHS Manage your health and wellbeing ALPHA

Welcome to your Hub, Jenny

Your topics

Based on what you have told us:

Smoking

Heart health

Mental wellbeing

Something changed?

Explore more topics

Healthy eating

Pregnancy

Exercise

Alcohol

Sleep and tiredness

"It ties in with what the NHS does."

"Smoking and heart health good but they don't really apply to me"

"I like this whole thing!"

Participant drawn to "Personalise your guidance" chunk first

Round 4

Health and Wellbeing Hub

Hi Jenny Welcome to your Hub

About me

Age: 32

Height: 5ft 10

Ethnic group: Asian or AsianBritish

Smoking: Smoke most days but not every day

My priorities

I want to keep myself healthy

I want to be there for my family

I want an active social life

I want to be able to work

My health data

Get started now

Personalise your guidance

Based on what you told us, you should look at the smoking guidance.

Tell us more about your smoking so you can get more relevant tips and guidance.

Personalise my guidance

"I like the animations – they're really cute"

Topics for you

Quit smoking

Tell us more about your smoking so you can get more relevant tips and guidance.

Personalise my guidance

Mental wellbeing

Tell us more about your mental wellbeing so so you can get more relevant tips and guidance.

Personalise my guidance

Activity

Healthy weight

Healthy eating

Alcohol

Sleep and tiredness

ALPHA This is a new service

The Health and Wellbeing Hub is a new service. The topics available are smoking, mental wellbeing, and lifestyle factors contributing to high blood pressure.

There will be more topics about other areas of your physical health and mental wellbeing in the future.

"Very simple, which is good. Like the NHS website. They don't use a lot of big words. Simple, straight to the point."

Key insights: Round 1 (Smokers)

Health services usage

Participants used health services reactively rather than proactively.

"People might use caffeine as a replacement for smoking"

Everyone had tried to quit before, citing 'stress' as the main reason for smoking

Participants' expectations of an NHS "wellness" service focused on mental health.

"Again, like I said, for me in the first instance it was based around mental health & that's where my mind goes to in terms of wellbeing."

Pathways in

Most participants would go to more specific websites, but found the wellness service intriguing

Participants liked the introductory text and knew who the service was for. *"I like that [it's obvious], you know, what the app & services are there to achieve"*

Smoking questions

Participants understood the questions but had differences in what they expected.

"I wouldn't sit & think about these things until it was in front of me & I had to prioritise it"

The question around methods of quitting was unclear to some participants

The results information presented produced varying opinions from the participants

Most participants would use the 'quit plan' as a next action. *"I'm definitely interested in a personal quit plan.... I remember the NHS stop smoking app and it wasn't for me.... this is more tailored to me and not to every Tom, Dick and Harry"*

NHS App

Participants registered with the app if they were used to doing so with other services. *"Too many times you go onto an app, and they want all this information... surely, they don't need all this... I like the fact you can go on without having to register"*

Participants had a fairly good understanding of NHS login. *"Maybe a bit more of an explanation about where someone might have received an NHS login in the past." and "I do have an NHS login because I had to log in for my vaccine."*

Using the Wellness service

All participants were comfortable with sharing their data with the NHS
"I love the NHS so not bothered about you having my data, do what you want with it"

Participants stated that they could envisage themselves using the service in a reactive way. *"I think it's advice on key elements of your general health. Like eating habits and other small everyday things that make a big impact on your life."*

key insights: Round 2 (Mental Wellness)



Usage

Risk of some people not coming back unless we constantly offer new value.

"If I download the app, answer questions, follow advice and become better then there is no need for me to come back to the app"

Some participants felt more comfortable answering questions vs having a conversation with their doctor.

"When you are talking to a person face to face it's hard to talk about things, but with an app I don't mind talking about Mental health"

Some users of our service would use it for others - not themselves.

"It doesn't matter about me, does it?"

Health definition

When asked - being healthy was predominantly focused on physical aspects.

Heart Health

The youngest participant (32) perceived the heart health question as irrelevant to them.

"I feel like [this question is] for someone older. Heart health isn't something we think about for younger people."

Health literacy

Health literacy is varied - some users found the content obvious, while others useful.

"Seeing that advice has shaken my belief system" (reference to changing routine and avoiding napping). "This is common sense" (reference to smoking "did you know")

Older people and technology

Older participants embrace health technologies but can be reliant on others to get started.

Questions within the app

One participant found the number of questions frustrating.

"Oh, more questions, YAY!" and "I thought I had already answered these questions before".

Urgent use case

Unintended consequences - could answering our mental wellbeing questions be triggering for a vulnerable person & lead them to harmful action? Seeing results of questions at end and all red - how does that make people feel?

key insights: Round 3 (Heart health)

Expectations of the service

If the NHS were to provide a digital wellbeing service, what would you expect? The service would provide:

"Motivation" **Female, 57, EASL, Turkish.**

Accountability via "online, face to face or group chats" **Female, 57, EASL, Turkish and Female, 40, Asian.**

"Tracking and reminders, nudges to do healthy things and alerts" **Male, 35, EASL, Asian.**

"Encouragement to make conscious changes with "simple tips and nutrition plans, step counters and chatbots" **Female, 40, Asian** and **Female, 30, Asian**

What the service does

The latest iteration helps users understand what the service does and does not provide.

Both participants with dyslexia articulated what the service does and does not do (P3, P6).

1 participant with ADHD read the first sentence and skimmed the rest (P8).

1 participant mentioned there was too much text on this screen and they also zoomed through the previous screens (P7, no access needs)

"What's the purpose of using this app, the benefit of this app. There is no health professional to help us, but I can get overview to update myself or look after my health and wellbeing without seeing a GP or health professional." **Male, 35, EASL, Asian**

The hub

Participants expected more topics that they would be interested in based on what they told us (guidance they want to receive).

Some participants felt that the "Explore more topics" section was more relevant to them (healthy eating, sleep and tiredness, exercise)

"I guess this is from an NHS point of view, things that cause the most problems." **Female, 40, Asian.**

"I think the topics I'm mostly interested in should be at the top of the page first" **Female, 30, Asian**

Responding to user insight

In response to user insight we implemented a fundamental change in our design approach.

This included flipping from a focus on condition-orientated questions towards lifestyle and behaviour questions that better reflected how users thought about their physical health and mental wellbeing.



key insights: Round 4 (all user groups)

Insight 1: Trust

High levels of trust with the NHS being the source of the information, but people wanted more. They wanted to be able to set goals, create to-do lists, have details of who in the NHS was helping develop the content.

"Yes, because it's coming from NHS"

"Yes, it's got NHS stamp on there"

"Yes, have a lot more faith in it because it's NHS"

Insight 2: Content

Participants were impressed with the breath and range of information/topics on offer in the hub. They liked that all the topics were listed on the hub page.

Question sets were also easy to understand and answer quickly.

Links to the other apps was seen as being one of the most important pieces of information shared by this app

However, some participants felt the content was a "tad generic", lacked videos and imagery.

Insight 3: Navigation and ease of use

The layout and structure of the app was complimented, users said it was set up in a simple and easy to follow manner.

Entering information and answering questions and how that was laid out made it "effortless".

6/8 wanted the information in an API within the APP rather than being linked out to NHS websites.

Content out to the NHS website was seen as a hindrance. Participants didn't want to be told of the other free, available apps and have to download something else. Everything needs to be in one self-contained app for ease of use.

"I hate when I'm using an app and it takes you to a web browser. Drives me nuts."

"Why should I need 4 different apps just for my health?"

Insight 4: Personalisation

Participants felt that they were getting personalised information when filling in the question sets, however they wanted more in terms of

- Advice & Guidance
- Health tips
- Nudges
- Culture and heritage to be considered when giving health and nutrition advice
- Lifestyle considerations (e.g., children, work, commuting etc)
- Goals and the ability to enter their own goals
- Online community support
- Tasks, Trackers and To-do lists
- Real life stories
- More videos

Insight 5: Visuals

Participants found the colour palette used related to the NHS and wasn't "overwhelming like some other apps". The illustrations used made the app feel more "laid back" and not too formal or medical.

2/8 were dyslexic in this round of testing , both commented on the simplicity and ease of navigation, both found the imagery and illustrations helped communicate the intent of the service. They both liked the subtle use of colour, which helped highlight key information without being overwhelming.

