



**IPAD-MD
Data and Resources Expert Group
User Experience Workshop,
27-28 October 2015
Hinxton, UK**

MEETING MINUTES

1 Agenda

27 Oct 2015

- 13:00 - 13:10 Short introduction to the workshop and its goals
- 13:10 - 13:30 Participants form pairs and interview one another
- 13:30 - 14:15 Participants introduce one another to the group
- 14:15 - 14:30 Coffee
- 14:30 - 15:15 Make it be good exercise
- 15:15 - 15:45 Observe the sites being used for typical activities
- 15:45 - 16:00 Report to the group (post-its on wall)
- 16:00 - 17:00 Prioritisation exercise and problem statements

28 Oct 2015

- 09:00 - 09:10 Re-cap
- 09:10 - 09:25 Intro: idea-generation and critique
- 09:25 - 09:40 Sketching warm-up
- 09:40 - 10:40 Design activity (pt1) (focus on individuals)
- 10:40 - 10:45 Coffee
- 10:45 - 11:35 Design activity (pt2) (group pool ideas)
- 11:35 - 12:15 Design activity (pt3) (pseudo competition)
- 12:15 - 13:00 Discussion + actions matrix (who, what, when)

2 List of participants

Surname	First name	Affiliation	Function	UX group	UX role
*Chinnnasamy	Manoj	INFRAFRONTIER GmbH, DE	Developer	IMPC	Observer
*Denny	Joshua	Vanderbilt University, USA	Clinical user	IMPC	Driver
Fessele	Sabine	INFRAFRONTIER GmbH, DE	Project manager	INFRAFRONTIER	Observer
Gormanns	Philipp	HMGU, DE	Developer	INFRAFRONTIER	Observer
Karamanis	Niki	EMBL-EBI, UK	UX facilitator	-	Facilitator
*Martone	Maryann	University of	Data user	IMPC	Driver

		California, USA			
Meehan	Terry	EMBI-EBI, UK	Project manager	IMPC	Observer
Mallon	Ann Marie	MRC, UK	Project manager	INFRAFRONTIER	Could not attend
Matteoni	Raffaele	CNR, IT	Curator	IMPC	Observer
*Robinson	Peter	Charite, DE	Clinical user	INFRAFRONTIER	Driver
Rowland	Francis	EMBL-EBI, UK	UX facilitator	-	Facilitator
*Schughart	Klaus	HZI, DE	Biology user	IMPC	Driver
*Smith	Cynthia	JAX, US	Data user	INFRAFRONTIER	Driver
Sneddon	Duncan	MRC, UK	Developer	INFRAFRONTIER	Observer
*Taschner	Peter	University of Leiden, NL	Biology user	IMPC	Driver
*Warot	Xavier	EPFL, CH	Biology user	INFRAFRONTIER	Driver

* Participants funded by European Union Horizon 2020 project IPAD-MD Grant Agreement number 653961.

3 Minutes

3.1 Minute takers

Ana de Castro (HMGU), Sabine Fessele (INFRAFRONTIER GmbH, workshop format and INFRAFRONTIER results), Terry Meehan (EMBL-EBI, IMPC results)

3.2 Aims of the workshop

The workshop was held to assess the user experience of both the IMPC and INFRAFRONTIER websites. It aimed at identifying key areas for attention and finding issues to be worked on. One goal was to fix some simple features (e.g. unclear labels; poorly structured pages) during the period of the workshop. For larger issues, it was hoped to co-design solutions – with participation of developers, project managers, and researchers (representative users) – in the second part of the workshop, and to suggest changes that can be implemented.

