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Deliverable 3.3

Onboarding User Interface for Web and App Design

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D3.3 Onboarding User Interface for Web and	MHMD-H2020-ICT-2016 (732907)
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1. INTRODUCTION

The MHMD user interfaces will allow users to share data efficiently and safely using the MHMD blockchain. There are several different users and user stories. This document follows on from project deliverable D1.1 Gnubila's UI Eye-catching Analytics Module' presentation delivered in Rome Dec '17, and face to face discussions with consortium members. The primary aim is to present designs suitable for implementation in a short three month time frame for a proof of concept demonstration in project month 18.

HWC prepared early smartphone app designs for feedback in Q4 2017 and early web designs for feedback in Q1 2018. This document covers the amendments to the designs that were presented and reviewed by the consortium in Feb & early March 2018

In the following pages we have included key marketing messages that are suggestions or decent placeholders in advance of detailed feedback from the consortium.

Note. There will be UI design that reflects and implements the business model the consortium decides upon. Finalising the business model will happen in the second half of the project. As such, only placeholders relevant to the business / monetisation model have been included.

2. UI COMPONENT OVERVIEW

The MHMD UI components at this stage will comprise two user interfaces:

One - A public web based interface

- A general public 'brochure' web interface for informing visitors about MHMD and encouraging the different types of users (hospitals, individuals and researchers) to participate.

Inside the public web interface will be access controlled areas for

- A private individual who wants to participate in MHMD. This will present benefits of participation and funnel the visitor to download the smartphone app. There may in future be a mirror of the smartphone functions on the website, but for now, at least until M18 the agreed upon architecture demands requires the use of a smartphone to access personal data via the Digi.me SDK.
- A researcher who wants to use the data accessible via MHMD. There will be open access to browse the project's data catalogue to encourage and reassure the researcher that the data he/she seeks will be available through MHMD.

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A hospital or bio-resource who wants to participate in MHMD as part of the network. Hospitals are intended to be key participants in MHMD as holders of large data sets, and also as trusted nodes in the MHMD blockchain network. As a special type of user they will be recruited using the public facing interface, and will us the public web application. There will also be MHMD software hosted by the hospital or bio-resource that will be set-up by the respective the Data Protection Officer (DPO). The Data Protection Officer (DPO) of the hospital will be issued a username and password for accessing those parts of the MHMD web interface for registering bulk data into MHMD for indexing. This interface will also allow the DPO to curate the data indexed inside MHMD (revoking / altering permissions as appropriate from time to time).

Two - Also in the public space

There will also be a smartphone application for individuals to be able to manage their data and provide access to it for researchers under secure conditions.

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3. BROCHURE WEB INTERFACE

https://marvelapp.com/3a9352h

3.1. LANDING PAGE



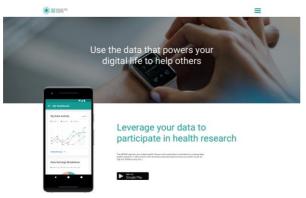
This page is intended to explain what MHMD is at a high level and persuade each type of user to click through to the page aimed directly at them.

D3.3 Onboarding	User	Interface	for	Web	and
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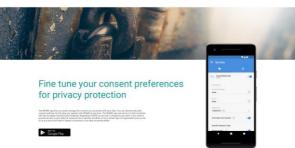
MHMD-H2020-ICT-2016 (732907)

- Generic title message. Each MHMD user type has a different reason for wanting to use MHMD. Here, we wanted to have a generic call to action that would resonate with all three types. We think a message capturing the general social good facilitated by MHMD as a whole was appropriate, with a slight bias towards the donors of data.
- Funnelling buttons. Following the generic message we want to separate each user type at an early opportunity so we can then present them with messages directly appropriate to their needs.
- Underneath the main image and message we want to quickly establish MHMD's credentials. Highlighting dynamically the size of MHMD (which should be big) is a good way to do this. At the same time, using basic aggregate blockchain statistics leads nicely on to highlighting our use of blockchain – which is a key selling point for MHMD.
 - o The data will be accessible via an underlying API call.
- The 'how it works' section utilises gnúbila suggested dynamic blockchain diagram (from their 'UI Eye-catching Analytics Module' presentation shown in the technical meeting held in Rome in December 2017). This neatly shows what the blockchain is at a high level and the use of mouse-over popups lets a site visitor select to know more rather than be presented with large blocks of text.
- The Latest News (and view all news button) section at the bottom lets MHMD present fresh information about related stories. This helps lend a 'well-maintained' feel to the landing page, and is a very effective SEO tool for ensuring the site's visibility on search engines is high.