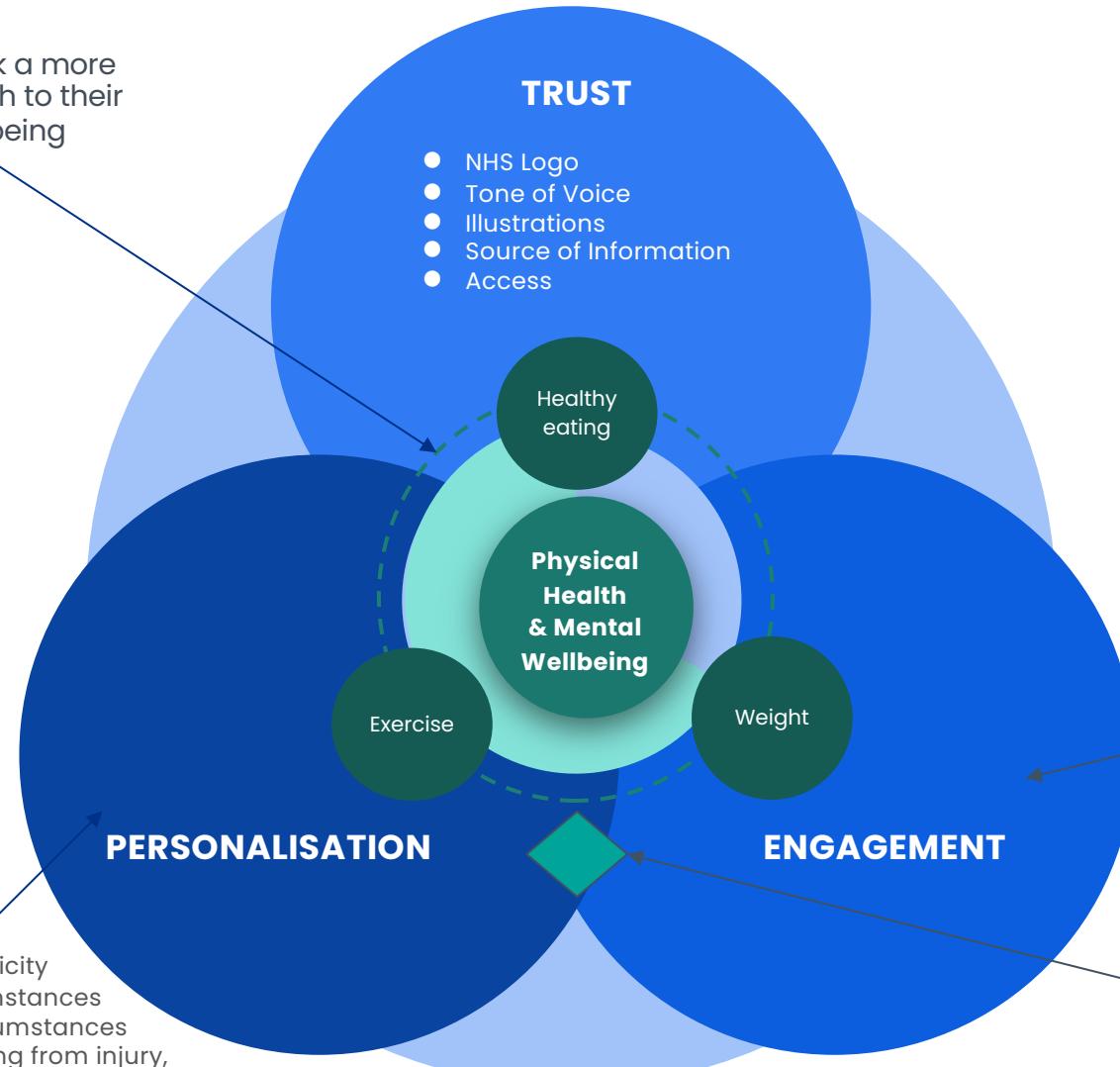
1 participant felt that the visuals needed to be more graphic, like those found on cigarette packs to help deter people from bad habits.

User Research report, Sprint 8
(round 4 of 4)
https://docs.google.com/presentation/d/15Bw9nEsOxJb9rvJdNjbDmuatZG_A7bg66/edit#slide=id.p1



Research analysis: key themes

Participants took a more holistic approach to their health and wellbeing



User Research Round	Key Theme	Sub-theme	User Need	Quote	Status	Notes
4	Trust	Trust in the NHS	The user needs to know that the information being provided is from the NHS and written in partnership with NHS professionals	- Yes, have a lot more faith in it because it's NHS	Beta	
4	Trust	Trust in the NHS	The user needs to see the NHS logo on all screens of the service		In Alpha	NHS logo presented on all screens within the prototype
4	Trust	Trust in the NHS	The user needs to have control over the information shared with the service (e.g. genetic, hereditary, current health statistics)		Beta	
4	Trust	Trust in the NHS	The user needs to be able to push information such as weight, weight loss progress etc to their GP at a time that is convenient or relevant to them		Beta	
4	Personalisation	Content	The user needs to be able to see topics and information relevant to them and their priorities		Partial	Partially covered in Alpha where the clinical priorities have been mapped based on age and smoking behaviours
4	Personalisation	Diversity & Inclusion	The user needs to be able to receive information that is personalised to their ethnic background		Beta	
4	Personalisation	Diversity & Inclusion	The user needs to be able to receive advice and guidance tailored to their personal circumstances (e.g. family life, ability, age, background, existing health conditions)		Beta	
4	Personalisation	Motivation	The user needs to receive health tips and nudges to keep them motivated throughout their experience		Beta	
4	Personalisation	Accountability	The user needs to be held accountable for their journey with the application		Beta	
4	Personalisation	Setting goals	The user needs to be able to set goals that are personal and individual to them		Beta	
4	Personalisation	Tracking progress	The user needs to be able to track progress against the goals they have set for themselves		Beta	
4	Personalisation	Setting goals	The user needs to be able to select from a group of pre-defined goals by each topic that is relevant to them		Beta	
4	Personalisation	Setting goals	The user needs to be able to select and set tasks for themselves (e.g. drink 2 ltrs of water per day, exercise for 10mins in the morning/afternoon/evening)		Beta	
4	Engagement	Motivation	The user needs to be able to see "real life" success stories		Partial	These were created and tested in Round 3 of UR; however users wanted Real Life stories that encapsulated more of their lives and motivations
4	Engagement	Content	The user needs to be able to access videos for information, exercise, advice, recipes etc		Beta	
4	Engagement	Content	The user needs to be able to see all the relevant and inter-linked topics and subjects that are covered by health and wellbeing	- I hate when I'm using an app and it takes you to a web	Partial	The majority of this is covered based on the 3 clinical priorities that were identified in Alpha however, more work needs to be done to understand the other lifestyle factors that would be made available based on other clinical priorities

https://docs.google.com/spreadsheets/d/1FC4uLqNfqnqqW22Ye1-GGmI4CLjgp_xYVLYV_lOy7R0/edit?usp=sharing

- Content
- Navigation
- Illustrations
- Help and guidance
- Prioritisation

Service Expectations

- Motivation
- Accountability
- Setting goals
- Tracking progress
- Checklists
- Nudges
- Alerts

Next steps with user research

We have drafted plans for further research post-Alpha and into Beta

Prototype testing

Real-world use and usability of the wellness hub prototype

Onboarding

Optimal ways to engage people into trialing the new service

Design and content

Building from Alpha, optimal content and design to motivate use and behavioural change

Wider context:

Understand how people use the service alongside other health support, such as wearables

Accessibility: adherence to best practice in accessibility standards

Disparities: narrowing gaps in health inequalities; and digital inclusion

A more detailed view of next steps for research is [here](#)



Service design



UX design

We took a highly collaborative approach to user experience design working in partnership with public health and clinical subject matter experts and representative users of the future service.

Working with SME's across the 3 clinical priority areas (smoking, mental health and hypertension/CVD), we co-created wireframe user journeys that were then reviewed and checked by experts.

These user journeys were also tested with users multiple times (4 rounds). Their feedback was critical in helping us to iterate and refine our prototype.

Introduction to the service

Onboarding questions

Heart health question set

Public Health & Clinical Advisory Group

Smoking SME's

Martin Dockrell
Tobacco Control Programme Lead (OHID)

Jade Clark
Programme Lead Predictive Prevention (OHID)

Erica Buckley
Head of Digital Products & Data (OHID)

Katherine Thompson
Head of the Cardiovascular Disease Prevention Programme (OHID)

Gemma Clifford
Senior Programme Manager, CVD Prevention, Clinical Policy Unit (NHS England)

Jemma Kehoe
Head of Digital Mental Health (NHS)

Lia Ali
Clinical Advisor (NHS England)

Elspeth Henderson
Tobacco Control Information Manager (OHID)

Krishnaveni Anil
Head of Prevention Services Strategy (DHSC)

Rosie Taylor
Digital NHS Health Check programme manager

Conrad Eydmann
OHID, Improvement Lead - Personalised Prevention

Mental Wellness SME's

Martin Dockrell
Elspeth Henderson

Lia Ali
Jemma Kehoe
Ayesha Rahim
Karen Pinder
James Woollard

Heart Health SME's

Katherine Thompson
Gemma Clifford
John Deanfield
Sam Finnkin
Thomas Gardiner
Conrad Eydmann
Mark Owen
Michaela Nuttall

