Final Report

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I+E Connect Ecosystem Map, Data Analytics & Portal

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Abstract

VC Alpha Beta was tasked to work with MDC on the creation of the MDC I+E Connect Platform that aims to accelerate the delivery of future-focused innovative and potentially disruptive solutions via engagement with the global new venture and entrepreneurial system. This report outlines the proposed design considerations and functionality of the I+E Connect Platform that were discovered using a customer-centric framework known as “Design Thinking”. Following this framework, entrepreneurs, corporate members, managers of accelerator programs, investors, academics and government agents were interviewed. Based on the pain points these participants face when interacting with the startup ecosystems a feature set for the MVP was developed, iterated on and built.

Executive summary

VC Alpha Beta was tasked to work with MDC on the creation of the MDC I+E Connect Platform. The aim of the I+E Connect Platform is to accelerate the delivery of future-focused innovative and potentially disruptive solutions for the Australian AgriFood industry via engagement with the local and global new venture and entrepreneurial ecosystem.

This report outlines the proposed design considerations and functionality of the I+E Connect Platform that were discovered using a customer-centric framework known as “Design Thinking”. Following this framework, entrepreneurs, corporate members, managers of accelerator programs, investors, academics and government agents were interviewed. Based on the pain points that these participants face when interacting with the startup ecosystems, a feature set for the minimum viable product (MVP) was developed, iterated on and built.

A number of key themes emerged from these 30 qualitative semi-structured interviews with market participants:

1. **Lack of accurate & comprehensive data** - currently available data is piecemeal, static and unaggregated
2. **Deficiency of analysis tools** - visualisation and analysis tools are needed to draw insights, measure impact and create reports from the data set
3. **Difficulty navigating and mapping ecosystem** - it is hard to acquire and transfer a deep understanding of the startup and innovation ecosystem, the participants and their connections
4. **Entrepreneurs often create solutions that do not solve any industry problem**
5. **Entrepreneurs find it hard to identify/connect with their first customer.**
6. **Corporate participants can’t keep up with industry innovations and startup activity.**
7. **Academics face difficulty in commercialising research**
8. **Investors and grant programs, require tool to track their portfolio companies.**

For each of these themes/problems, different solutions were brainstormed amongst the seven participants of the ideation workshop. The best solutions were selected and ranked using an impact/effort matrix. Low fidelity wireframes were developed and shown to potential users. Using this feedback, the wireframes were improved over several iterations. The last iteration of high fidelity wireframes formed the foundation upon which the MVP was built.

The MVP consists of several features:

- **sign up and log in** functionality.
- **dashboard** with news about the user’s industry and the companies that are relevant to them.
- **filtering and browsing** of the startup ecosystem database
- **profile pages** for company and associated individuals
- **edit and create** existing and new data
- **industry challenges** where coporate members and industry bodies can post challenges faced by a particular company or the industry as a whole. Startups can then view these challenges and register their existing or planned solution to these challenges, upon which, an introduction can be made if the person entering the challenge chose to be contactable.

With the MVP built the next step is to focus on populating the database with relevant data. This includes building out web scrapers and natural language processing (NLP) capabilities to query the web, make sense of unstructured data, categorise information and store it in a consistent manner. Machine learning algorithms and statistics can be used to verify acquired data. Once a significant amount of high quality AgriFood data has been imported, beta testers can be sourced to test the platform and provide feedback. Through feedback from beta testers and through more user research, additional product opportunities will be identified. New opportunities are best managed with a product backlog, prioritised using an impact/effort matrix and implemented following agile scrum practices. Simultaneously, the data pipeline can be extended to include data from other horizontals such as Internet of Things, Drones, Artificial Intelligence and more.

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1 Background

The MDC Innovation & Entrepreneurship (I+E) Connect Platform was conceived to fast track the delivery of commercially viable solutions that create unique and defendable competitive positions through the creation of strategic relationships across the global entrepreneurial community to attract and support high growth disruptive entrepreneurial activity within the Australian red meat sector through achieving the following:

- Developing future technology opportunities
- Fast tracking the next generation of "big ideas"
- Becoming a "magnet for the ag tech, food tech and food industries
- Creating a new innovation marketplace for agile SMEs and start ups
- Attracting new capital and new investors

Guidelines (please don't type in this section, guidelines must be removed before submission by highlighting this section and then deleting): This section should provide a background and context for the project including:

- Why it was undertaken;
- Its significance for industry; and
- Its overarching aims.

The background should clearly describe how it builds on, and relates to, previous research.

2 Project objectives

The overarching objective of the MDC I+E Connect Platform is to accelerate the delivery of future-focused innovative and potentially disruptive solutions via engagement with the global new venture and entrepreneurial system. A key design principle for I+E Connect is to develop strategic partnerships that will provide real-time access to data and information to identify trends and opportunities in the global AgTech, Food Tech and Food Innovation space.

For I+E Connect to be successful in the creation of a dynamic and global AgriFood Innovation ecosystem, that will support the future transformation of the Australian red meat industry, it is critical to fully map the existing ecosystem and interconnections between participants and to create a portal which will support the ongoing collection of relevant data.

Data analysis is also required to make sense of the complexity inherent within this rapidly evolving space related to connectivity, transparency, network speed and efficacy, partnerships, commercialisation of research, investment and co-investment, M&A activity and accountability across all elements of the ecosystem. The portal will be designed to enable the migration of other datasets e.g. AgFunder (if permission can be secured).

The I+E Connect online portal will be a central platform and resource for the local AgriFood ecosystem, while also helping to attract, track and engage global ecosystem participants and partners. The portal will create new and unique opportunities for the Australian red meat industry to optimise network connections, identify investments and partners, activate open innovation potential and increase connectivity.

The insights gained via dynamic mapping of the global AgriFood ecosystem will provide global competitor analysis, innovation investment activity analysis, an early warning system on innovation trends globally, make connections for disruptive and transformative innovation opportunities, and provide a sophisticated due diligence platform to assess and validate new venture innovation opportunities across MLA and MDC programs.

The database will be offered (on a "freemium" basis) to ecosystem participants including: industry; universities and research institute; other RD's (that elect to participate); investors; and startups.

3 Methodology

3.1 Overview

VC AlphaBeta applied a customer-centric framework known as "Design Thinking" to the process of assessing product opportunities, discovering solutions and testing designs for the I+E Connect portal.

The Design Thinking methodology was chosen as it is particularly suitable for complex and multi-dimensional problems requiring collaboration and a deep understanding of human behaviour. Design Thinking is particularly well suited to identifying the right business model and feature sets for innovative products such as I+E Connect.

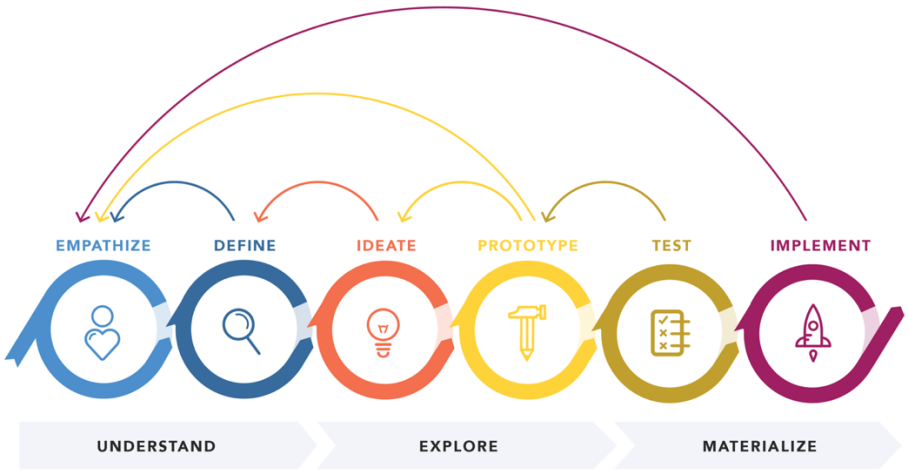

Fig. 1 Design Thinking Framework, reprinted from Nielsen Norman Group (2016)

The remainder of this section discusses in more detail how research for each of the individual steps of the Design Thinking framework was conducted.

3.2 Empathising with users

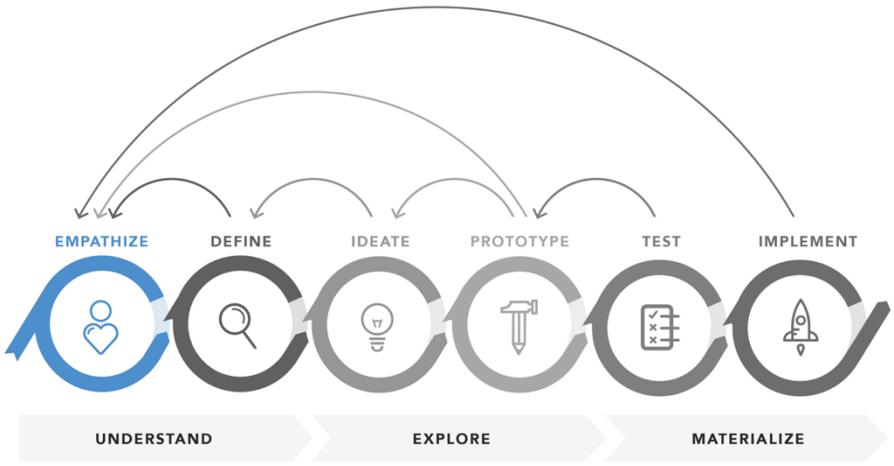

Fig. 2 First stage of the Design Thinking Framework, adapted from Nielsen Norman Group (2016)

The field of user research has a wide range of available methods. The illustration below from Nielsen Norman Group, one of the leading voices in the user experience field, plots these along a 3-dimensional framework with the following axes:

- Attitudinal ("what people say") vs. Behavioural ("what people do")
- Qualitative ("Data through observation") vs. Quantitative ("Data through measurement/instrument")
- Context of Use ("How and whether participants are using the product")

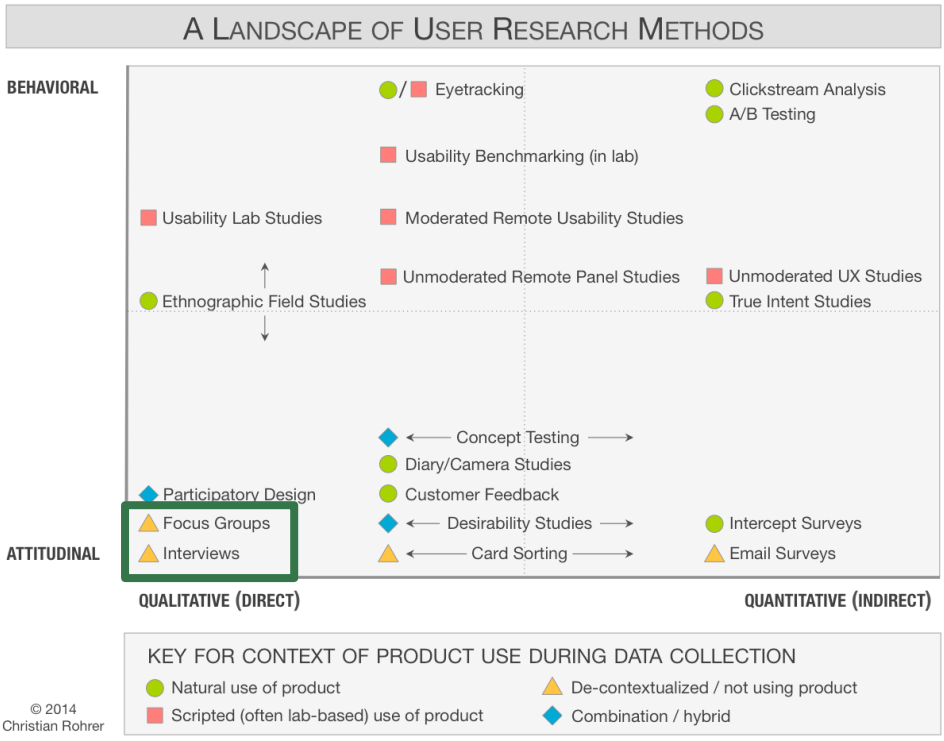

Fig. 3 A landscape of user research methods, adapted from Nielsen Norman Group (2014)

For understanding users, attitudinal and qualitative feedback will best inform the product development process. The two methods used and most suited for this type of research are focus groups and interviews.