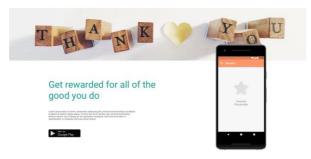
3.2. INDIVIDUAL PAGE



This page is intended to persuade a new visitor to install the app on his/her smartphone. It is organised into a banner message and 5 subsequent sections, each with a call to action to download the MHMD smartphone app.







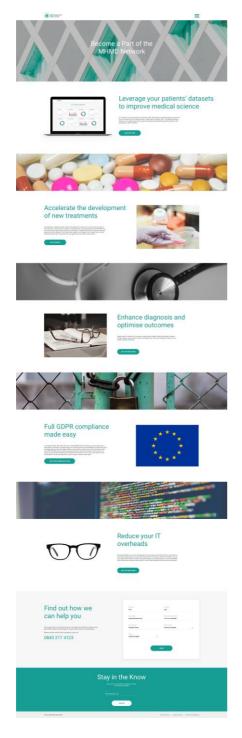


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- Title message focussed on the individual. The first message here follows on from the generic public good message on the landing site and should be appealing to users with different motives.
- The 1st subsequent section presents a 'participate in medical research' message and call to action to download the smartphone app. This message is targeted at those individuals who would like to participate purely on a selfless basis.
- The 2nd subsequent section addresses key privacy concerns and reassures the individual that their data will remain in their control at a general high level (not study specific)
- The 3rd subsequent section reaffirms the privacy protection message by highlighting that an individual can provide and revoke data access selectively and dynamically on a study by study basis if they wish to.
- The 4th subsequent section provides the extra incentive to an individual who might not be motivated by selfless concerns alone that he/she will be remunerated for those portions of their data that is used in medical research.
- The 5th subsequent section is an attempt to retain a site visitor that has not yet clicked to download the app to 'stay in the know' This type of interaction is a common way of increasing a user base many people need time to think again before downloading an app or signing up to a service (ref. download fatigue).

3.3. HOSPITAL PAGE



This page is intended to persuade a hospital to participate in MHMD or at least find out more by getting in touch. A hospital's raison d'etre is to improve the health of its patients and the general public. There may be profit or economic motives as well, but we are taking the view that they should be presented as knockon benefits rather than the main reason to participate. We decided that saying a hospital can sell data to a 3rd party should not be a key message on an open website that is also asking individual users to register their data - we should avoid the implication that a user can register his data purely for a hospital to sell on.

The page is organised into a banner message, 4 subsequent sections (each with a call to action button to find out more by getting in touch) and a final 'contact us' section.

D3.3	Onboarding	User	Interface	for	Web	and
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- Title message focussed on what MHMD wants from the Hospital.
- Two subsequent sections in immediate view highlighting the key public good messages that we want to present to the hospital. Improve medical science by providing greater and quicker data access in a secure and privacy protected way to a wider research base.
- Two following sections then focus on the organisational benefits that a hospital can acquire from MHMD – GDPR compliance assurance and an overhead reduction in IT cost (as MHMD will not need to be paid for by them?)

3.4. RESEARCHER PAGE



This page is intended to persuade a researcher that MHMD has data they want and to get them to take a look at the data on offer by browsing our data catalogue. The data catalogue is our best sales tool here — as it would allow a researcher to see exactly the type of data they can access and how much it will cost them (also allowing saving opportunities versus a traditional method).

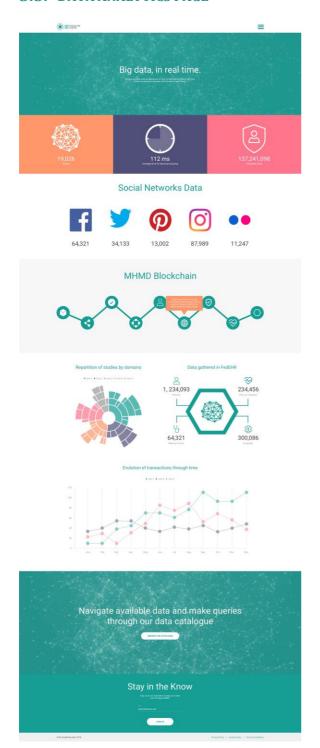
The page is organised into a banner message, five subsequent sections (each with a call to action button to find out more by getting in touch) and a final 'stay in the know' section to remain in contact with potential new users.