Policy SME's

Krishnaveni Anil
Connor Rohan
Clive Richardson

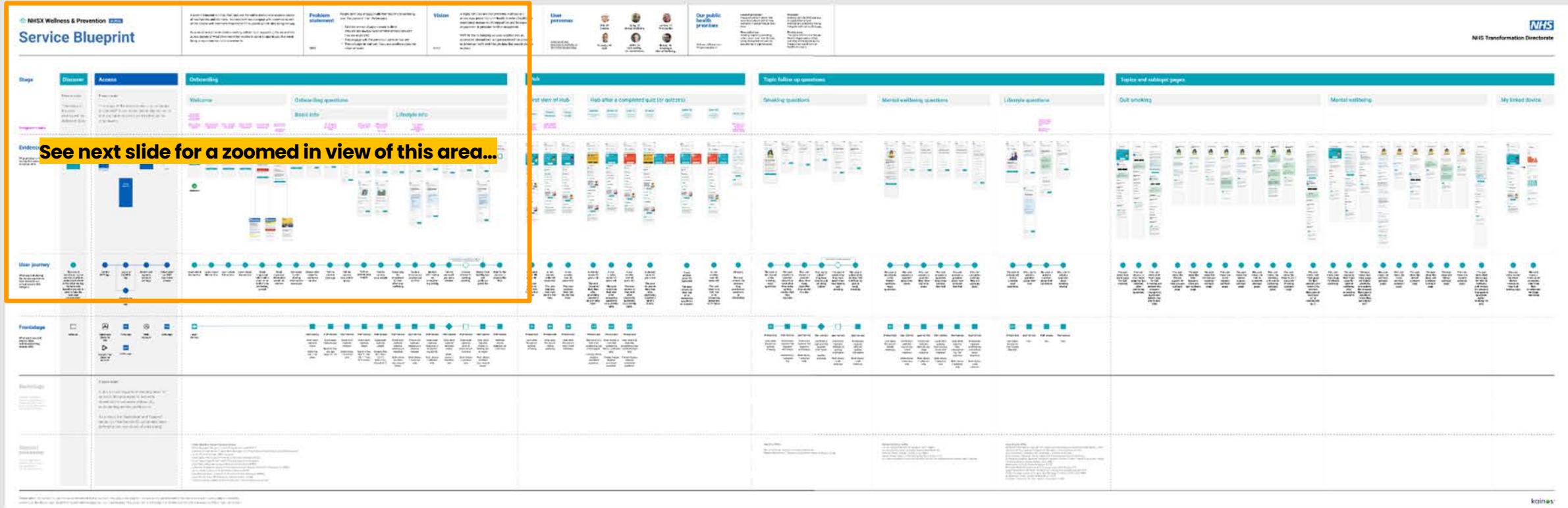
NHS^x

Mark Nutley (left OHID)
Lead Product Manager, Health and Wellbeing Directorate, Marketing (OHID)

Clare Perkins
Clinical Lead, W&P, NHSX

Geraint Lewis (left NHSX)
Clinical Lead, W&P, NHSX

Service blueprint



Source: <https://www.figma.com/file/o2t73cboE7sCysTtlrEvoM/W%26P-Designs?node-id=2550%3A2777>

Service Blueprint

A service blueprint is a map that captures the end-to-end service process across all touchpoints and channels. It shows how users engage with a service as well as the people and processes responsible for supporting each step along the way.

As a result, everyone involved in making, delivering or supporting the service has a clear picture of what's involved which makes it easier to spot issues that need fixing or opportunities for improvements.

Problem statement

NHSX

People don't stay engaged with their health and wellbeing over the course of their life because:

- Services are not always relevant to them
- They are not always aware of what actions/services they are eligible for
- They engage with the prevention services too late
- They struggle to maintain focus and continue a journey to better health

Vision

NHSX

A digital NHS service that promotes wellness and encourages prevention of ill health to extend healthy life expectancy, reduce health inequalities and increase engagement in personal health management.

We'll do this by bringing services together into an accessible, streamlined and personalised hub powered by joined up health and lifestyle data that people choose to share.

User journey

Discover

Access

The steps a user takes in order to progress through their journey.

Please note:
This stage of the user journey will be defined in Beta

Please note:
This stage of the user journey is out of scope for the W&P Alpha phase due to dependencies that are currently being worked through by other teams.

Onboarding

Welcome

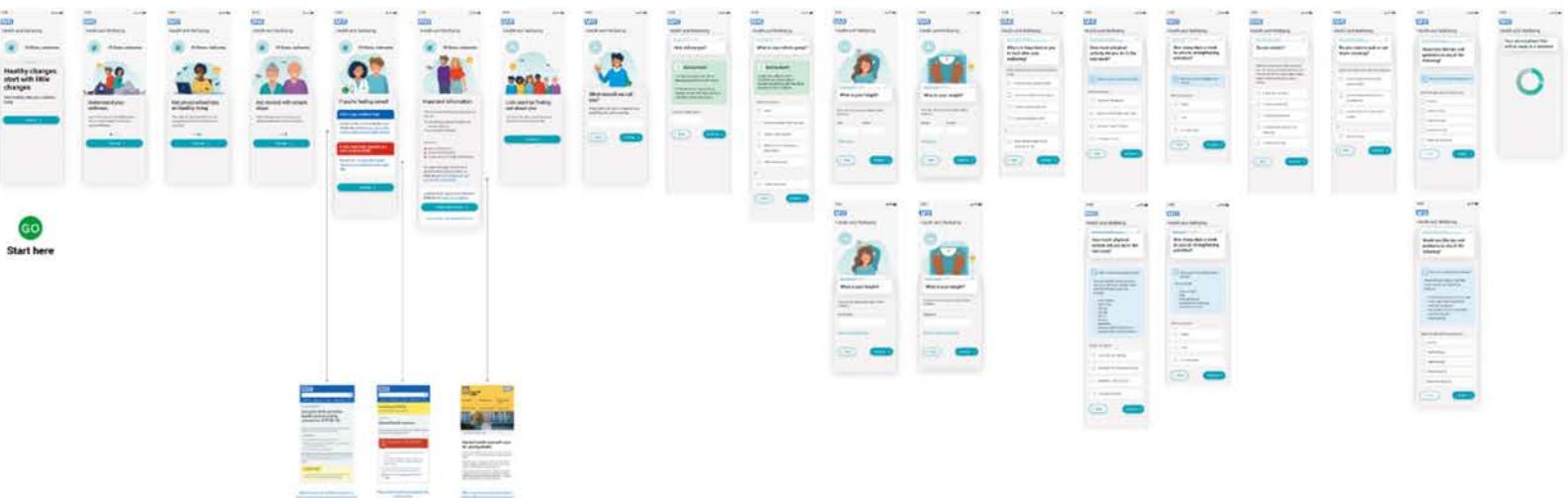
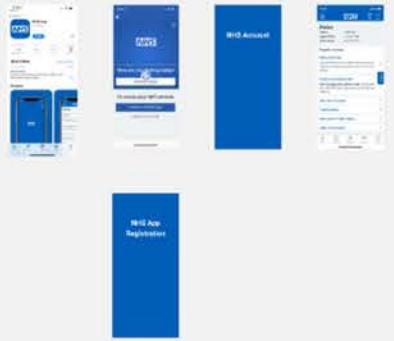
Onboarding questions

Basic info

Lifestyle info

Evidence

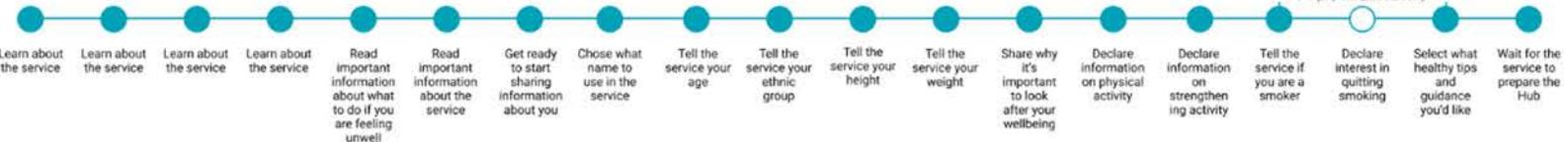
What physical or digital touchpoints users come in contact with.



User journey

What users do during the service experience. User research is a critical input to this category.

The user is introduced to the service, is able to understand who it is for, what the key features and benefits are and is able to take the next step (conversion)



Engagement strategy



Wellness & Prevention proposes to create a new service that will **engage people in their own physical health and mental wellbeing**.

It will help people understand how factors such as lifestyle can impact health, and provide them with tailored guidance based on information they share to **motivate them to make healthier choices***.

However, research has indicated that **people don't remain engaged** with their health and wellbeing, that **services don't always feel relevant** to them, and many **struggle to maintain focus** and **remain motivated over time**.

The Wellness & Prevention service therefore must engage people in their health and wellbeing in an accessible, easy to understand and personalised way.

Accessible – a service that is attractive, appealing and available to everyone

Easy to understand – a service that engages people on their level and does not use medical or complex terms

Personalised – a service that feels tailored to the individual, understands them and provides help and support that's relevant to them.