Focus Groups: groups of participants are lead through a discussion about certain topics, giving verbal and written feedback.

Interviews: a researcher meets with participants one-on-one to lead an in-depth discussion about the topic.

3.3 Defining problem statements

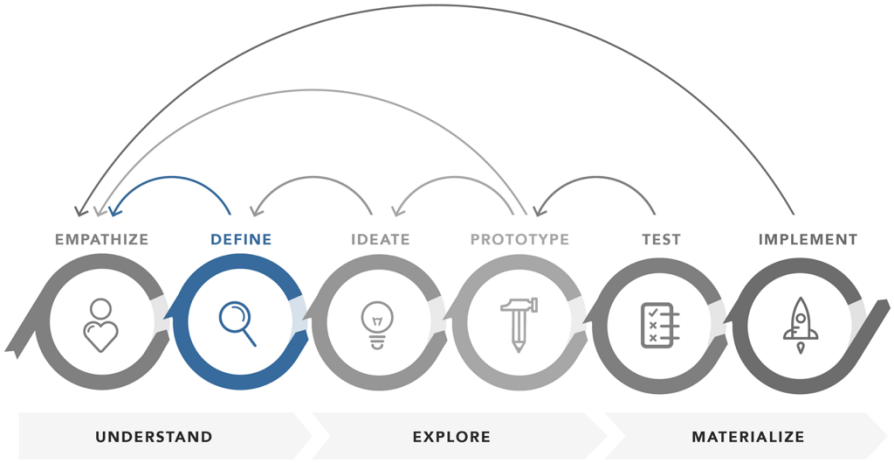

Fig. 4 Second stage of the Design Thinking Framework, adapted from Nielsen Norman Group (2016)

At this stage, it is critical to clearly define the problem that the MVP aims to address. In identifying these user problems, opportunities for innovation arise. A bottom-up approach was used to amalgamate the smaller, individual elements into high-level problem statements. The following methodology was used to achieve this:

1. The user research interviews were recorded and summarised. The common, prevailing issues were extracted and discussed amongst the interviewers.
2. These summarised findings were then presented in a workshop to the whole team.
3. Informed by common themes that arose in the interviews, each team member devised problem statements in relation to the startup ecosystem participants. These participants were identified to be startups, investors, corporates, research institutions and universities, industry bodies, the government, accelerators and incubators.
4. To synthesise the individual problem statements, they were grouped using affinity mapping in a matrix structure with “Ecosystem Participants” as the vertical axis and “Themes” as the horizontal axis.
5. After a preliminary discussion of the collated problem statements, the priority of each was determined using a “traffic light” colour coding system i.e. green being high importance and red being low importance.

3.4 Brainstorming solutions

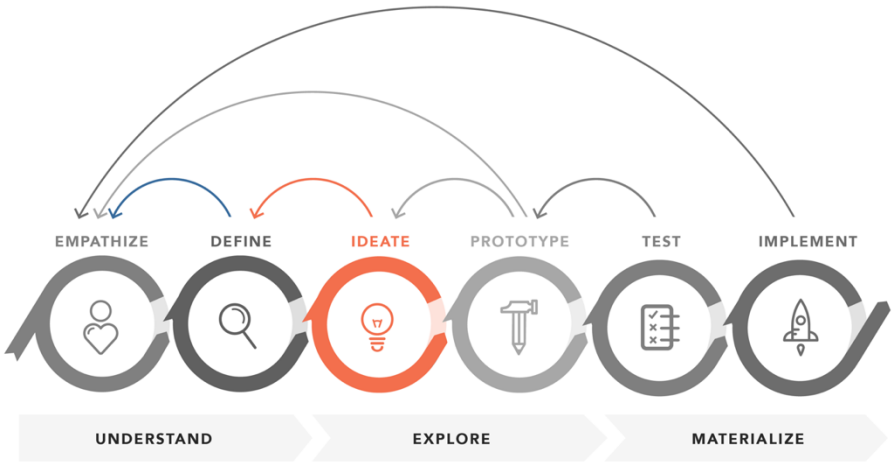

Fig. 5 Third stage of the Design Thinking Framework, adapted from Nielsen Norman Group (2016)

While innovation and creativity is paramount in the Ideation stage, it is equally important for the solutions to address the core issues. All participants were encouraged to be open-minded, build on each other's ideas and come up with as many creative solutions as possible. More specifically, the participants went through the following process:

1. After identifying the key problem statements each participant was tasked with formulating as many solutions as possible to address these.
2. The ideas were discussed among the team and then grouped using affinity mapping. Over forty solutions were created in this process.
3. With these "solutions", the feasibility and importance of each were considered. Taking a systematic approach, each idea was reviewed and tagged according to their predicted effort and impact. This would ultimately determine the features that the team prioritises for the MVP.

3.5 Building paper prototypes

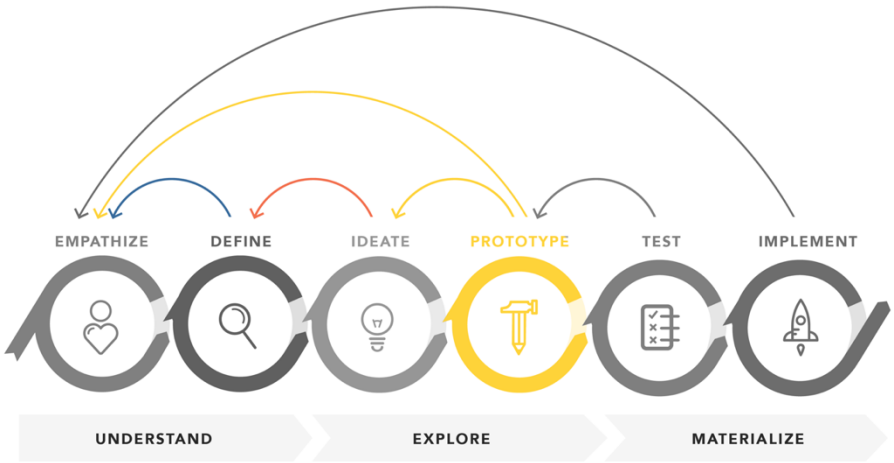

Fig. 6 Fourth stage of the Design Thinking Framework, adapted from Nielsen Norman Group (2016)

Prototyping is the first stage where the product comes to life. For the first iteration of the I+E Connect MVP, the prototypes were in the form of wireframes. These are basic, skeletal representations of the product's user interface free from any content, design and company branding. These "tactile representations" for the solutions can then be used for feedback gathering and rapid prototyping in the next milestone. The following methodology was used to create the first wireframes:

1. For each of the solutions identified in the previous section, each team member sketched six different wireframes
2. The group discussed the various approaches everyone took. Some wireframes were merged together while small adjustments were made to others.
3. A more finalised version of the wireframes was created and these were replicated on Balsamiq – a rapid wireframing software.

3.6 Testing prototypes

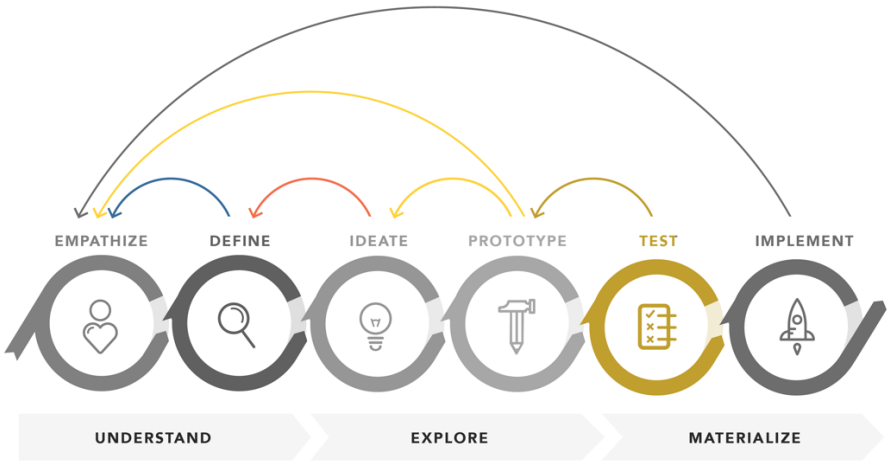

Fig. 7 Fith stage of the Design Thinking Framework, adapted from Nielsen Norman Group (2016)

The low fidelity, clickable prototype developed in the previous step was tested and improved on. Participants were provided with a task to complete using the clickable prototype and were encouraged to think out loud. Based on their interactions and thoughts the prototype was improved. With each iteration, the prototype reached a higher level of fidelity until little new insights were gained by interviewing more people.

3.7 Implementing design

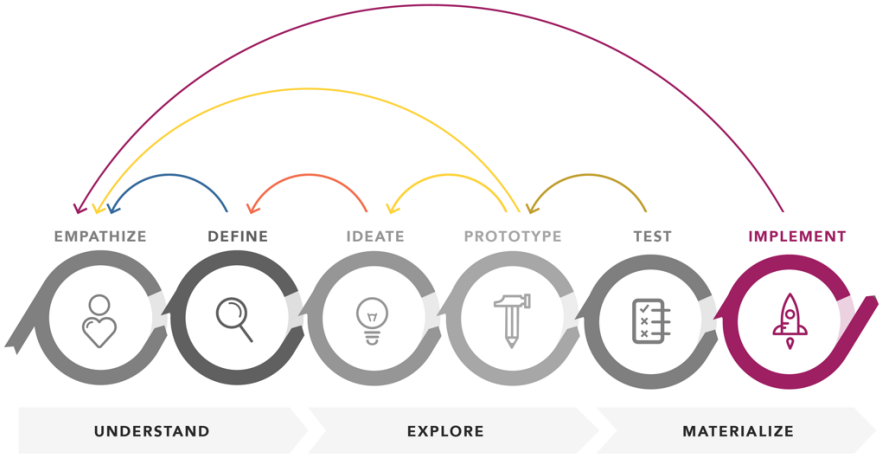

Fig. 8 Sixth stage of the Design Thinking Framework, adapter from Nielsen Norman Group (2016)

In this last step the design was translated into an actual minimum viable product (MVP) with the goal of gathering more user feedback from real users once the application is live and being used. Some of the design was changed slightly so that the application could be built in the given short time frame. The development process followed agile methodologies and best practices.