3.3 Approach

The main focus of day one was on helping the two groups of participants (those who make the websites, and those who use them) to know more about one another; to learn about context of use, typical days, pressures, etc. The purpose was to breakdown any barriers, to develop trust, and to promote shared responsibility. Participants were then invited to work together to assess the user experience (UX) of IMPC and INFRAFRONTIER, and effectively generate lists of issues to fix or improve. The UX facilitators tried to steer the participants away from either “feature requests” or “no, we won’t do that” discussion, in order to catch current problems and expose needs (i.e. rather than have the researchers suggest solutions outright). Day two was built on the work from day one, and participants collaborated to generate and iterate possible solutions, using pen and paper to help keep things quick and open.

3.4 Results from warm-up exercises

The results summarized here were gathered in the two groups, but dealt with under general usability aspects and thus reported together. In this part of the workshop the participants did not look at the webpages under investigation, but thought about experience they made with other webpages.

Frustrations concerning work with data

- Data not available / not being shared by researchers
- Incomplete data
- Needing to go to different places to get data: “I want to go to just one place”
- Data not standardised (e.g. names)
- Data not up-to-date
- Can I trust these data?

The participants were asked to think about examples of good and bad user experience and the reasons they feel make them be good or bad. In this context, they created a list of statements that could be applied to any website to make it “good”.

Statements from “make it be good” exercise:

- Site should quickly communicate its purpose (type of information it provides)
- Site should have clear site navigation with multi-step forms

- User should be able to use site without reading tutorials
- Site should provide the right information at the right time
- Site should provide a personalized experience (remember my preferences)
- You should be able to use the site in the way you want to use it
- You should be able to save your path and access previous search results
- Quick first search with refinement options
- Clear and flexible presentation of search results
- Search engines should be geared toward users' needs
- Site should communicate failure (reasons)

In order to apply the above mentioned statements, each representative users group (see "drivers" in list of participants above) explored the site and worked through some typical tasks. They talked out loud while doing so and the group "observers" made notes that they later associated with the "make it be good" statements.

3.5.1 Results from INFRAFRONTIER observation

Issues uncovered during user observation:

First impression

- Good overall design and nicely arranged
- Unclear what the site is about - no mission statement
- Relationship between INFRAFRONTIER and EMMA unclear
- Terminology: Why "EMMA strain" instead of "mouse strain"?
- "Too much stuff" in general: Main use case is "submit and order" mice strains but site is overloaded with less relevant information and features which support several other edge cases

User experience

- General navigation implemented well

- Pricing clear
- Unclear what “strain under development” means
- Duplicate information (different places) confusing
- Bibliography interesting, but not clear how selection was made and when updated
- Lots of long PDF files for download (does not like it)
- Would like to jump back on submission form
- Axenic form: web version would be nice, more guidance needed
- Phenotyping protocols page: nice that introduction provided
- Industry access through genOway: no idea how to get them

Search

- Would like to have one search box that searches both the EMMA strain list and the webpage text (unified way of searching for whole resource)
- Would like to see if other repositories have mouse strain if EMMA does not
- “No info available” in search results: what does it mean?
- I want to search by disease and need to understand what the links are based on
- Explain where data comes from (provenance), how they are integrated and where they link out (e.g. mouse strain – human disease association)
- If not from mouse field (e.g. clinician), explanation on mouse strain nomenclature needed (genetic background and alleles)
- Unclear where filters operate
- Nice feature that search tabs stay open (description would be nice)
- Iconography unclear: “+” symbol in search results
- Open multiple tabs on strain description would be nice
- Google like box: no help or hints
- Contradictory info (some phenotype descriptions on strain details)

Failure

- No issues observed

The group then prioritized issues focusing on the most relevant ones, i.e. key problems and opportunities were identified. Using a template the following problem definition was phrased:

“INFRAFRONTIER was designed to allow submitting and ordering mouse strains and provide project information. We have observed that the webpage does not optimally meet the needs for mouse strain submission and order, which is causing inefficiency to our business. How we could improve the description of the process and explain what is the essence of NFRAFRONTIER is all about so that our existing and new customers are more successful based on

- Searches that lead to submissions and orders
- A drop in the number of e-mail enquiries (asking for explanations)
- User feedback statistics”

NOTE: The group was tasked to focus on a major problem or use case. The services that currently cause most of the website traffic, i.e. submitting, finding and ordering EMMA mouse strains were chosen as a use case. Therefore the results to some degree fail to reflect that there are other services, which need to be highlighted through the INFRAFRONTIER webpage.