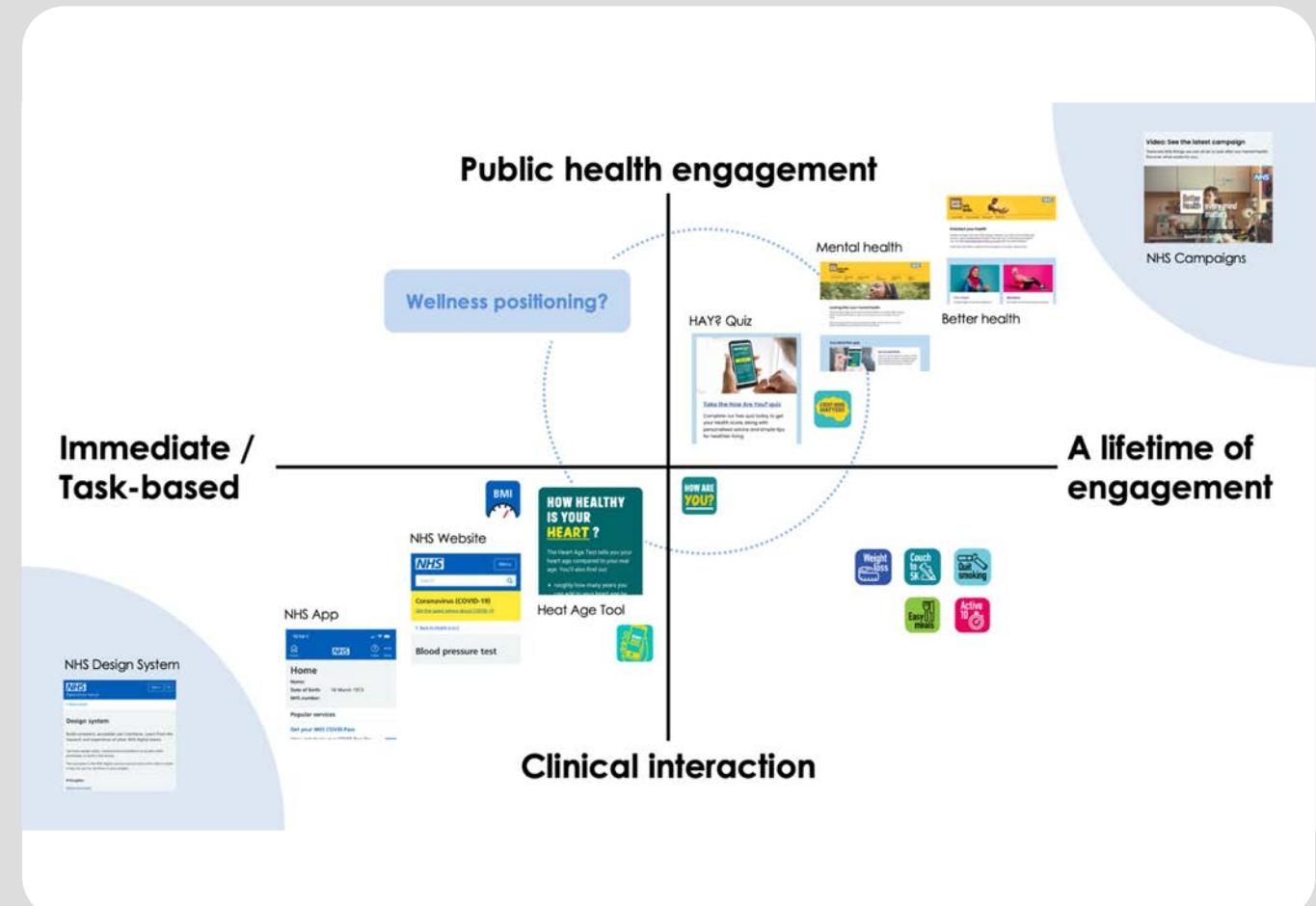
*The COM-B model of behaviour

A lifetime of engagement

Adopting a long-term, motivational approach to user engagement and experience is something new and different for the NHS.

Existing services play a very important role in providing access to health and medical information and services (such as booking a GP appointment or ordering a repeat prescription) and these task-based user journeys need to be simple, clear and efficient.

The Wellness & Prevention service proposes a very different engagement model where the emphasis is less on providing quick access to information and services and more about **engagement with a person's health and wellbeing over time**, possibly a lifetime.



Design direction

The Wellness & Prevention team responded to the need to engage users in their health and wellbeing by exploring a range of design directions.

Our aim is to move beyond the highly functional, information based experience typical to existing services such as NHS.UK and the NHS App to a softer, less formal tone of voice and look and feel.

We believe this will help the W&P service to engage and **motivate people to make healthier lifestyle choices** that will positively impact their health and wellbeing.

This proposed design should be viewed as an 'experiment' for Alpha and will be tested extensively with users in order to determine its impact and effectiveness.

The image displays a variety of design concepts for the NHS Wellness Hub, illustrating different aesthetic approaches:

- DISCOVERY:** Inspired by existing NHS colors and guides, this design uses blues and soft greys with yellow highlights to create a modern, appealing application interface.
- CRYSTAL:** A wellness-focused design that uses illustrations to tell the story. It's soft and simple, using blurs and drop shadows to elevate items and create a faceted feel to information.
- GEOMETRIC:** A flat design style using simplified shapes and color blocks to show progression and pathways to success.

Below these concepts, a wireframe diagram maps design elements across four quadrants:

- Public health engagement:** Focuses on "Wellness positioning?" and "NHS Compagny".
- Clinical interaction:** Focuses on "Wellness positioning?", "Wellness Hub Interaction Plan", and "Wellness positioning?".
- Immediate / task based:** Focuses on "Wellness positioning?", "NHS App", and "NHS Webchat".
- A lifetime of engagement:** Focuses on "Wellness positioning?", "NHS App", and "NHS Webchat".

On the right side of the image, there is a color palette and a screenshot of a mobile application interface.

Design direction

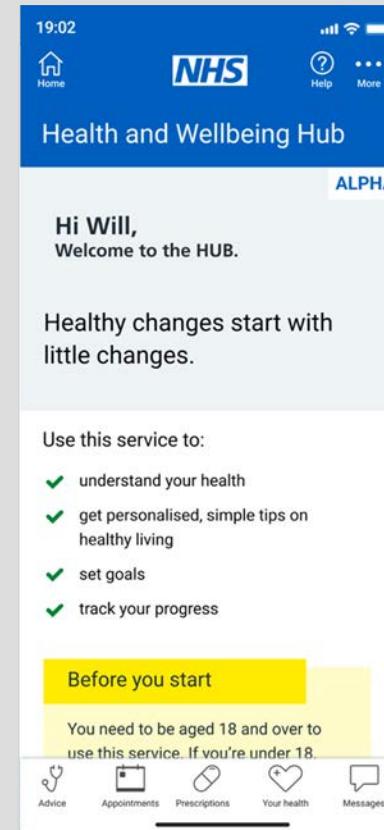
Recognising that Wellness & Prevention is focused on driving behaviour change unlike existing transactional digital services, we explored a range of visual design directions that might be better suited to the proposition than the current NHS Design Manual.

While all options follow the [NHS design principles](#), each varied in the extent to which they diverged from the standard NHS patterns to understand appetite for testing a new design language.

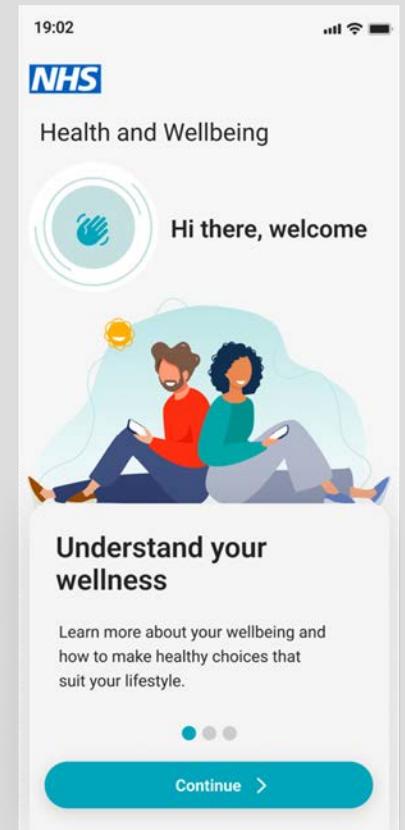
Having considered the options, service owners working in consultation with design authorities in NHS Digital agreed to proceed with the 'Crystal' visual design (see right) to test if this might encourage behaviour change more effectively.

Crystal is intended to reflect a softer tone that is subtle, warm, clean and consistent, but able to sit next to the existing NHS design without being jarring.

Wellness as a silver integration within the NHS App adopting the NHS Design System.



Wellness as a service linked to from the NHS App adopting an experimental design.



Both these designs will be user tested to help us find out if one version engages users and promotes behaviour change better than the other.