4 Results

4.1 Identified problems

This section outlines the problems that were identified when talking to startup ecosystem participants.This was part of the first two stages of the Design Thinking process outlined in Chapter 3. Appendix A lists the users that we interviewed and Appendix B contains the list of questions we asked.

4.1.1 Lack of data and tools to draw insights, measure impact and create reports

*"**Data and research is very important** because it backs up all of the commitments that the City [of Sydney] does."*

– Victoria Moxey, Program Manager, Tech Startups, City of Sydney

Government agencies, investors, accelerators and incubators (three out of the seven user groups interviewed during the research process) indicated that they would benefit from more data on the startup ecosystem as well as tools to query that data.

Government agencies are primarily concerned about measuring the impact their programs have on the startup ecosystem and, more specifically, the jobs created by these programs. The magnitude of this impact will effectively justify their investments using taxpayers' money, inform future policies and demonstrate the attractiveness of the Australian startup ecosystem on an international scale. Various government agencies already draw on data that is collected by private third parties such as Startup Muster und use this data for their policy making.

~

*"There isn't **one clear source of truth** in the ecosystem, nor standard metrics for results. So when you do search for information on results, it can be hard to qualify the fact from the fiction."*

– Nicola Hazell, SheStarts Director, BlueChilli

Having the accurate data to assist in reporting functions is a high priority for accelerators and incubators. Again, this is required to justify their investments into the program. They have also indicated that entrepreneurs would benefit from having more data on accelerators, incubators, co-working spaces, venture funds and so on, to compare and decide which route is most suitable for them. It will also validate the advertised performance of these groups, simplifying the due diligence process for startups.

~

*"It's very hard to find any **real, meaningful data** that isn't hype or marketing material."*

– Jeremy Colless, Managing Partner, Artesian Venture Partners

Investors are looking to demonstrate their thought leadership in the space. An accurate and comprehensive data set on the startup ecosystem will allow investors to generate insights and create shareable content for their media channels to demonstrate their expertise. It will also expose any unreliable data that is circulated for marketing or other purposes. Investors also mentioned that they would like to have access to more data that allows them to identify "hot" sectors to invest in. However, in terms of startups funding, investors see few benefits of using data that is also available to their competitors particularly for identifying early stage deals.

4.1.2 Difficulties in navigating the ecosystem

All interviewed user groups agree that the startup ecosystem is difficult to navigate. Knowing the key participants requires networking and relationship building; this is a time-consuming process and the skill is difficult to transfer. Additionally, established ecosystem players also require clarity and in-depth knowledge about the space and how the elements are interconnected.

*"Everybody wants something **unified** and there's always talk . . . but **no one has done it yet**."*

– Anonymous

However, simply being able to identify the ecosystem participants is insufficient. A greater value add would be having the capability to assess the quality of these participants.

"What would have been great [before going to South East Asia to find and discuss partnerships with accelerators] was a ranking of all the accelerators"

– Vicky Lay, Managing Director, Artesian Venture Partners

~

*"I still think that the majority of our larger agribusinesses and our **policymakers** in the food and Ag sector **don't fully understand the importance of creating a vibrant ecosystem**"*

– Matthew Pryor, Founder, Observant

Corporates, accelerators and incubators have also indicated that there is little understanding in the ecosystem of how other participants operate and how to best interact with them. A founder also mentioned that corporates and policy makers have a limited understanding of the importance of startup ecosystems.

4.1.3 Disconnect between entrepreneurial activity and industry problems

*"It's all tech push . . . And how many failed tech pushes have there been? Millions of businesses. There is **not enough market pull innovation.**"*

– Sam Trethewey, General Manager Agri Innovation, Findex

It has been noted that entrepreneurs are motivated by a "push" model, that is, innovating and pushing it to market. This has led to the creation of many business ideas that do not solve a problem. SproutX has begun discussions with corporate bodies to minimise this issue and develop a more accurate understanding of the problems that need to be solved. This information is then passed onto the startups in their program.

4.1.4 Difficulties in finding first customers

Another issue that has been identified is the difficulty in finding the first customer or a beta tester for new products. The National Farmers' Federation is developing a "Pioneers Programs" in collaboration with SproutX. They actively reach out to potential "tester" groups to collect information on interested customers as well as informing them of the startups that work with SproutX. There is a similar program – "Partners Paddock" in New South Wales, that has been very successful to date.

*"A lot of people don't know how to support the early stages technologies . . . there's that **inbuilt conservatism** that they don't want to be the first mover."*

– Andrew Lai, Accelerator Director, SproutX

4.1.5 Missing channel for innovation updates

*"I know there's different conferences . . . but there doesn't seem to be anything that's actually pushing this stuff [news about new technologies and startups] on businesses like ours. We're an ASX listed business and **we're keen to invest in different things but this sort of stuff isn't coming at us**."*

– Anonymous

Current methods to keep updated with new industry innovations and startups are disparate and inefficient. Corporate bodies must maintain channels with ecosystem aggregators such as vertical accelerators, incubators and university programs. These secondary channels, while extremely useful, can result in delayed dissemination of information, miscommunication internally and missed opportunities to leverage innovative new technologies and business models to aid competitive advantage.

4.1.6 Lack of commercialisation of research

Australia ranks 13th for research and development in the Global Innovation Index whilst ranking 34th in knowledge and technology outputs in the same index (Cornell University, INSEAD, and WIPO, 2017). Government agencies, universities and corporates have noted that research in Australia, particularly in terms of innovation and technology is plentiful.

*"There is **not enough clarity** on how you go from research to commercialisation . . . And we have that [research], it's just not getting out of universities."*

– Massimo Garbuio, Senior lecturer & researcher in Entrepreneurship, University of Sydney

*"There's another question to it all . . . Does [the] Australian industry understand research? . . . You may find that . . . **research doesn't quite understand what industry wants and industry doesn't quite understand what research means**."*

–Salah Sukkarieh, Associate Dean (Industry and Innovation), University of Sydney

However, little of this research is ever commercialised. There are several reasons for this. Firstly, academic success is measured in papers published, courses taught, research grants reveived and postgraduate research students supervised. Consequently, acadmics have little incentive to commercialise their research other than to get feedback from industry and improve on their research. Secondly, the terms at which universities try and commercialise research often do not meet industry expectations. For instance, universities often claim the majority of ownership because they develop the IP, whereas industry wants the majority of the ownership because, from their experience, commercialising IP involves far more work than producing the IP. In other cases the terms at which universities allows research to be licensed are too restrictive with regards to geopraphical markets or other restrictions on the application of the IP. Thirdly, industry struggles with multiple characteristics of academic research including the question of how to measure risk in a research environment or how to work with research projects that span over three or more years.

Some efforts are being made by universities to try and overcome these issues by actively helping with the translation of research into commercialisation. The University of Sydney for instance runs a

"Centre for Transaltional Research". The Centre invites industry reprensentatives to present problems and then curates an audience of academics to solve these problems with cutting edge technology.

Some government agencies have also taken initiative to better facilitate commercialisation. The Victorian government is looking to create a "virtual network" connecting research with businesses to combat this. The Department of Industry, Innovation and Science runs a program "Innovation Connections" that contracts "Innovaction Connector facilitators" to help place researchers from universities and publicly funded research institutions such as CSIRO into SMEs.

Academics suggested multiple strategies to help with the commercialisation of research. One suggestion was to provide academics with incentives to commercialise research whilst maintaining KPIs that can easily be measured and compared across disciplines and other universities. Another proposal was a change in the curriculum of postgraduate research students with less focus on writing papers and more focus on applied research, project management, intrapreneurship and other industry relevant skills. It was also mentioned that RDCs have an opportunity to play a significant role in facilitating entrepreneurship and intrapreneurship and are less constrained by political motivations and political instability than universities and government bodies.

4.1.7 Missing tool to track portfolio

Investors that manage portfolios and government agencies that give grants to startups require a way to track the performance of their portfolio. Government agencies are mainly interested in being notified of any changes that happen to companies that went through their program including new funding rounds, revenue or employee growth and other news. Any positive news can then be communicated internally or to the public to demonstrate the value of their grants program.

*"We got a **portfolio** which numbers 200 over the last two years . . . how is there **a solution where we can understand what's happened to them** without sitting there and sending emails to founders every six months"*

– Matthew Proft, MVP grants program manager, Jobs for NSW

The Australian Taxation Office and the Australian Bureau of Statistics act as the main source of data for some of the government agencies that have an interest in tracking the startups that they have provided grants to. However, because of the time delay of this data, government agencies such as the Department of Industry, Innovation and Science tie payments to businesses that are entitled to receive grants under the Accelerating Commercialisation program to the submission of quarterly updates.

In addition to this, investors are also interested in seeing what their funds constitute of in terms of funding stage, verticals and more. Two investors also mentioned that they would like to see upcoming events (e.g. launch, talk given by the founders) that are related to their portfolio companies.

4.2 Initially recommended solutions

The following solutions were developed in accordance to the problem statements as identified in Section 4.1. These also assisted in determining the achievable features for the MVP and those outside the scope of the MVP.

4.2.1 The MVP

4.2.1.1 Data and tools to draw insights, measure impact, create reports

Data acquisition

Step 1 – Collecting organisation names: Data will be collected vertical by vertical. Using an offshore research team, existing proprietary data sets and connections to accelerators and startups, a list of ecosystem participants in each vertical will be put in the system.

Step 2 – Fetch relevant information: For each organisation in the system, web scrapers will continously fetch all relevant online articles that can be found on a set of online news outlets.

Step 3 – Process information: Natural language processing (AI) technology will be tested to assess whether automated text extraction can assist in preprocessing the fetched articles. Extraction includes information about the organisation, the team, partnerships, investors, funding rounds, investments and more. The offshore team will review the automatically extracted data and also manually complete data entry for each fetched article where necessary.

Step 4 – Ask startups to review data: Once all information available online is put into the profile of the organisation, the organisation will be notified of their online profile with a link to update the profile and an explanation about the platform and the incentive as to why it will benefit the organisation to maintain their profile.

The long term goal is to create a brand presence, the right incentives and useful features so that ecosystem participants will enter and maintain data themselves.

Data exploration

The database will include ecosystem participants with filters e.g. location, industry, organisation type. Graphs and visualisations will demonstrate the distribution of filtered and unfiltered ecosystem participants. Each organisation and person that was entered as a startup ecosystem participant will have a publicy accessible profile page. Depending on the type of record, this profile will include information about investments to companies and individuals, funding received, team members of an organisation, jobs of a person, news about a person or an organisation and more.

4.2.1.2 Map of ecosystem networks

Visual maps will explain the different types of participants within a startup ecosystem. The MVP will also include accompanying explanations of how the different participants operate, their roles within the ecosystem and how they interact with one another.

4.2.1.3 Aligning entrepreneurial activity with industry problems

Forums for corporates and industry bodies will be published to expose the problems faced by corporates and the industry as a whole. The platform will allow users to up-vote and down-vote on the registered problems. Startups can assign their solutions to the posted problems and an

introduction between the organisations facing the problems and the startups solving the problem, will be made.

4.2.1.4 Channel for innovation updates

Users will be able to subscribe to a newsletter with information on new startups in a selected industry, new partnerships between ecosystem participants and recently graduated cohorts from accelerators and incubators.