D3.3 Onb	oarding	User	Interface	for	Web	and
App Desig	n					

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- Title message focussed on what the researcher can get from MHMD. We have chosen to mention that data comes both from traditional routes and also directly from individual patients.
- The next section encourages the researcher to browse our data catalogue to see what's on offer.
- The next section highlights that the data is fresh and comes from individuals
- The next section aims to highlight that, because data is easily and quickly available, the researcher does not have to spend a lot of time data gathering and can instead focus on data analysis and interpretation, improving the efficiency of their institution.
- The final key message emphasizes the economic aspect of the value proposition access more data for less cost.

3.5. DATA ANALYTICS PAGE



This page follows on from the 'see our data analytics' button on the landing page. It is intended to provide more proofs that MHMD is a large, functioning, dynamic system.

Here we highlight the types of things MHMD has in greater detail. The types of data shown follow from gnubila's "UI Eye-catching Analytics Module" presentation.

This page heavily relies on summary data available through the API.

D3.3 Onboarding	User	Interface	for	Web	and
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MHMD-H2020-ICT-2016 (732907)

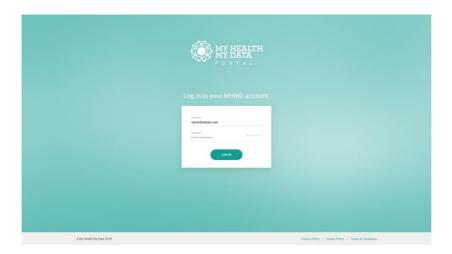
- Title message highlighting what the page shows: dynamically updated data analytics representing the MHMD blockchain in its current state.
- Social network data diagram highlighting that MHMD has useful additional to core medical data.
- Replication of Blockchain diagram from landing page
- Data charts of different, appropriate types highlighting what's happening and happened in MHMD recently.

4. WEB INTERFACE FOR HOSPITALS

This site does not contain marketing messages as the user of this site will be fully signed up and invested in the concept at the point of login.

https://marvelapp.com/4icgd91

4.1. LOGIN PAGE



This page is ensures the user of the site is logged in correctly. The user session should be time limited to increase security. We envisage that this site will be used periodically and continuously being logged in will not be advantageous.

Key elements for this page is the standard login and passphrase authentication. The consortium has discussed using multi factor authentication and decided that until we have a minimum viable product demonstrator that we should postpone concluding the discussion until the second half of the project.

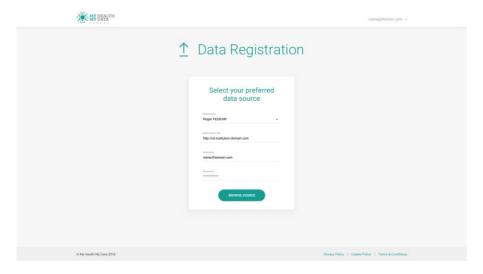
There will be a user authentication facility in the API to support this functionality.

4.2. DASHBOARD PAGE



A hospital user would be directed to the hospital dashboard page after login. This page provides a dashboard overview of what can be done with the site.

4.3. KEY ELEMENTS FOR THIS PAGE ARE THE VARIOUS EASY ACCESS BUTTON TO DIFFERENT KEY FUNCTIONALITIES.REGISTER DATA – SELECT DATA SOURCE PAGE

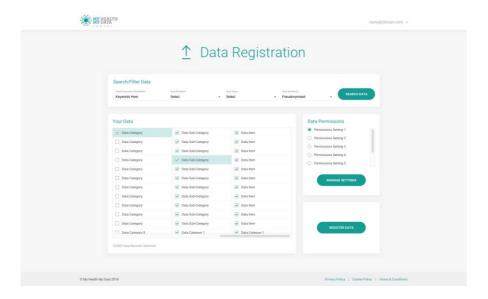


This page lets the user select the 'pre-configured' and 'pre-mapped' hospital database that contains data the user wishes to add to MHMD for indexing.