NHS design system

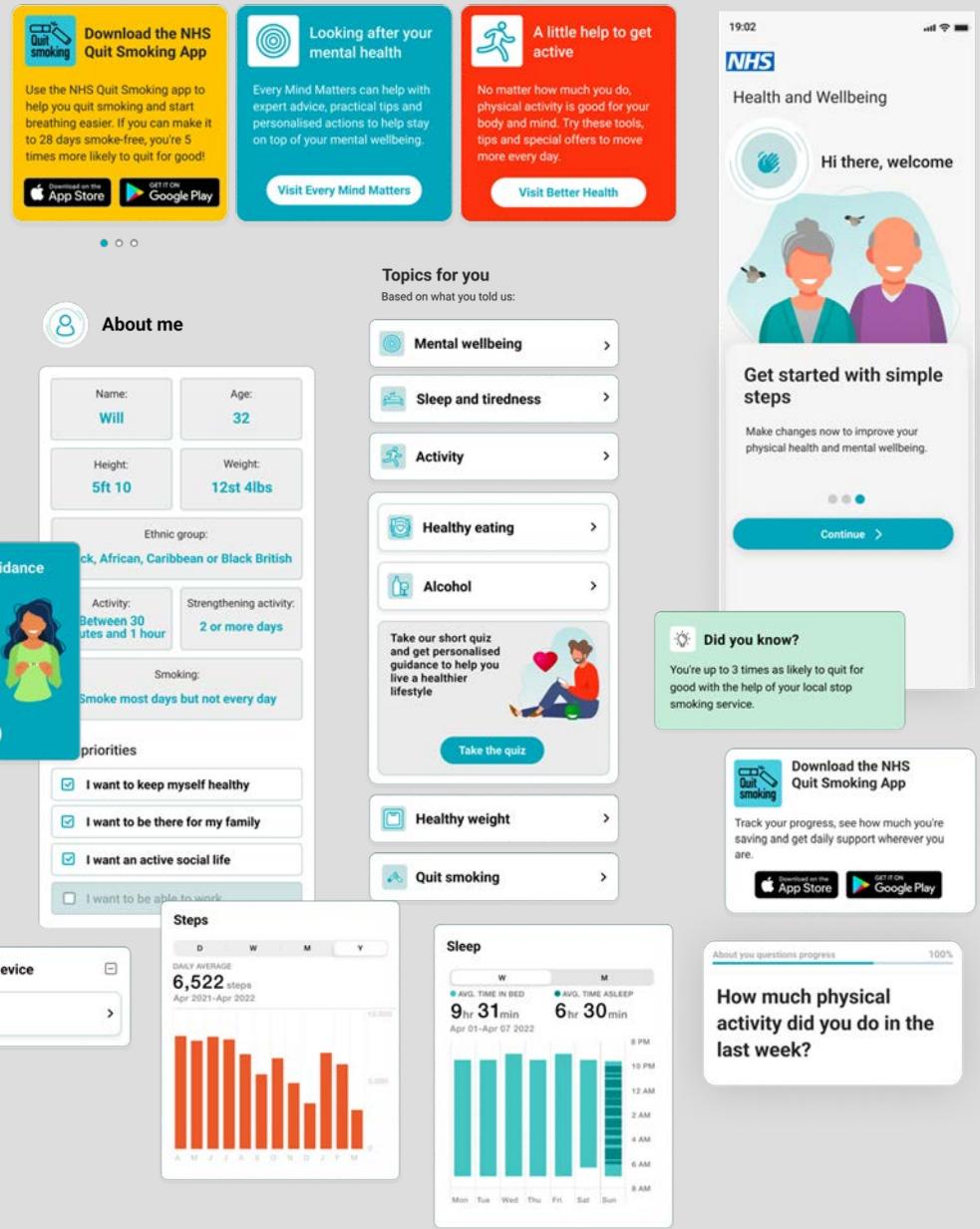
The existing NHS service manual is an excellent resource to help teams build consistent, usable services. However, the W&P project requires a significant number of new components that the current Design system does not include and can't provide within our project timescales.

NHS Digital services manual

Design system – Components

Form elements	Content presentation	Navigation
Buttons	Care cards	Action link
Checkboxes	Details	Back link
Date input	Do and Don't lists	Breadcrumbs
Error message	Expander	Card
Error summary	Images	Contents list
Fieldset	Inset text	Footer
Hint text	Review date	Header
Radios	Summary list	Pagination
Select	Table	Skip link
Text input	Tag	
Textarea	Warning callout	

"Use images only if there is a real user need. Avoid unnecessary decoration."



Tone of voice

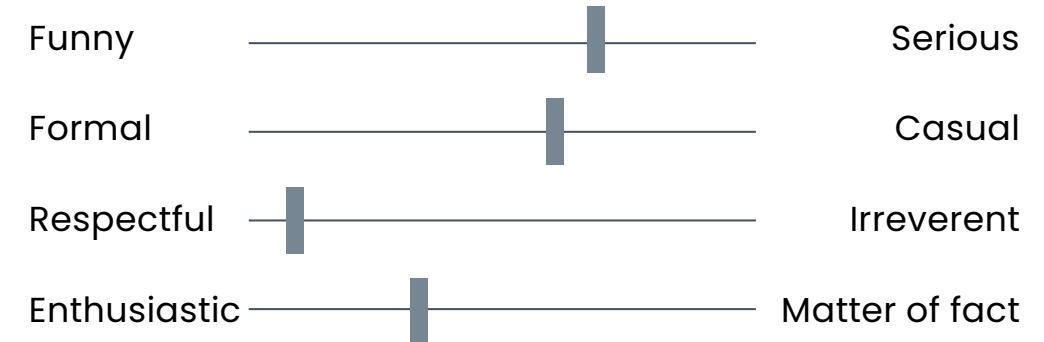
Building on the visual design choice of Crystal, we researched content across other wellness suppliers, partners and competitors. We discovered a more casual tone that was positive and motivational.

In our content design, we're using a less neutral and authoritative voice than the NHS style to test if it can further influence the desired behaviour change.

We also synthesised user feedback on voice, tone and language from existing user research on the Wellness service proposition, Digital Health Checks and PHE Incentives programme.

Although we're testing a variation of the NHS tone of voice, we followed the standards in the [NHS content style guide](#) such as inclusive content, health literacy, writing good questions for forms, formatting and punctuation.

Alpha tone of voice dimensions



Alpha detailed tone of voice descriptors

- Caring
- Cheerful
- Conversational
- Enthusiastic
- Friendly
- Informative
- Respectful
- Inclusive
- Trustworthy
- Upbeat

Editorial

- Research to discover what words and phrases people use to talk about wellness and prevention
- Content audit of existing guidance on the 3 clinical priorities and healthy lifestyle topics
- **Alpha scope:** link to existing guidance rather than create new content
- Follow NHS content standards
- Explore appropriate tone of voice for the service
- Question design and guidance choices informed through design sessions with SMEs

Experience

- Understand what health issues are important to users and the challenges they face so that we can prioritise content and guidance
- Test how appropriate the content is with potential users of the service
- Test comprehension in every round of user research, including with people who have dyslexia, ADHD or English as a second language

Content strategy

Structure

- ‘Structured content’ approach to display pages formed from small pieces of content
- Taxonomy of topics based on how users describe their interests in health and wellbeing
- Common IDs to reference content across business rules, design work and a CMS
- Schemas for content types like articles, ‘Did you know?’, questions and topics

Process

- Iterate and improve content regularly based on user research, SME engagement and QA
- Content reference in NHSX Confluence to record content with business rules, and keep an audit trail of changes
- CMS to store content in structured formats that can be consumed through an API
- **After Alpha:** need to establish content governance, publishing processes and appropriate content operations

Content design artefacts



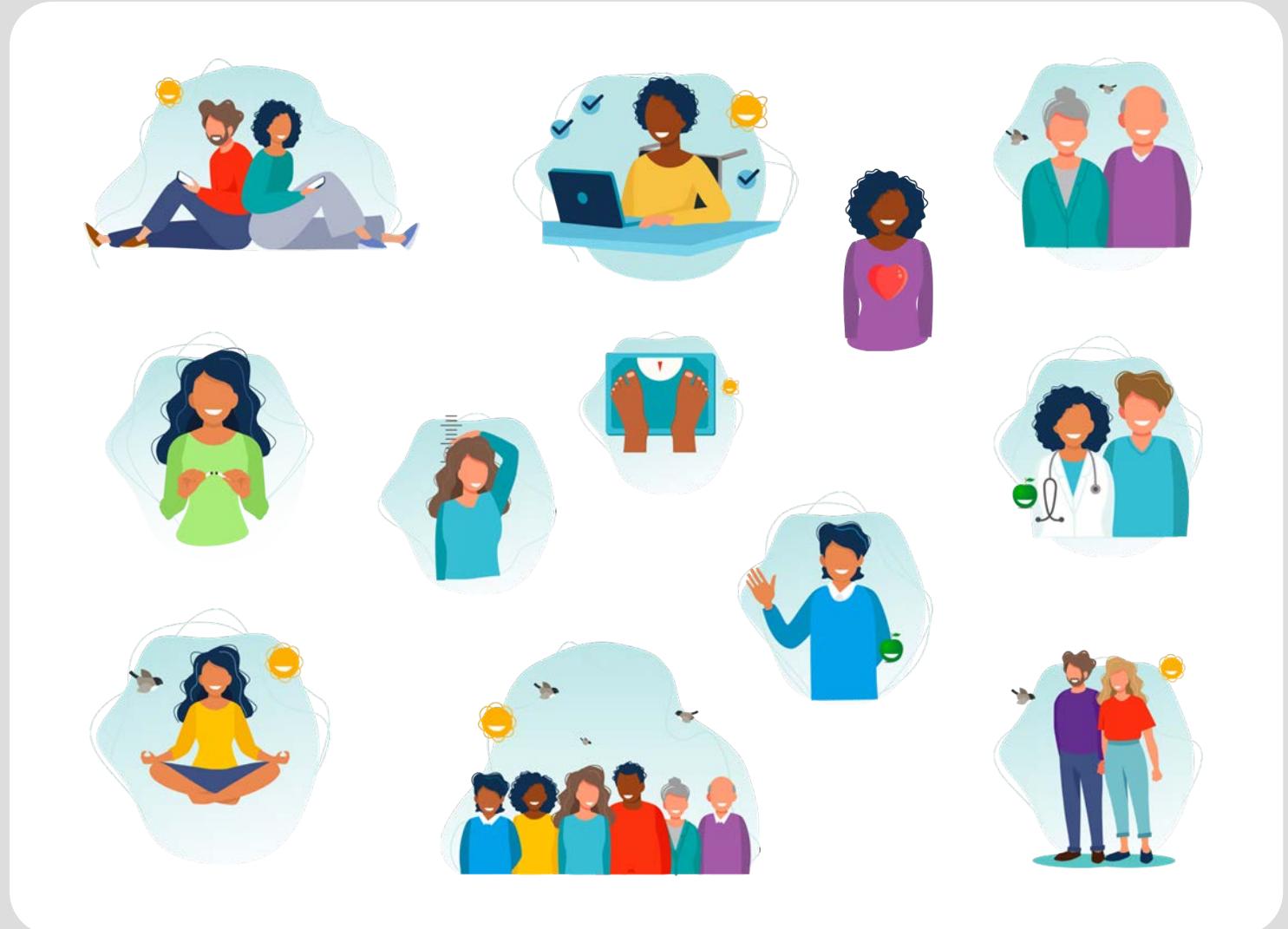
Artefacts from Alpha	Description
<u>Wellness and prevention content discovery insights</u> (NHSX Google Drive)	A review of existing research from the Wellness and Prevention Discovery, Wellness service proposition, Digital Health Checks and PHE Incentives programme. The insights are filterable by stages of the user experience (engage, understand, act, measure, motivate).
<u>Wellness Alpha guidance content list</u> (NHSX Google Drive)	A content audit of existing guidance on healthy living and health conditions that we might link to from the Wellness service. Contains ID numbers mapped to business rules and designs in Figma.
<u>Language research</u> (Mural)	Desk research to find out the vocabulary people use to talk about wellness and prevention, and what topics are most important to them.
<u>Content reference</u> (NHSX Confluence)	A list of the guidance content and URLs we're linking out to from the Wellness service. Contains ID numbers mapped to business rules and designs in Figma.
<u>Taxonomy for the topics and sub-topics</u> as of 17 March 2022 (Figma)	How the guidance content is structured in the prototype by topic and sub-topic.