4.2.2 Ideas beyond the scope of an MVP

Table 1 Ideas for product backlog

Solution	Feature	Explanation
Data and tools to draw insights, measure impact, create reports	Reports and visualisations	Customised data visualisations.
	Interface to track the changes in data over time	Visualising change over time, across multiple data points.
	Scaling automated data collection	Increased use of web scrapers and natural language processing (NLP) to query the web, make sense of unstructured data, categorise information and store it in a consistent manner. Use of Machine Learning algorithms and statistics to verify data by cross checking records with other data sets and sources to establish a minimum confidence level before integration. If the confidence level falls below a threshold, the record will be flagged for manual review.
	Ecosystem ranking	Developing a smart algorithm utilising multiple data points to assess the ecosystem participants.
Map of ecosystem networks	Filter ecosystem map	Ecosystem map with the capability to focus on and filter by specific categories.
Align the entrepreneurial activity with industry problems	Connecting the ecosystem	Using Machine Learning to connect the challenges faced by industries with solutions developed by startups.
	Search function	Google-style search for users to browse industry challenges and the startups that are working on these.

Solution	Feature	Explanation
	Efficient communication	Users will be able to see relevant information in a timely manner via a clear dashboard, newsletter and newsfeed.
Connect entrepreneurs with first customers	Online pioneer program	Connect startups with beta testers and first customers.
Create a channel for innovation updates	Data aggregation tool	Engine that collects data on innovation activity across the web and delivers relevant updates to users
Facilitate the commercialisation of research	Connecting the ecosystem	Using Machine Learning to connect industry challenges with research and development bodies.
	Search function	Ability for users to search for research papers that may assist in developing solutions to an identified problem. These search results will be readily available in a user dashboard, personalised newsletter and newsfeed.

4.3 Initial wireframes

4.3.1 Data and tools to draw insights, measure impact, create reports

Users can filter and browse the ecosystem data set:

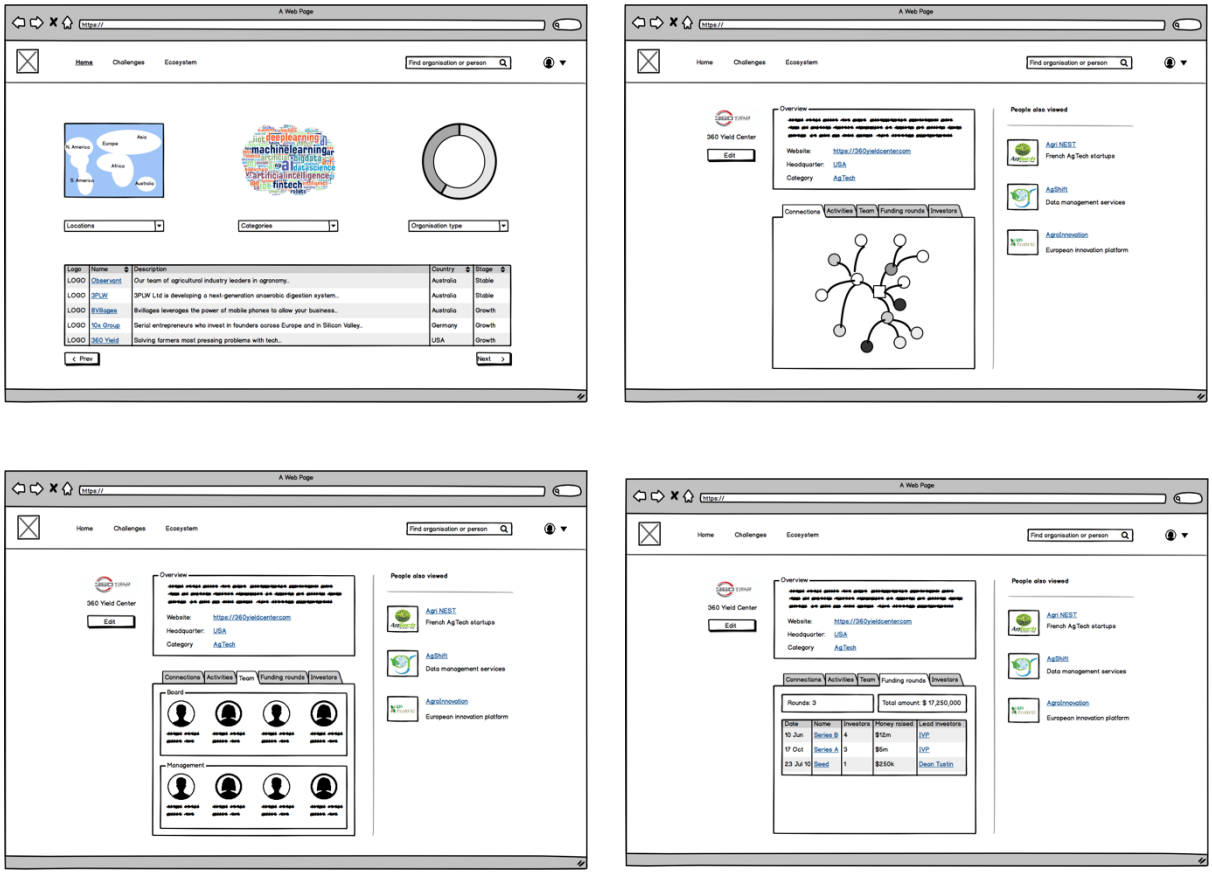

Fig. 9 Wireframe 1 - Browse and filter the ecosystem data set

4.3.2 Map of ecosystem networks

Users can learn how the ecosystem is connected, the role of each participant and how they interact with others:

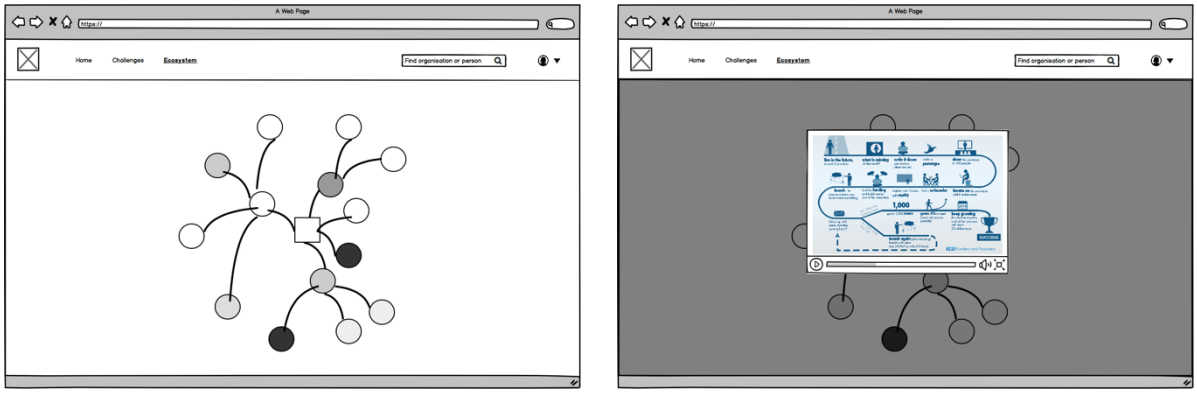

Fig. 10 Wireframe 2 – Map of ecosystem networks

4.3.3 Aligning entrepreneurial activity with industry challenges

Users can search and view details of industry challenges as well as the startups that are tackling these unique issues:

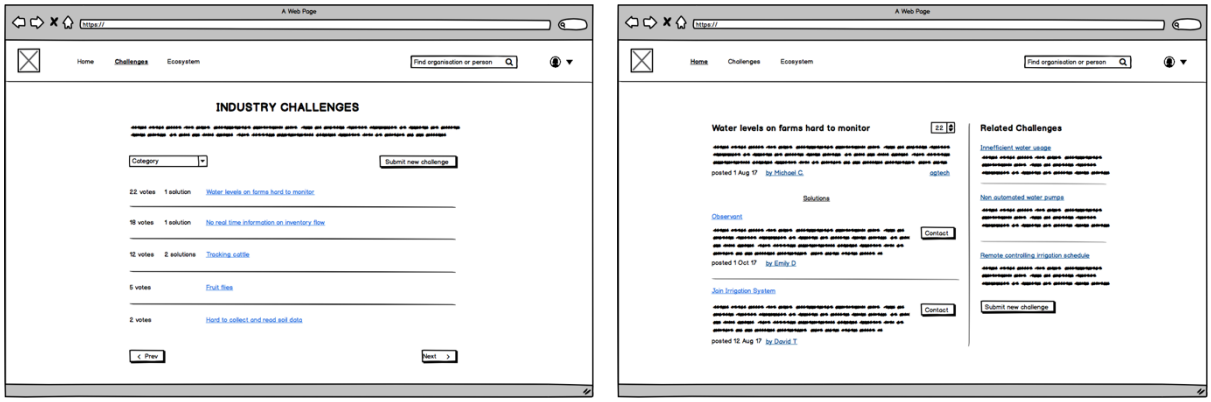

Fig. 11 Wireframe 3 – Aligning entrepreneurial activity with industry problems

Corporates and industry bodies can also add new challenges:

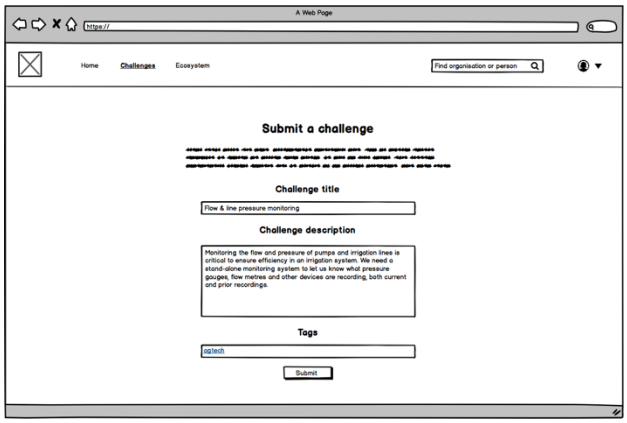

Fig. 12 Wireframe 4 – Adding new industry challenges

4.3.4 Channel for innovation updates

Users can choose to receive newsletters with regular updates on the innovation space:

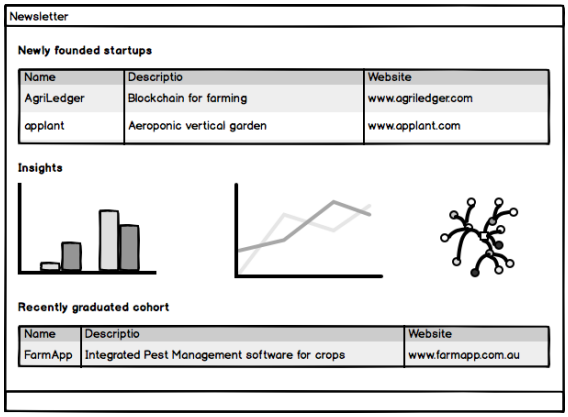

Fig. 13 Wireframe 5 – Industry innovation newsletter

4.4 Feedback and lessons

The ecosystem participants listed in Appendix C were shown low and high fidelity mockups of the MVP. This subchapter discusses the feedback received and how it influenced the design of the MVP.

4.4.1 Data and tools to draw insights, measure impact, create reports

The design for the startup ecosystem directory, with filters and profiles, was well received.

Corporates, defined as large public or private companies and groups that generally buy or provide goods and services to the industry, often co-invest in startups. They are becoming increasingly motivated to participate in the ecosystem due to innovation that may optimise or disrupt their business. These corporates expressed their interest in learning more about startups in their industry and believe this tool will help them find potential partnerships.