- The ability to easily select the correct data source
- The ability to modify the URL of the data source

- The ability to log into the data source using a username and password
- A button to continue to the data browser page

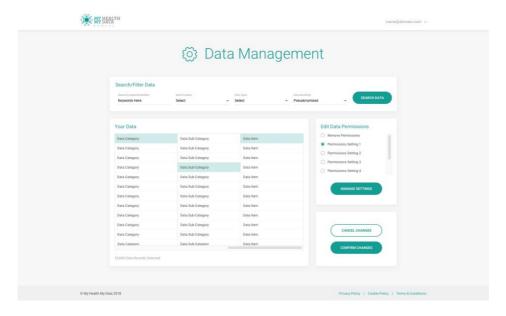
4.4. REGISTER DATA - DATA BROWSER PAGE



This page lets the user select data and associated permissions for adding to MHMD. Whilst we have made it possible to select a single data record for register, the focus is on adding a lot of data in one go – a bulk register. As such, we have made it simple for the user to select a set of permissions that will apply to a large chunk of data and then select the data matching those permissions using an approach inspired by standard file explorers.

- Search/Filter bar. Here the user can search for data using generic or specific terms and view a large data set in the 'Your Data' window.
- Data Permissions window. Here the user sets the permissions for the data he or she intends to register to MHMD.
- Your Data window. Here, using a file browser style interface, the user can select the data he/she wants to assign the selected permissions to.
- There is an indication of the potential value of the data that is being registered and a button to send the data to MHMD for indexing.

4.5. MANAGE DATA



This page lets the user find data and modify the associated permissions once registered with MHMD. To facilitate cognitive ease, a similar browse mechanism is used for managing as for registering.

- Search/Filter bar. Here the user can search for data using generic or specific terms and view a large data set in the 'Your Data' window.
- Data Permissions window. Here the user can modify the permissions for the data he or she intends to 'alter' in MHMD.
- Your Data window. Here, using a file browser style interface, the user can select the data he/she wants to alter permissions for.
- There is a button to send the changes to MHMD

4.6. DATA ANALYTICS

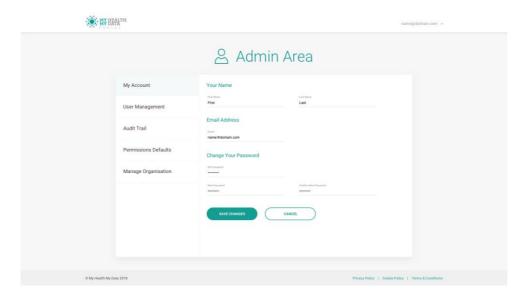


This page lets the hospital user know at a glance what has happened to the data he made available to MHMD. The specifics are to be worked out.

Key elements for this page are:

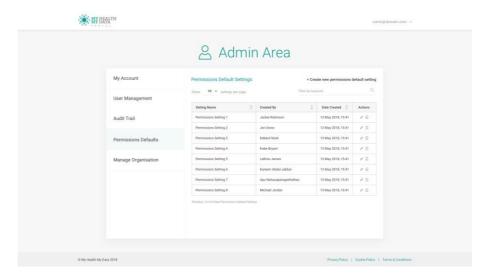
- A set of chart type visualisations of aggregate blockchain data that pertains specifically to this hospital user.
- Once the monetisation mechanism for MHMD has been decided there should be an indication here of the financial performance of the hospital's data portfolio.

4.7. ADMIN AREA



A whole set of admin pages lets a user, in this case a DPO at a hospital, to complete standard admin tasks such as changing his/her password. There are sections for user management page, audit trail, default consent settings.