Illustration

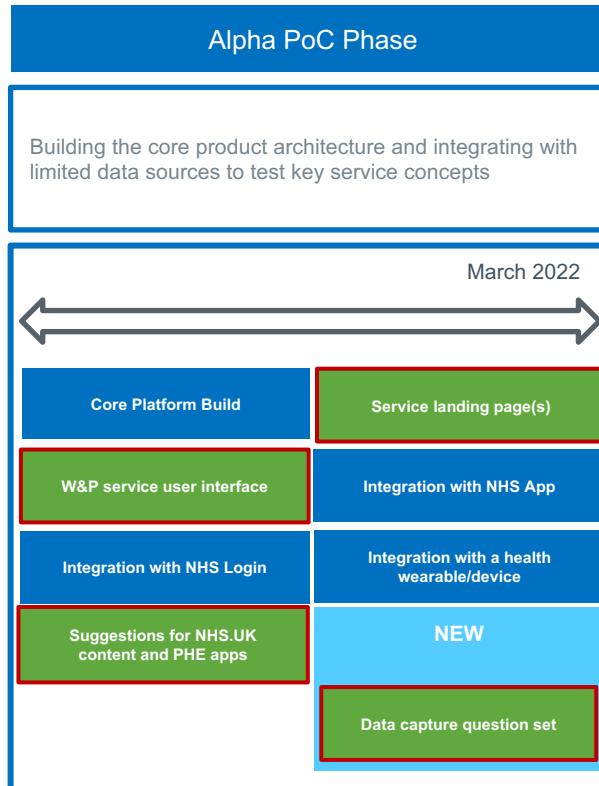
The selected design uses colourful illustrations of people to help our users relate to and engage with the service and present health and wellbeing in a friendly way.

We felt we could tell a story better by using illustrations as way to build trust, associate objectives, and help explain topics.

We can also easily include different users from a broad range of backgrounds and circumstances making the service feel more representative and inclusive.



User experience: Summary



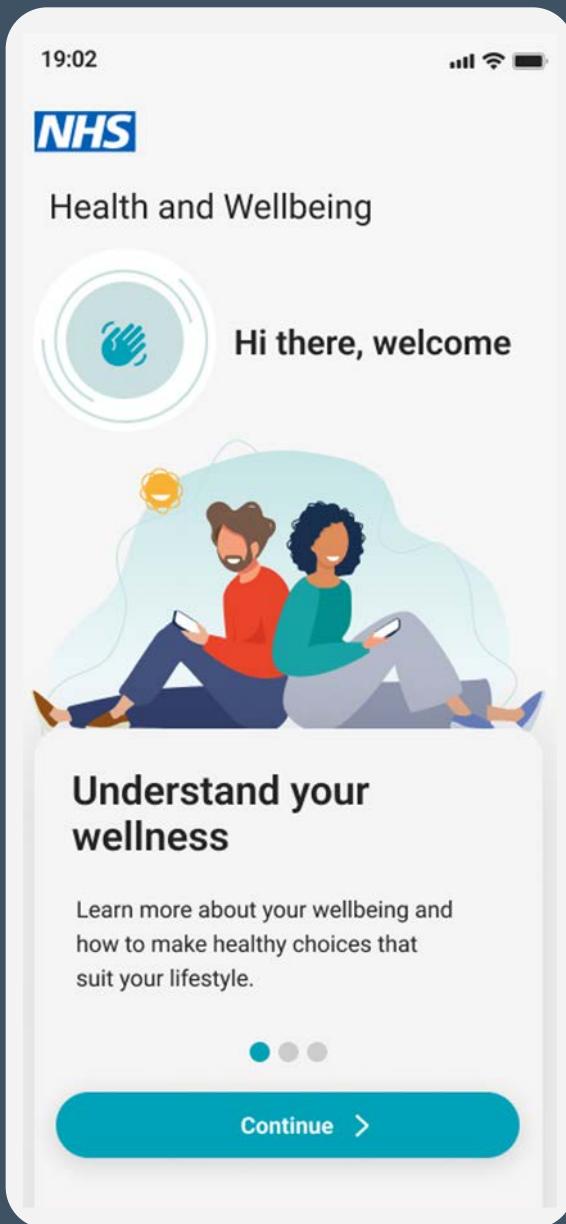
What we did:

- Identified key stages of the journey to explore in Alpha (understanding our users by re-using existing tools and quizzes to provide them with relevant guidance).
- Defined user personas to represent our target audience for Alpha and defined a user research / testing plan to ensure we engaged with real users throughout design (5 rounds of user testing in total).
- Adapted our approach to define, design and deliver a front-end-only prototype.
- Identified all existing guidance available to users across all 3 clinical priorities and defined a set of business rules to relate lifestyle indicators to guidance in the hub.
- Engaged SME's across all 3 clinical priorities to co-create user journeys that included questions and behavioural nudges to promote behavioural change.
- Identified a new design direction (tone of voice and look and feel) in consultation with NHS design stakeholders to test a future experience for W&P.
- Produced an HTML prototype that can be tested with users and taken forward into Beta.

What we learnt:

People trust the NHS and are happy to share their personal health data. They expect the service to be able to re-use information already known about them. Bringing together physical health and mental wellness was seen as a positive thing. Future iterations of the service need to go further and include more lifestyle factors and clinical priorities to be relevant to a broader audience (i.e., weight management, alcohol, etc.). People want to be able to set goals, get NHS advice and coaching, and even want to be told what to do to improve their health and wellbeing.

Prototype



<https://kainos-nhsx-wellness-hub.herokuapp.com>

Username: Kraken
Password: Stranger



The platform

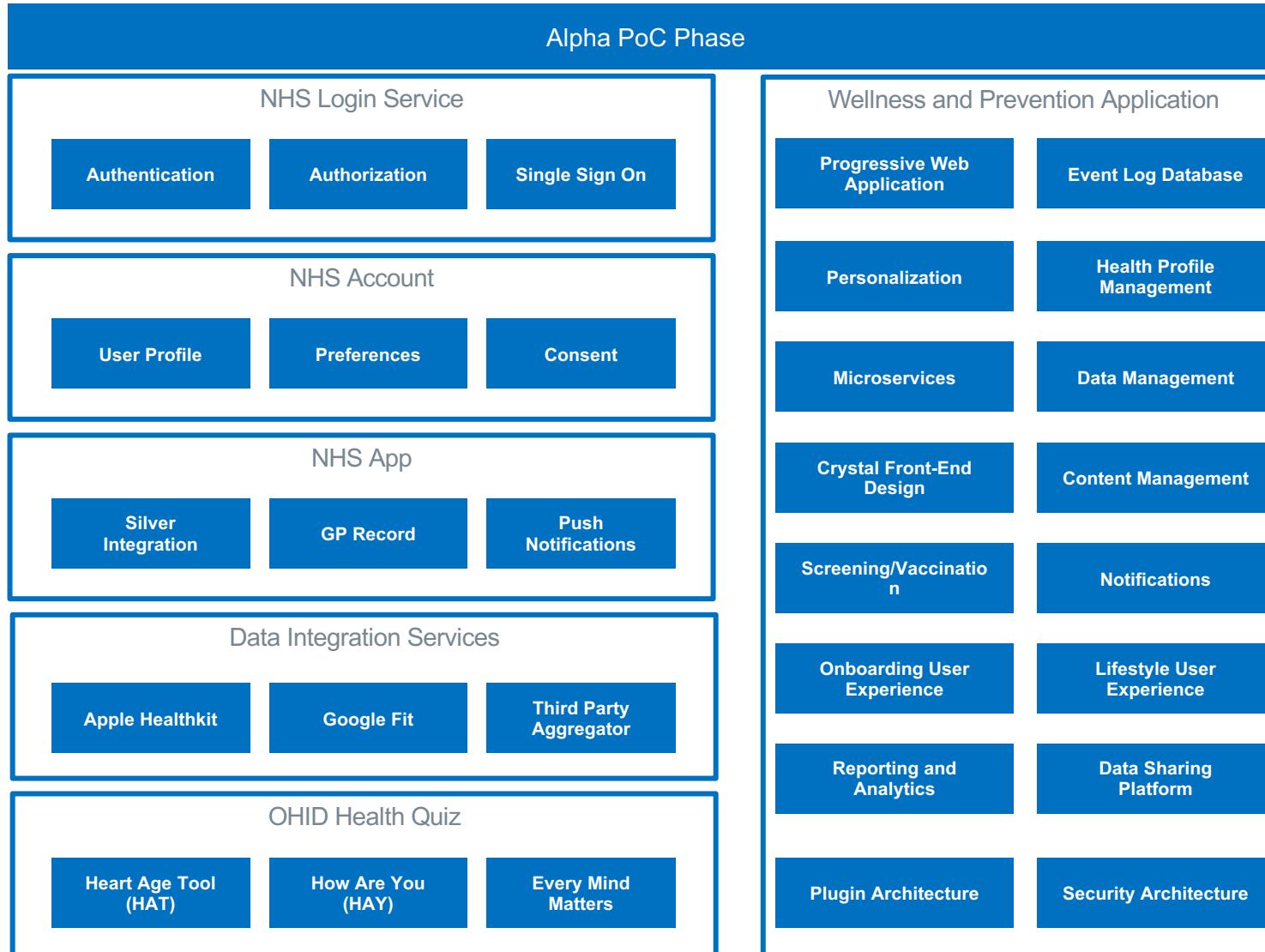
Making progress with the technical architecture & integrating with key services (Workstream 2)