Corporates also suggested they would be interested in following companies and influencers. A dashboard that presents the news of companies that the user follows was not included in the initial wireframes, however our research has shown this would be a useful tool for corporates to help them discover investment opportunities.

The ability to follow companies was also of interest to investors and managers of government grants programs, to track the progress of their portfolios. Investors that run multiple funds said it would be useful to put companies that they follow in “buckets” so that they could collect updates on each of their funds separately.

One government official asked whether it was possible to create network graphs showing how people are connected to each other. Reports on how male and female founders are connected and interact with each other was of interest to policy makers. Government employees also expressed their struggle to contact founders when they were organising events. Government agencies that run grant programs wanted to raise the profiles of their portfolio companies. One individual asked whether it was possible to mark companies that have received government grants with a badge or filter in the directory, so that it was evident to other users and potential investors that these companies had already gone through a due diligence process.

Lastly, internal discussions between the UX and UI designer revealed that a Google Material Design approach with cards, rather than tabs on the profile of companies and people, was preferred to ensure the responsiveness of the layout.

4.4.2 Map of ecosystem networks

Multiple participants indicated that an infographic of how ecosystems work is useful to some extent, but has less impact than the other features shown, particularly if it was in form of a static image as it was planned for the MVP.

When mentioning that in future releases this will become an interactive component showing real world connections, one government agent recommended that we include service providers for startups such as lawyers and advisors. A corporate commented that often the most useful links that get people connected and introduced to each other are of personal nature and are consequently hard to map.

4.4.3 Aligning entrepreneurial activity with industry challenges

Both corporates and government agents working with corporates warned us that few corporates are willing to share the challenges they face publicly because this is information which may be considered as commercial intelligence. The suggested workaround was to allow corporates to only share the challenges they face with qualified startups. Another alternative provided was to have a very brief description of the challenge online and then take the conversation offline once an introduction has been made between the corporate and startup. One government agent had a very different viewpoint and mentioned that the ability for corporates to see each other's problems could be a great opportunity for collaboration on problems that affect multiple companies and that this kind of collaboration has already been achieved successfully.

Another government agent mentioned that challenges could also come from the government and that the government already runs a program called Business Research and Innovation Initiative that facilitates these connections between the challenges that the government faces and companies that express interest in solving these problems.

Lastly, one corporate mentioned that to solve an industry challenge there needs to be plenty of guidance and interaction between the company that has the problem and the individuals solving the problem. In other words, what was shown in the wireframes can act to connect the two, however the entire process is much bigger. Accelerators currently act as a support layer to help with this guidance, since corporates often do not have resources allocated to provide guidance for companies interested in solving their problems.

4.4.4 Channel for innovation updates

This feature was well received and corporates said that they were interested in using it if they could click through links in the newsletter to see more information about company profiles. For any startups listed in newsletters, corporates also expressed that it would be relevant to see the stage the startup is at, the location and how much funding the startup has received.

The Internal feedback from the product team was that this feature is very similar to an aggregation of the newsfeed and that it is best to learn how users interact with the newsfeed before building an aggregation of it. Consequently, this feature was removed from the scope of the MVP.

4.4.5 Conclusions

The wireframes were well received by all research participants.

The most critical insight gathered was that there is a real need for users to be able to follow companies and sectors (e.g. AgTech) and get updated on activities happening (e.g. funding rounds, newly founded companies, industry news) in the space the user is interested in. This led to the concept of creating a dashboard with a newsfeed that is expected to drive platform engagement and in future releases will be fully customisable.

The map of ecosystem networks adds little value in form of a static image and is best to be completed in a future release once more resources can be allocated to this feature to make it more interactive.

Industry challenges address a big issue and should be part of the MVP, however the feature needs to be designed so that corporates can share their problems with a selected audience. One solution to be considered is to have three levels for sourcing solutions for industry challenges:

1. Public - accessible to all participants on I+E Connect
2. Private - accessible only to connections selected by the corporate
3. Curated – only accessible to connections curated by I+E Connect

In addition, the design needs to account for the fact that once an introduction has been made, interactions and guidance will be offered offline. There is an opportunity for future releases to assist in this process, too.

Lastly, the design for the innovation newsletter received little request for change, but it needs to link through to the portal. This will also help with user engagement on the platform and if newsletters are being shared it can be used a user acquisition tool. The newsletter as an aggregation of the newsfeed is best to be launched after the MVP has been built and once data on the user interaction with the newsfeed is available.

4.5 High fidelity mock-ups and clickable prototype

A clickable prototype can be accessed using this link: https://xd.adobe.com/view/7cdca836-41af-45b4-942f-021693e22ae3. The remainder of this section shows screenshots for each feature of the clickable prototype.

4.5.1 Dashboard with latest updates

When users log in they see a dashboard with the latest activities and tailored to their interest (i.e. the companies and sectors they follow):

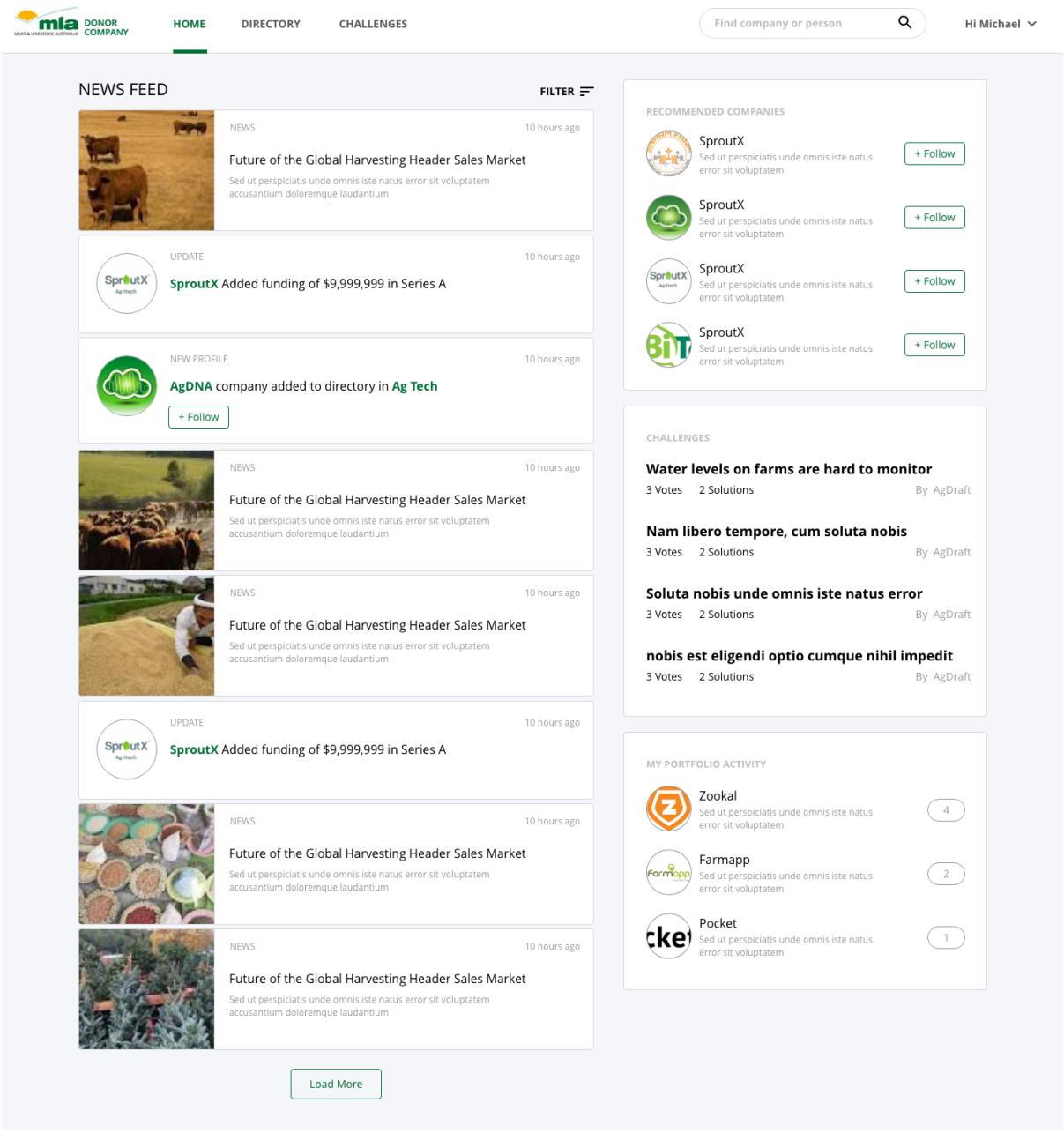

Fig. 14 Design 1 – Dashboard with latest activities

4.5.2 Data and tools to draw insights, measure impact, create reports

Users can filter and browse the ecosystem data set:

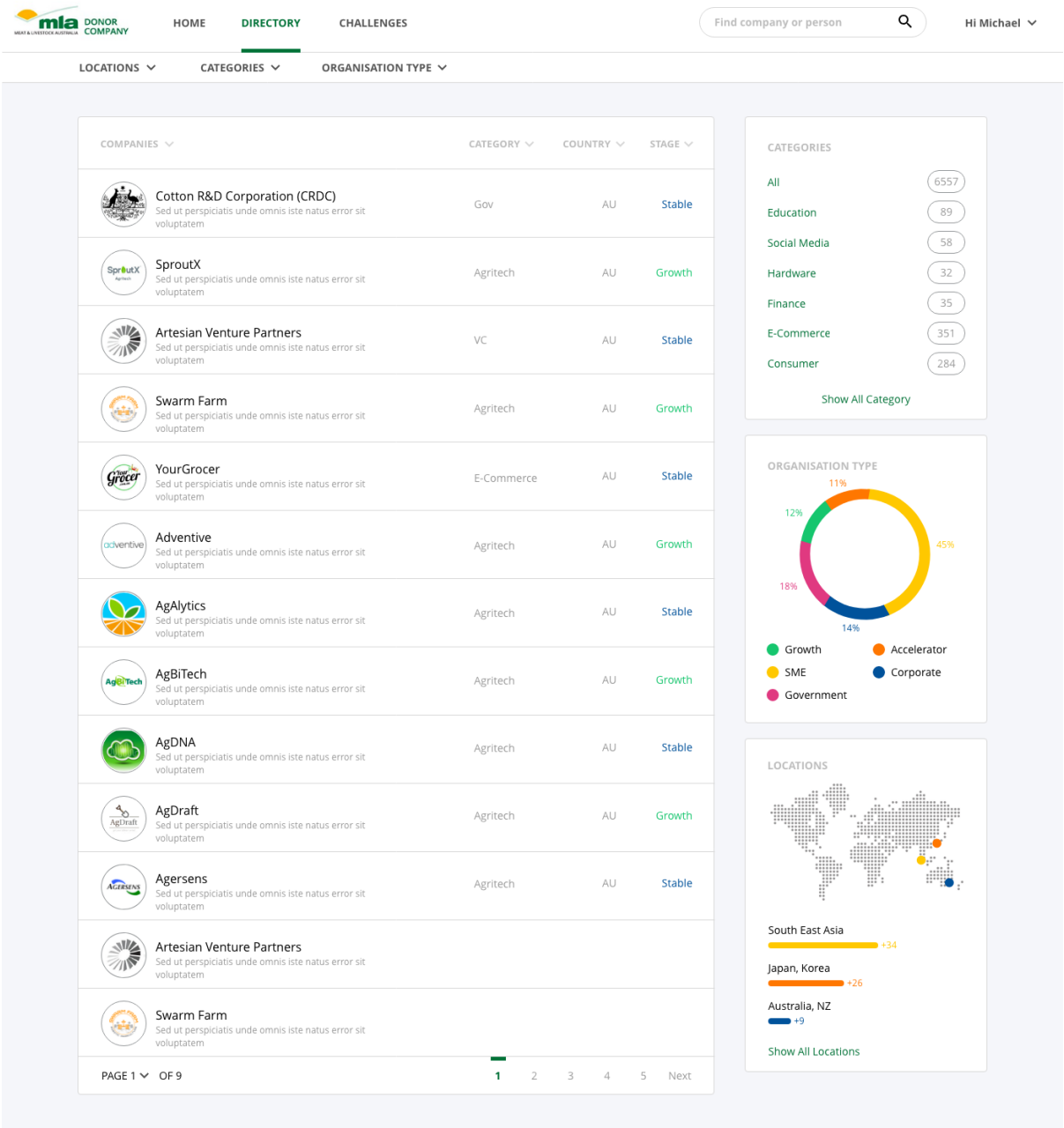

Fig. 15 Design 2 –Browse and filter the ecosystem data set

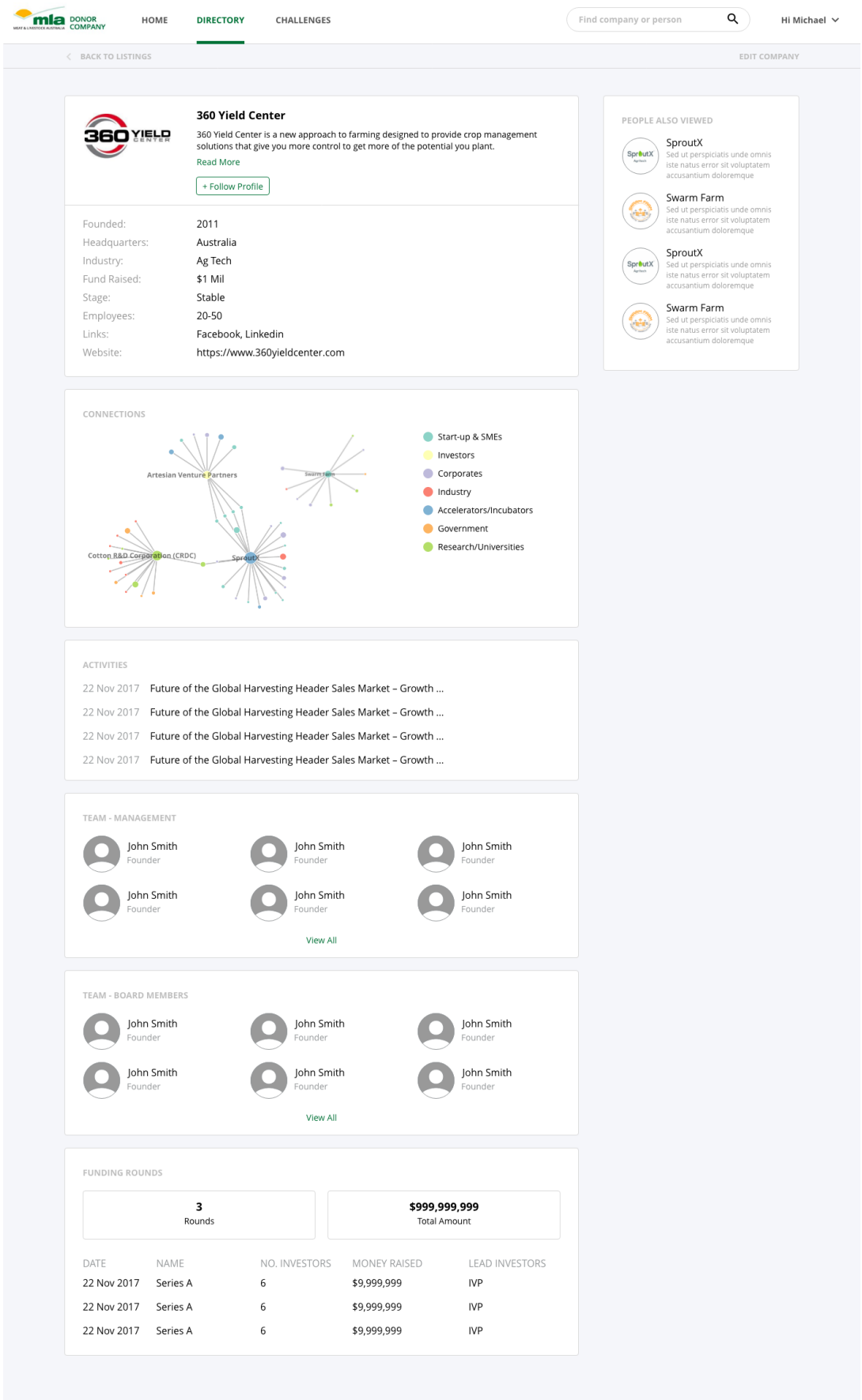

Fig. 16 Design 3 – View company profile

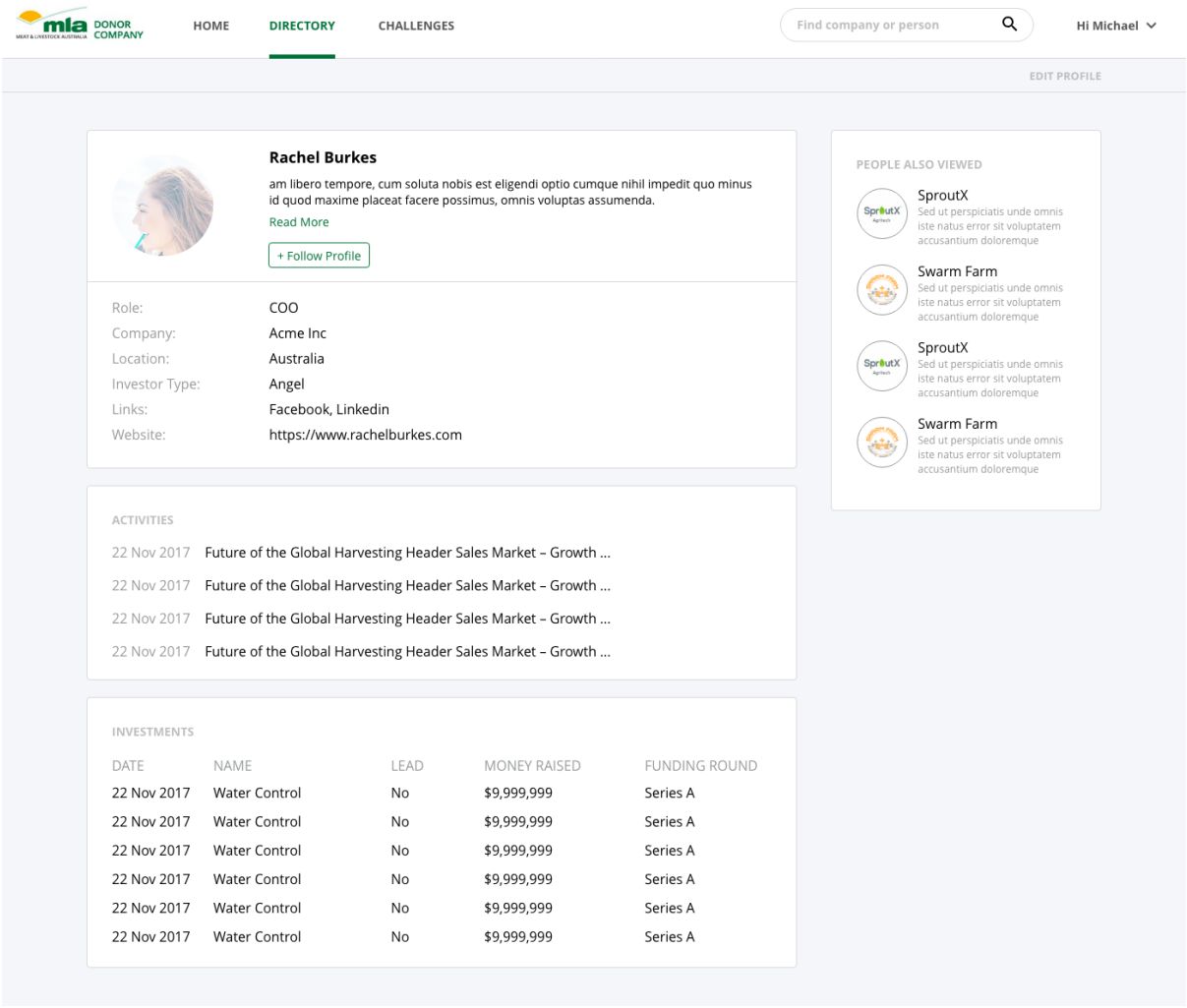

Fig. 17 Design 4 – View person profile

4.5.3 Aligning entrepreneurial activity with industry problems

Users can search and view details of industry challenges as well as the startups that are tackling these unique issues:

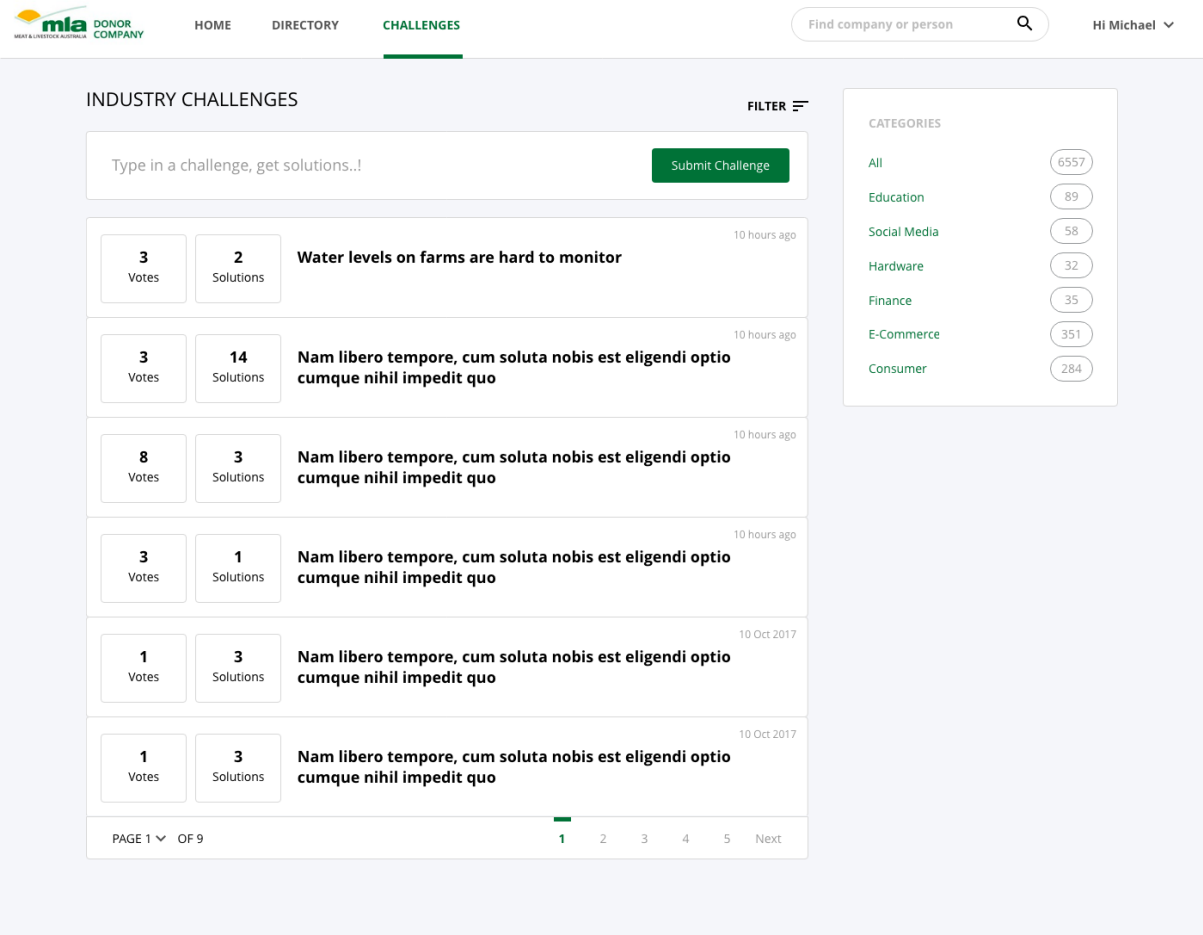

Fig. 18 Design 5 – Browse industry challenges and connect corporates with startups