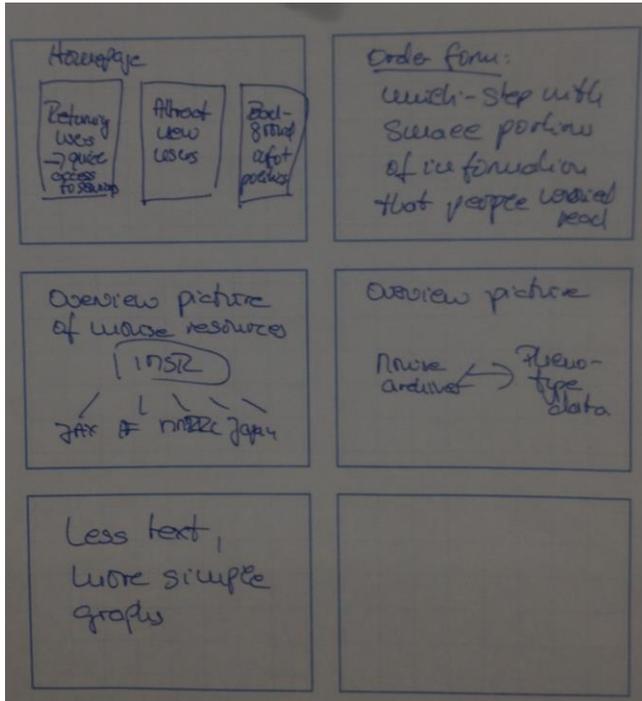
The major part of day two was used for a design activity when several rounds of sketching exercises were carried out. The group was asked to generate ideas to solve the problem defined the day before. In the first round the participants were encouraged to generate a large/considerable number of individual ideas, present them to each other and to refine and expand those in a second round. In the final iteration sketching was done as a group in order to converge again.

Main points from sketching exercises

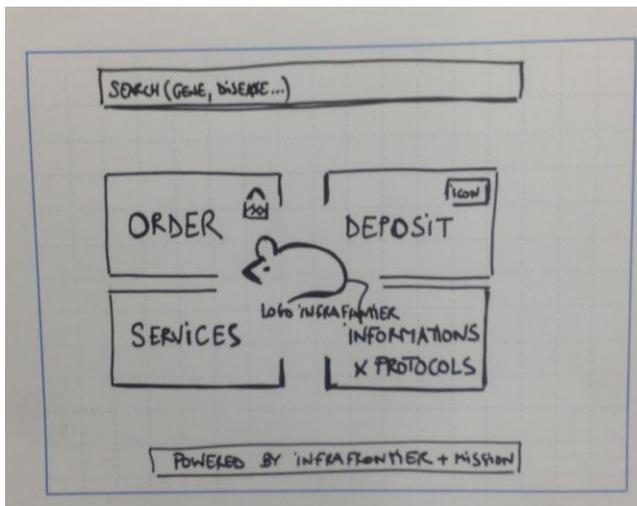
- Place services centrally and put information about INFRAFRONTIER (organization, projects) behind a “powered by INFRAFRONTIER” box
- Flower-shape arrangement on start page could be ‘eye-catcher’

- Sidebox on start page with links to news, recent statistics, how-to for new users, legal issues, team and contact
- More direct cross-linking with other repositories
- Multi-step online forms with checklists at the beginning

Example sketches from round one:



Result of final iteration:



3.5.2 Decisions and action items INFRAFRONTIER

It was decided to implement small changes to the webpage until the end of 2015 (with approval from the management board). Further redesign of the webpage will have to wait until the IT infrastructure move to Munich has been completed. Action items are as follows:

Rearrange homepage content: Carousel below services → make prototype (e.g. in PowerPoint) and test	Manoj	Nov 2015
Rearrange homepage content: Include 'mission statement'	Sabine	Dec 2015
Merge today's output with PR strategy (e.g. iconography)	Sabine	Nov 2015
Present results and suggestions to INFRAFRONTIER board of directors	Sabine	Dec 2015

3.6.1 Results from IMPC observation

Issues discovered in user observation:

First impression

- Good overall design
- Clear mission statement
- Very unclear how many genes have been knockout and phenotyped- A few, All?
- Search for genes is great. Search for Phenotypes is problematic and does not return expected results

User experience

- General navigation implemented well
- Search filter interface is confusing
- Not able to search for genes
- Gene pages well laid out

- Phenotype pages are confusing. Where are the associated genes?
- Not clear how a user interacts with graphs
- Not clear what the association between an assay and a phenotype is

Failure

- Searching for phenotypes
- Understanding phenotype pages

Using the same template described about the following problem definition was phrased:

“IMPC was designed to allow users to find knockout strains and gene-phenotype associations. We have observed that the phenotype webpage is not optimally informing users of associated genes, which causes users to be frustrated and not trust the data. We can improve the presentation of gene-phenotype associations so that users will better facilitate, and trust, the IMPC resource by:

- Better searches for phenotypes
- Better presentation on phenotype pages especially with the large amount of genes

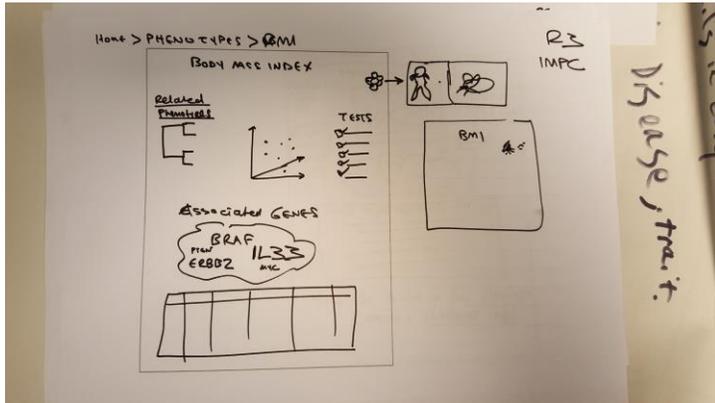
The major part of day two was used for a design activity as described above, participants were first encouraged to generate a large number of individual ideas and then converge on as a group to a single solution.

Main points from sketching exercises for the IMPC:

- Need ontology tree diagram so users can understand the context of the phenotype they are looking at. e.g. abnormal blood glucose is_a type of blood phenotype
- Allow navigation to other phenotype pages via ontology tree
- Need a list of assays used to assess the phenotype
- Clearly link graph to the assay
- Make gene table more visible
- Make number of genes associated very visible

- Use gene cloud to highlight genes that have multiple hits for a phenotype
- Make downloads more visible

Example sketches from round one:



Result of final iteration:



3.6.2 Decisions and action items IMPC

Represent disease-phenotype relationships	MPO and HPO	April 22016
Ontology tree viewer	SPOT supernumerary	March-July 2016
Better Parameter view component	SPOT & Duncan	January 2016
Graph distribution of means	SPOT	April 2016
Gene cloud based on pvalue, effect size	SPOT	Summer 2016
One set of filters drive the whole page	SPOT	April 2016

NOTE: SPOT is the Samples, Phenotypes, Ontologies Team led by Helen Parkinson

3.7 Further documentation

Outline, presentation and pictures of sticky-notes and sketches are available for download at the INFRAFRONTIER internal website.

(<https://www.infrafrontier.eu/internal/ipad-md-project>)