Platform overview

- The revised scope for Workstream 2 was to build the core software and infrastructure components, enabling a technology platform on which Front-End applications and third-party systems (TPS) could securely access wellness and prevention capabilities.
- Access to the platform will be via open and secure interfaces, that are deployed and hosted on highly available and scalable public cloud infrastructure.
- Centralized information is a key resource and data assets are collected and curated from multiple sources and stored securely on durable storage devices to prevent data loss. Data sharing and other policies and controls prevent unauthorized access to an individual's data record.
- System interoperability is a key requirement of the Wellness platform in order that computer systems, both internal and external can connect, communicate and share data within the wider digital service ecosystem.
- Core platform services (sometimes referred to as backbone services) are not user/patient facing, operating 'below the waterline', analogous to an iceberg (see later slide).

Capability map

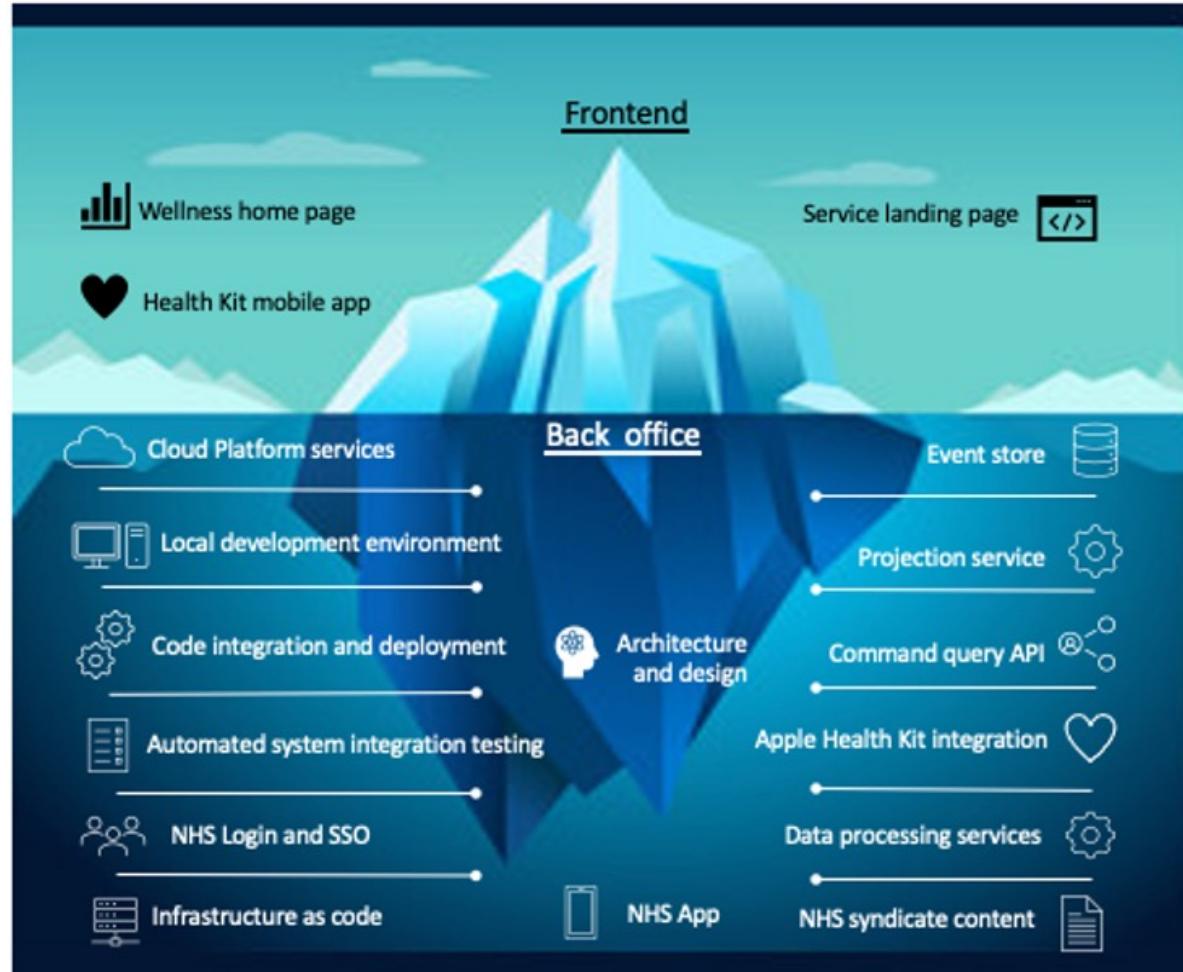


Platform capabilities



- Core platform capabilities describe what the underlying services do (as opposed to how) in order to realize the strategic outcomes and deliver real value to end users.
- The service platform is designed to enable the critical business services that are relevant to the promotion of patient wellness, prevention of ill health and reducing health inequality.
- Priority platform capabilities for the Alpha release include:
 - Core platform services (application, infrastructure and integration)
 - NHS App & NHS Login integrations
 - Wearable device integration
- Several system integrations, originally scheduled for Alpha have been descoped due to limitations being discovered in system dependencies.
- The following slides show the platform capability map and high-level descriptions of work completed as part of the Alpha development for each of the capability areas.

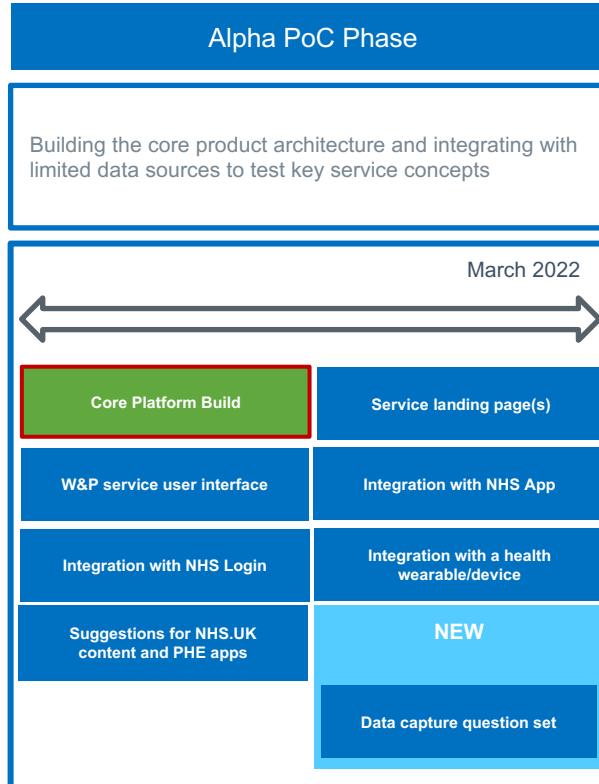
Platform features – Iceberg model



The diagram shows the split between front-end and back-office platform components developed during Alpha.

- For the front-end components only the code that was required to surface platform features was built (20%). Going forward these components will be replaced once the user research and testing is completed.
- Most of the engineering effort (80%) went into the development of the back-office components which provide a robust and scalable platform that can be extended to enable future business services.