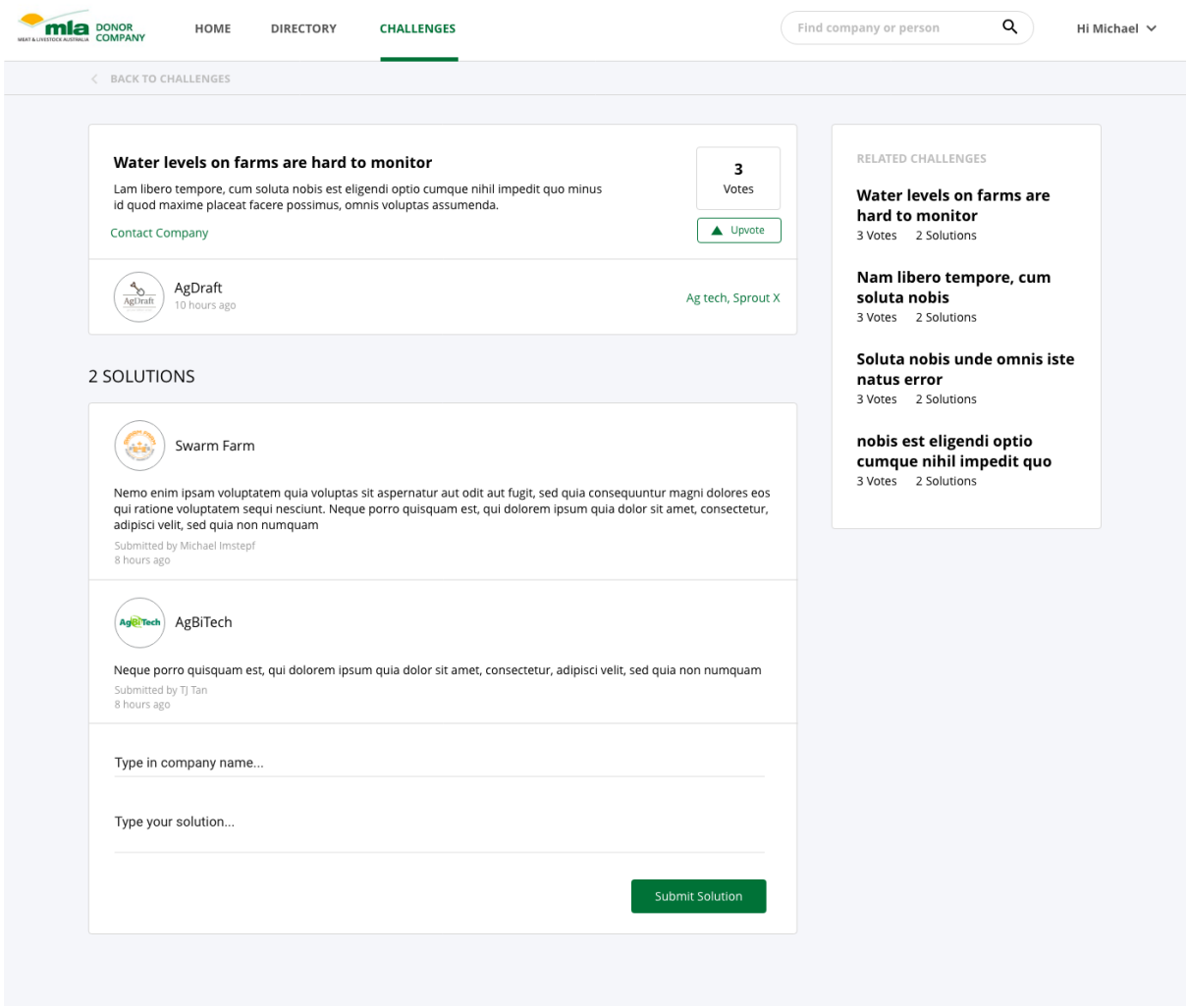

Fig. 19 Design 6 – Browse industry challenges and connect corporates with startups

Corporates can also add new challenges:

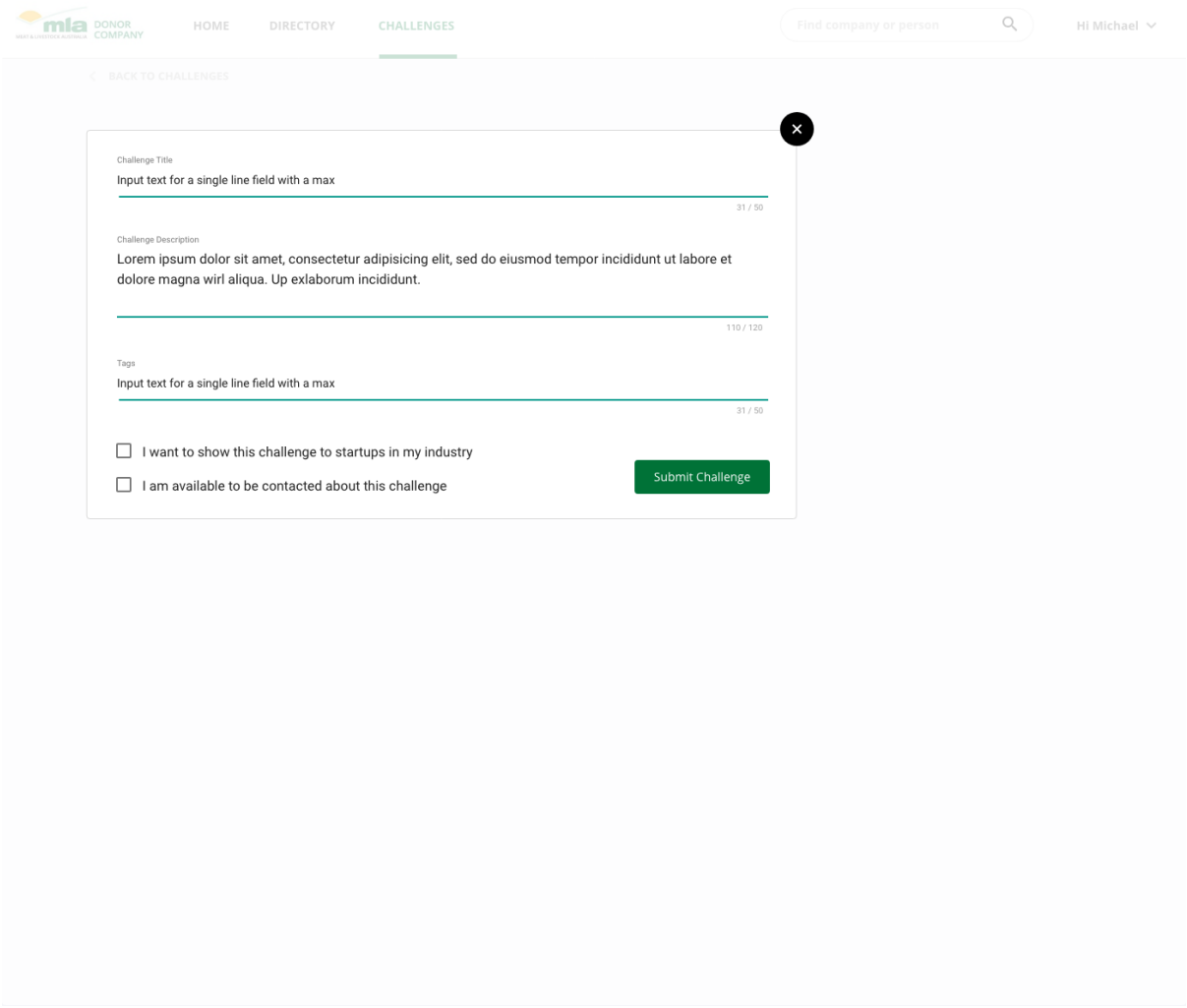

Fig. 20 Design 7 – Adding new industry challenges

4.5.4 Channel for innovation updates

Users can choose to receive newsletters with the latest activities and tailored to their interest (i.e. the companies and sectors they follow):