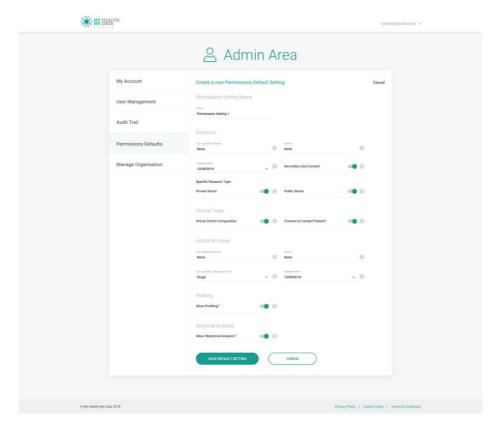
4.8. PERMISSIONS SETTINGS



The permissions settings workflow has been the subject of the most intense focus of the UI designs. To easily select and assign a permission to a large chunk of data is a key element of the UX. A hospital DPO or representative may have an unmanageably large task to register and index all their data into MHMD, unless the mechanism can be used to easily streamline the process. We have opted, after several iterations, to suggest customisable 'permissions settings objects'. Each object can represent a complex set of conditional permissions/consents. The user can then select from his/her set of permission settings objects (called permissions in the UI) when selecting data for registration & indexing.

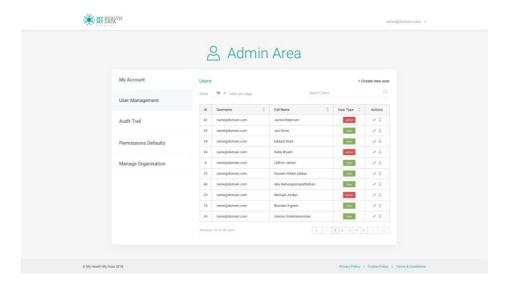
This screen contains a summary of the permissions already created and the ability to create a sew permission, see 4.9 below.

4.9. CREATE PERMISSIONS SETTING



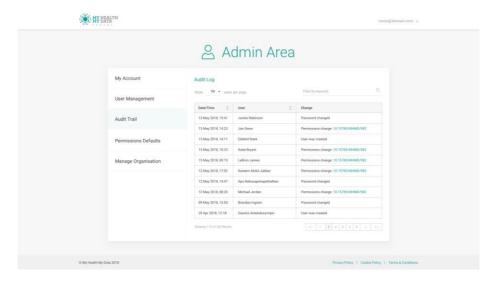
Continuing from 4.8, here we can set consents for the broad range of conditions anticipated by MHMD. We have taken the permission condition summary drafted by Lynkeus and represented the conditions as easily selectable and adjustable options. For each permission there is a mouse-over '?' that opens an explanatory window.

4.10. USER MANAGEMENT



This page allows the DPO at the hospital to manage other users within his/her organisation.

4.11. AUDIT TRAIL



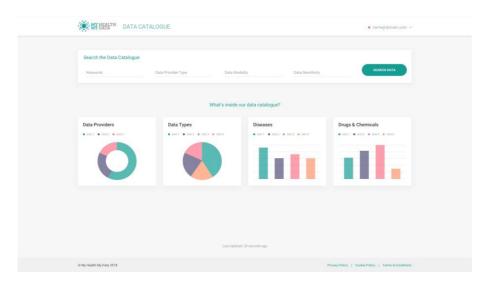
This page allows the hospital admin user, usually the DPO, to see a log of everything that has happened using the system from his organisation.

5. DATA CATALOGUE

The data catalogue is included in the Brochure Web Interface that is publically accessible from the researcher pages – see section 3 above. As it is a very important component of MHMD we present it here as an interface in its own right. The data catalogue will heavily rely upon the API designed and implemented by HES-SO

https://marvelapp.com/31d08ie

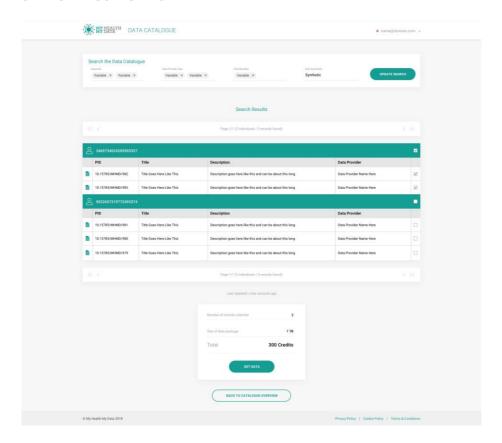
5.1. LANDING PAGE



This page presents the user with the search mechanism and some analytics of what type of data, and how much data is available inside the catalogue.

- Four-elements search interface designed by HES-SO. The search bars will make use of dynamic autocomplete to assist the user in browsing.
- Data analytics to represent the data (type and amount) available inside the catalogue.