Core platform build: Summary



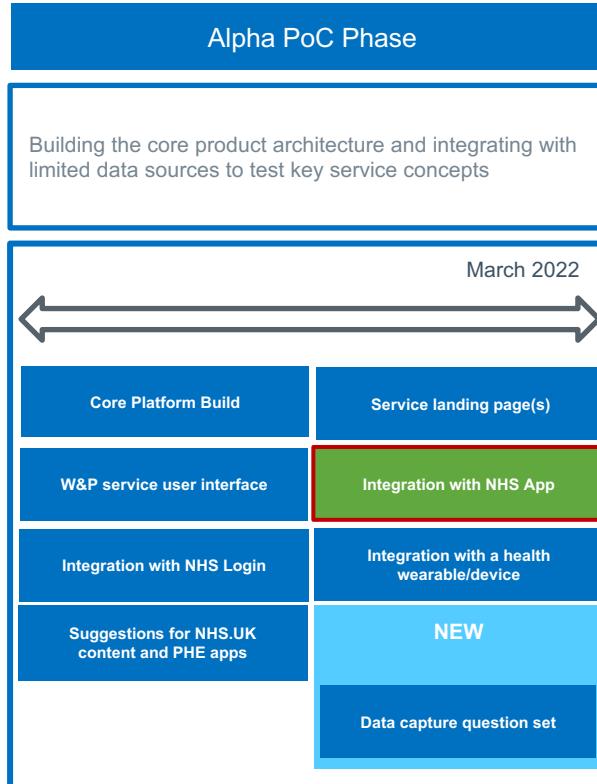
What we did:

- Engineered a solution design based around the principles of event driven architecture and event sourced systems.
- Developed core backbone services for the event store and the supporting cloud infrastructure and technology components.
- Incorporated various support tools for managing the build lifecycle and developed scripts for automating software deployment and the provisioning of cloud resources.
- Integrated several National Digital Services and third-party systems using open standards policies and approved integration patterns.
- Automated unit testing for components so high-quality assurance levels can be guaranteed as new features are developed and deployed.
- Authored detailed content for each of the design, development and technology domains that contains the 'what' and the 'how'.

What we learnt:

- During Alpha, several limitations with EventStoreDB (database preferred in Discovery) were surfaced including concerns around maintainability of infrastructure prompting further analysis of the recommended database technology stack for Beta in favour of a more generic Platform-as-a-Service (PaaS) based solution.

NHS App: Summary



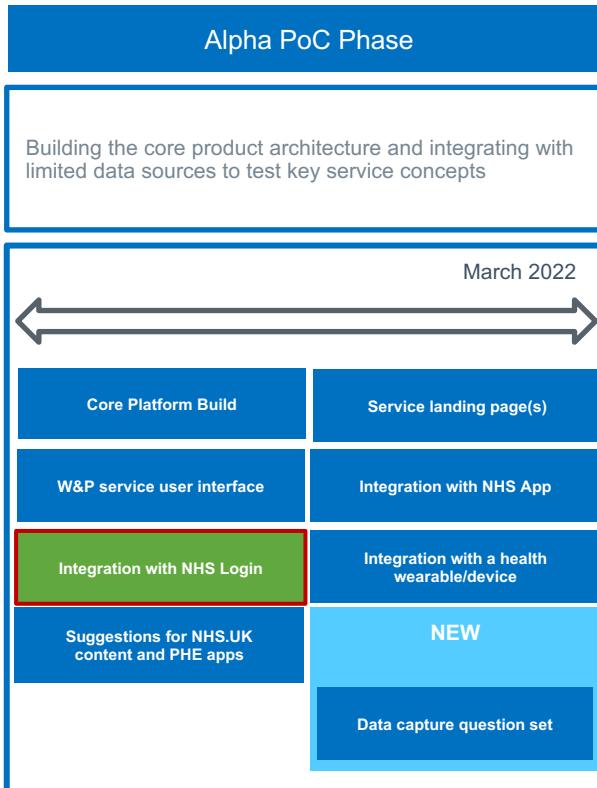
What we did:

- Connected both the NHS App and Wellness service using the standard silver integration pattern.
- Extended the Wellness authorisation service to support user single sign on (SSO) and prevent the need for users to log in multiple times in order to access digital services.
- Configured the Wellness front-end components to support feature-toggling and the showing and hiding of content when accessing through different channels.

What we learnt:

- Technical spikes concluded that there would need to be changes made to the NHS App Information Architecture (IA) in order to support some of the features required by the Wellness service.

NHS Login: Summary



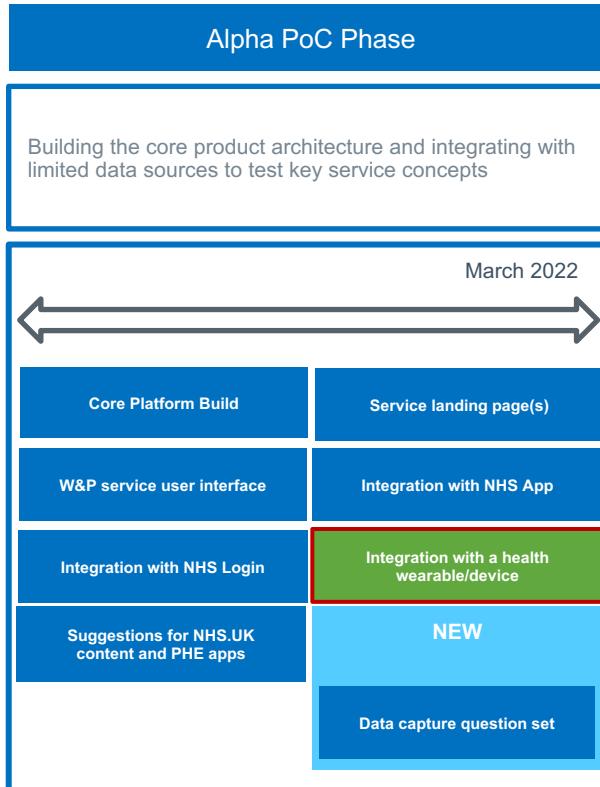
What we did:

- Developed the components required to request and process authorisation codes from the NHS authorisation code API.
- Developed the components required to request and process access tokens from the NHS generate token API.
- Developed the components required to request and process user information [claims] from the NHS user details API.
- Proved connectivity between the two systems in the sandpit environment and demonstrated this by completing several end-to-end user journeys depending on the use-case (a valid user; an invalid user, exception management etc).

What we learnt:

- The NHS Login identity service exposes a mature endpoint and well-defined interface for implicit and explicit identity and authorization management, which simplified the integration with Wellness. This code is reusable for future phases of work.

Health wearable / devices: Summary



What we did:

- Developed the integration components required to sync data collected on an iOS device with the Wellness service using the Apple HealthKit software development kit (SDK). Integrating systems using the SDK is necessary as there is no public facing API that can be used to access the raw data (activity, observables, sleep etc.)
- Developed a proof-of-concept mobile App that can retrieve processed data stored in the Wellness service and then render onto a user's mobile device. The mobile app demonstrates the end-to-end user journey from data collection, synchronisation, processing and presenting back to the user in a variety of formats i.e., graphs, tables etc.
- Tech spike commissioned to develop a basic Information Governance (IG) component that asked the user to provide consent around data sharing, data processing etc. This was a tactical component needed to enable the integration and will be discontinued for the Beta application.

What we learnt:

- This exercise confirmed connectivity between the Wellness service and a wearable iOS device could be established, and data exchanged bi-directionally. The team also identified the data types and format of information provided by the device and implemented functions to map wearable data to the Wellness domain data.

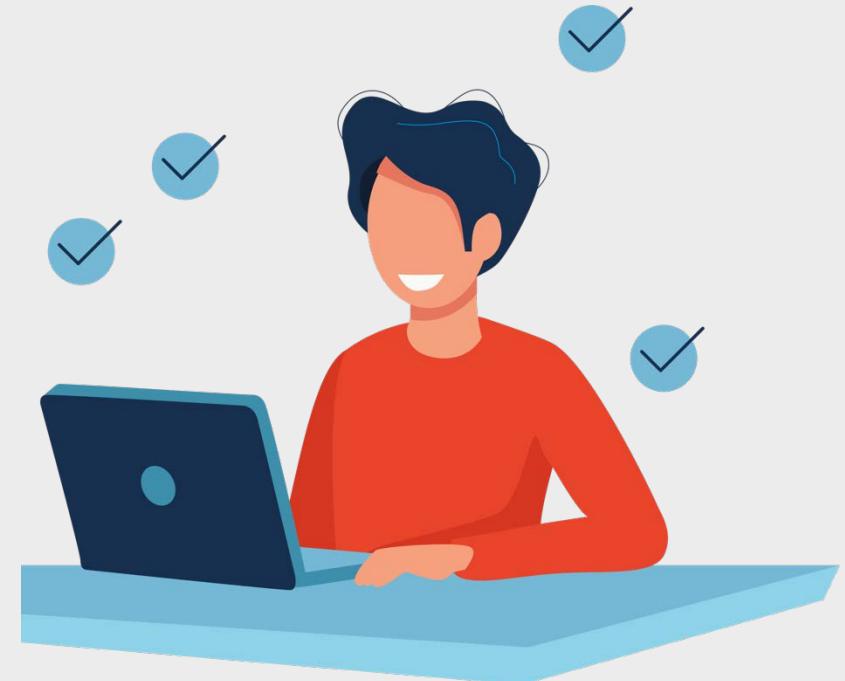
Platform outcomes



- The platform team have been able to de-risk technology assumptions by engaging domain architects to design and build software components that resolve real-world business problems.
- Alpha has provided the opportunity to test different technology stacks and frameworks that 'best fit' the Wellness and Prevention product definition and ensure that any solution taken forward is maintainable and meets sustainability guidelines.
- The output from this workstream is a collection of interoperable applications and technology services on which future business services can be hosted.



Recommendations



Recommendations



NHSX should undertake a Pre-Beta Phase of activity to:

- Undertake comprehensive user testing of the Alpha prototype and learn more about user needs
- Address key service delivery lessons identified during the Alpha phase
- Explore and define further health behaviour topics of focus for the Beta MVP
- Undertake discovery work on new service capabilities proposed for Beta MVP development
- Align the service with national digital services and channels strategy



Thank you.