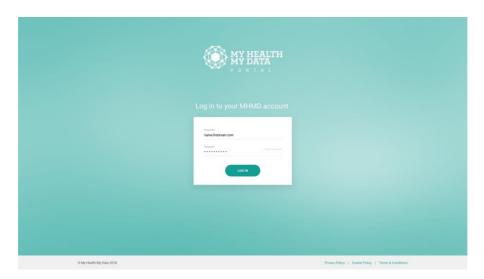
5.2. SEARCH RESULTS PAGE



This page presents the user with the catalogue search results.

- Four element search interface designed by HES-SO. The search bars will make use of dynamic autocomplete to assist the user in browsing. The search bar will remain in case the user wishes to amend their search.
- Search results table showing the type of data available and an indication of its value / price in the 'MHMD data exchange'
- Summary data section indicating the data selected and how much it will cost to download.
 - o There is a 'get data' call to action button at the bottom of the section

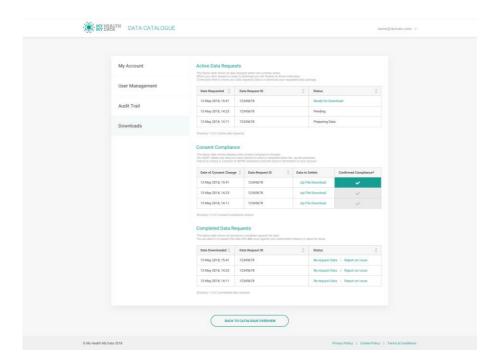
5.3. LOGIN OR SIGNUP PAGE



If the user is not logged in already, they will be prompted to log in at this stage. If they have not signed up to MHMD yet, then they will be prompted to get in touch and register their organisation with MHMD.

5.4. CATALOGUE / RESEARCH ADMIN PAGES – MY DOWNLOADS

In addition to the basic set of admin tasks there is a downloads section:

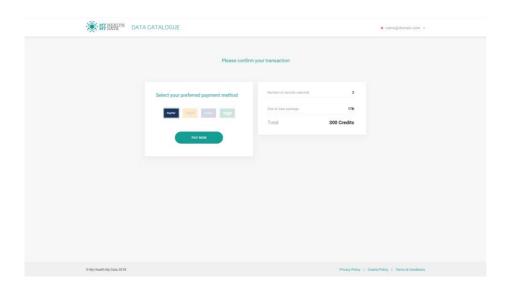


Here the user can view the status of their download requests as well as incoming and historical consent change requests. A red dot in the menu and next to 'Downloads' (in the side menu of the admin pages) indicates that there is something requiring attention. A user will also be alerted of any important notices by email.

Key elements

- The top section of 3 summarises the status of active or pending data requests. The MHMD system may take some time to assemble the data a research user has requested. The user can visit this page periodically to review the status of their data requests.
- The second section is where a researcher is informed by MHMD of any consent changes pertaining to data they have previously downloaded. The legal requirement on the researcher side is to comply with the consent change requests. This portal allows the researcher to confirm to the data subject (individual patient) that the consent change has been complied with.
- The third section logs earlier data requests. A user can ask to re-request the data again using the same catalogue query as before. The user will be charged again if they choose to do this.

5.5. CATALOGUE / RESEARCH ADMIN PAGES – PAYMENT PORTAL



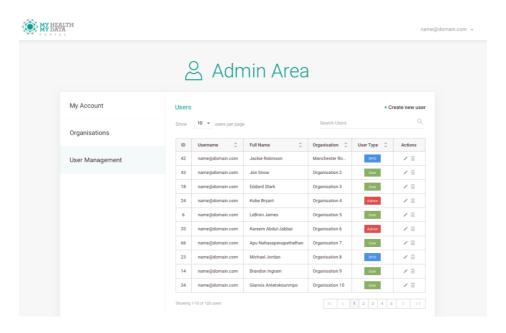
Here the user is prompted to setup payment with one of the payment options. The exact method of payment is not yet decided at the time of writing

6. MHMD WEB ADMIN PAGES

This site does not contain marketing messages as the user of this site will be fully signed up and invested in the concept at the point of login. Many of the admin functions will be relevant for all users and some for specific user types. Broadly, there will be roles for a hospital admin and a hospital user, a catalogue admin and a catalogue user as well as a special combined role for both hospital and catalogue access. Additionally there will be a special role for an MHMD admin. This role gives access to functionality for setting up organisations and admin users in those organisations.

https://marvelapp.com/c6c0h8j

6.1. ADMIN AREA



The three pages (My Account, Organisations and User Management) allow the MHMD admin user to set up a hospital or a research organisation and master admin users for those organisations. This step is necessary because of the acute need for user identity verification and contractual obligations between MHMD and the different organisations as users of the system. The brochure site encourages organisations to get in touch with MHMD and sign up. This portal allows the MHMD admin to set up the system for a pre-approved organisation.

7. INDIVIDUAL USER SMARTPHONE APP INTERFACE

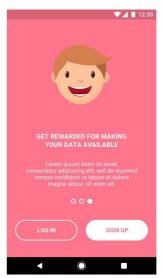
This interface does not contain generic marketing messages as the user of this site will be fully signed up and invested in the concept at the point of login.

https://marvelapp.com/6360g96

7.1. ONBOARDING TOUR PAGES

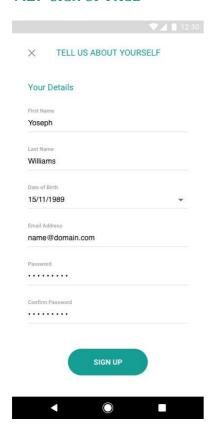






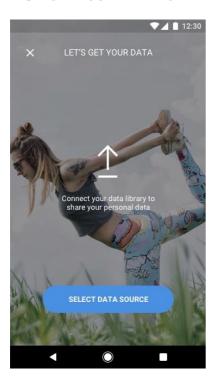
These pages encourage the individual to sign up to MHMD by presenting the benefits of using MHMD: taking control of personal data, participating in clinical research, and getting something back – in terms of feeling good as well as (maybe) financially.

7.2. SIGN UP PAGE



This page lets the user input his/her personal details so the system can identify them and curate their data properly. On this screen a minimum amount of data is asked for to encourage the user to click the sign up button.

7.3. GET YOUR DATA FOR INDEXING PAGE

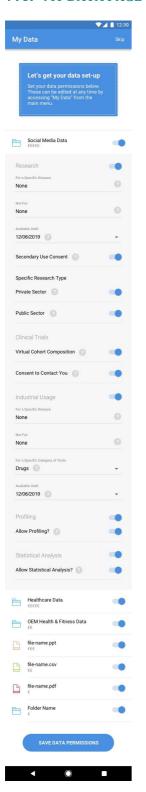


MHMD currently relies on project partner Digi.me's software for access to an individual's personal data. In this page we want to prompt the user to connect to Digi.me, or install it if they don't already have it. Digi.me provide an SDK to be able to do this and we are consuming that SDK in the standard way.

The UI design for this is beyond the scope of MHMD's control. The UX for this aspect of onboarding can be found here:

https://developers.digi.me/

7.4. MY DATA PAGE



The data types are organised by heading and then global permissions for MHMD using that data can be assigned by the user. Once the user has finished assigning permissions he/she can click the button to register to MHMD for indexing.

The user will only have to fill in this large form once and then modify their preferences later on as they desire.

7.5. DASHBOARD PAGE



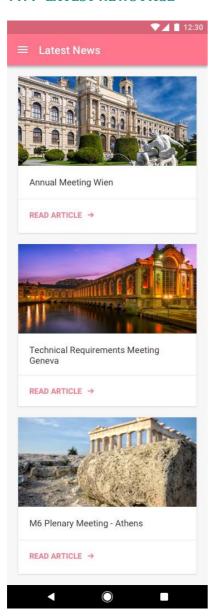
Here summary data is provided so the user can see the use that MHMD is making of his/her data and how much they have earned from the data usage. We also include an MHMD news feed so that the system can be presented on a regular basis as dynamic and interesting.

7.6. MY DATA ACTIVITY PAGE



Here a more detailed set of summary data is provided so the user can see the use that MHMD is making of his/her data and how much they have earned from the data usage. The attributes are yet to be finalised and will depend on the data available from the blockchain API.

7.7. LATEST NEWS PAGE



A longer list of news stories (taken from MHMD social media accounts) is available in this page.