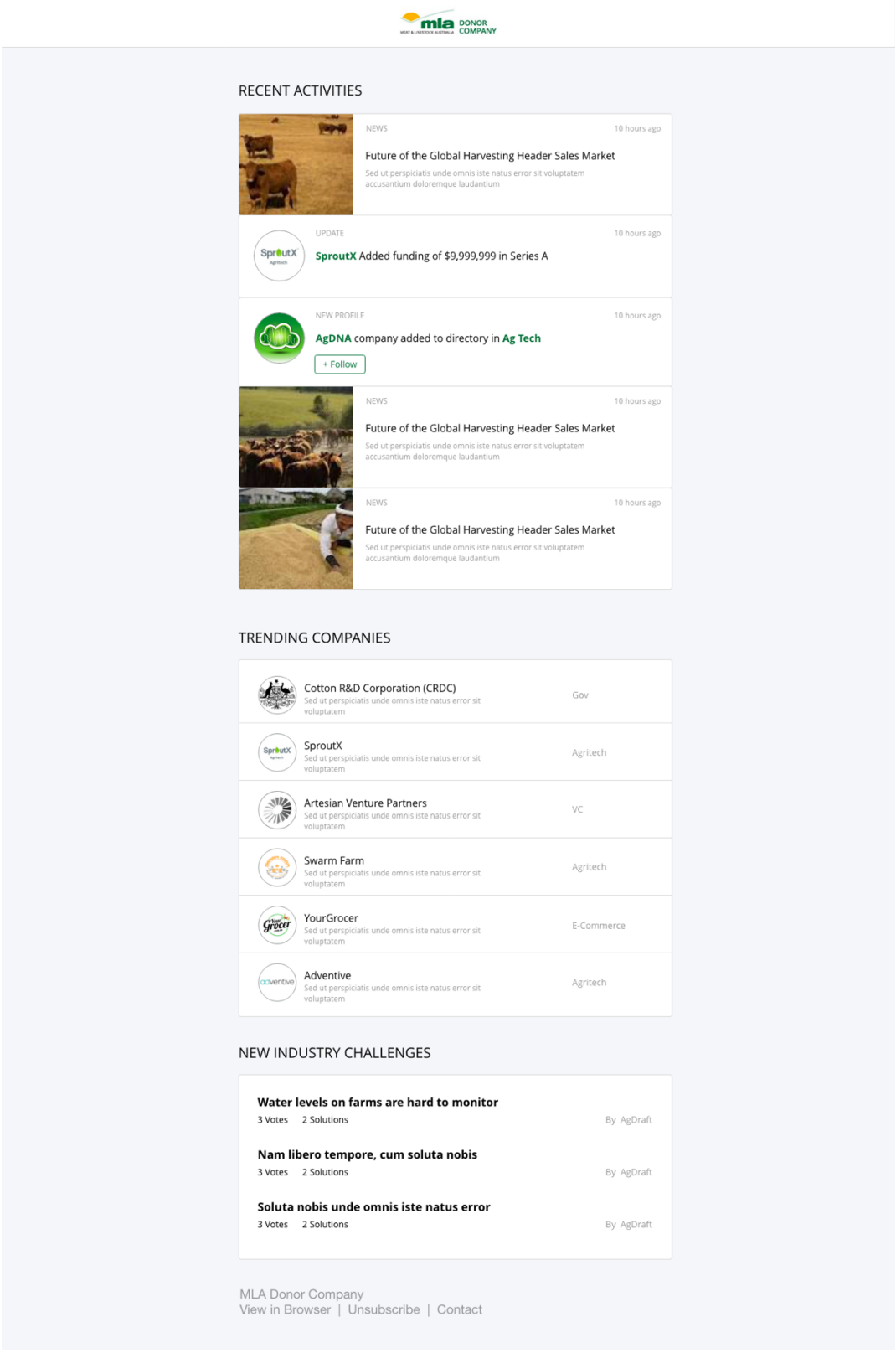

Fig. 21 Design 8 – Newsletter with latest activities

4.6 MVP

MLA will be able to access the MVP in a test environment initially, a selected set of MLA users will be able to sign up for a test account and perform testing prior to VCAB launching the product to environment.

The database of this MVP in the test environment will be decoupled from the production environment.

Data set as of 17th April 2018:

The MVP captures 1800 organisations, including:

- 465 startups
- 632 Investors
- 368 Corporates
- 139 Accelerators/ Incubators
- 105 Industry Bodies
- 97 Research institutes/ Universities
- 57 Government Bodies

These organisations are based in the following countries:

- 703 organisations in the US
- 381 organisations in Australia
- 84 organisations in China
- 101 organisations in India
- 37 organisations in Canada

These organisations are tagged using 75 different categories. The data is monitored on an ongoing basis.

The remainder of this section shows screenshots for each feature of the MVP.

4.6.1 Dashboard with latest updates

When users log in they see a dashboard with the latest activities and tailored to their interest (i.e. the companies and sectors they follow):

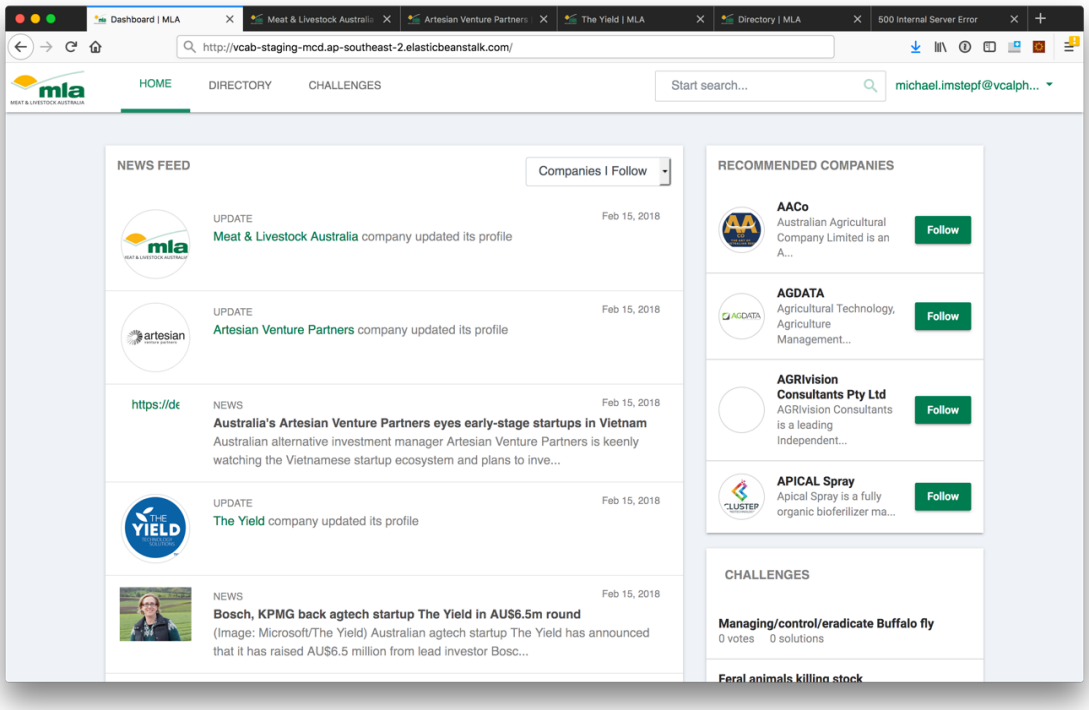

Fig. 22 Screenshot 1 – Dashboard with latest activities

4.6.2 Data and tools to draw insights, measure impact, create reports

Users can filter and browse the ecosystem data set:

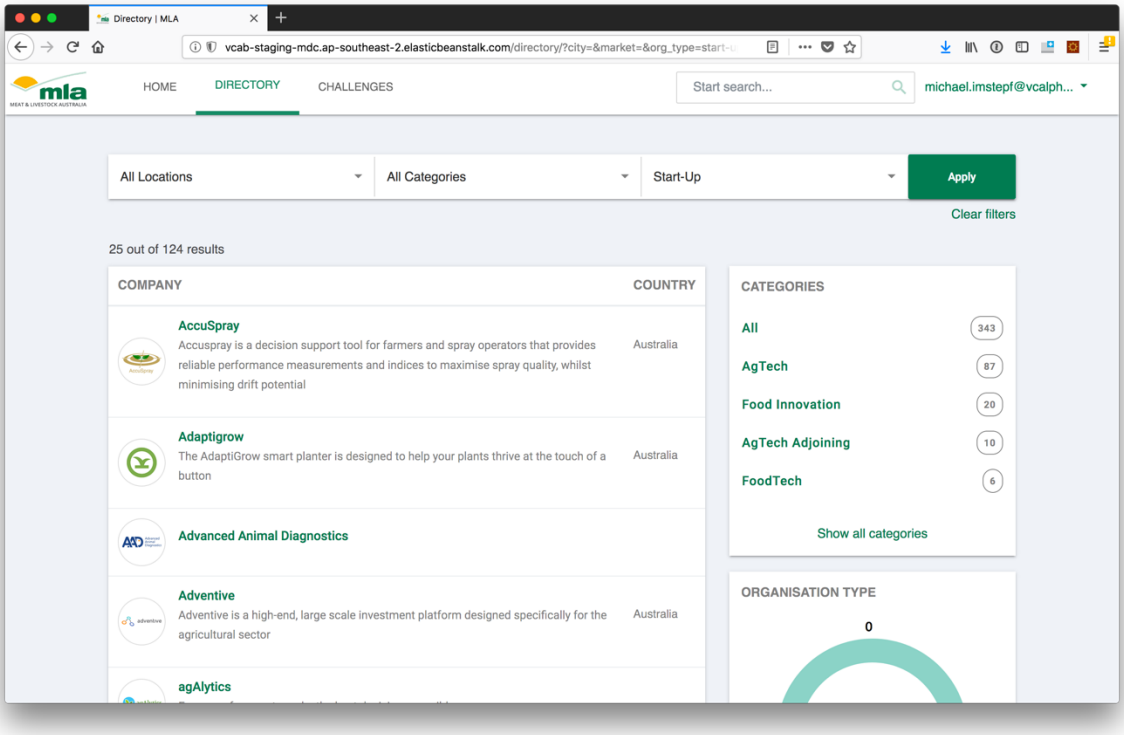

Fig. 23 Screenshot 2 –Browse and filter the ecosystem data set

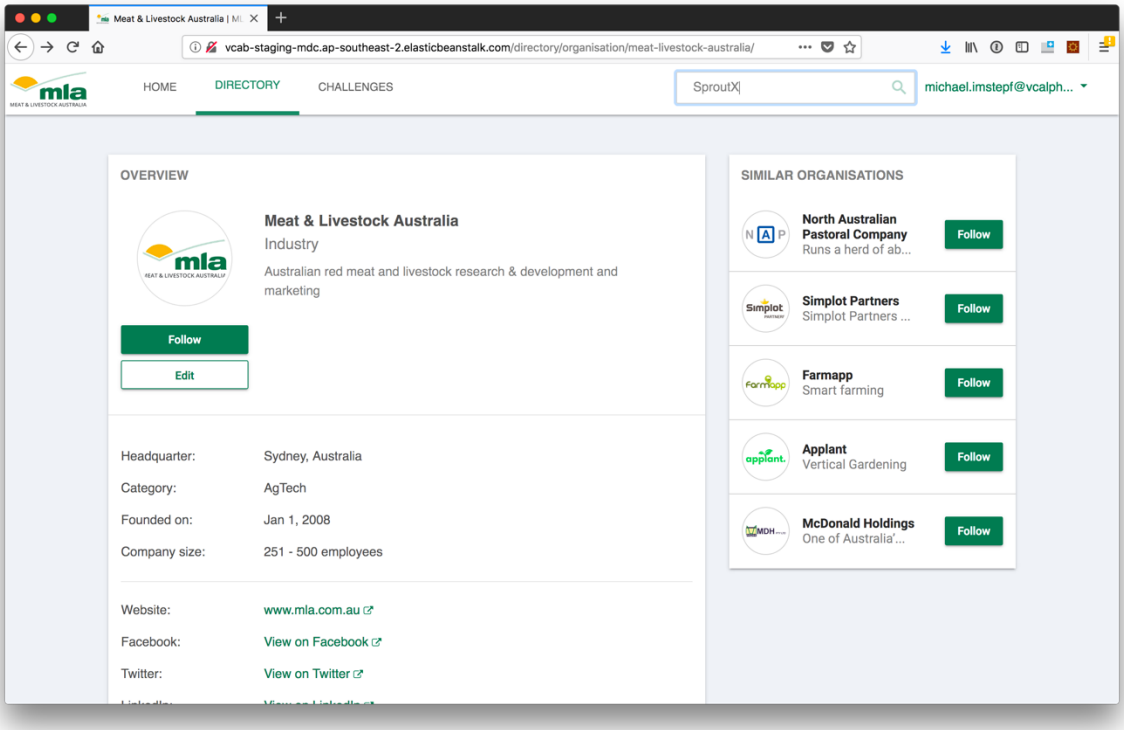

Fig. 24 Screenshot 3 – View company profile

4.6.3 Aligning entrepreneurial activity with industry problems

Users can search and view details of industry challenges as well as the startups that are tackling these unique issues:

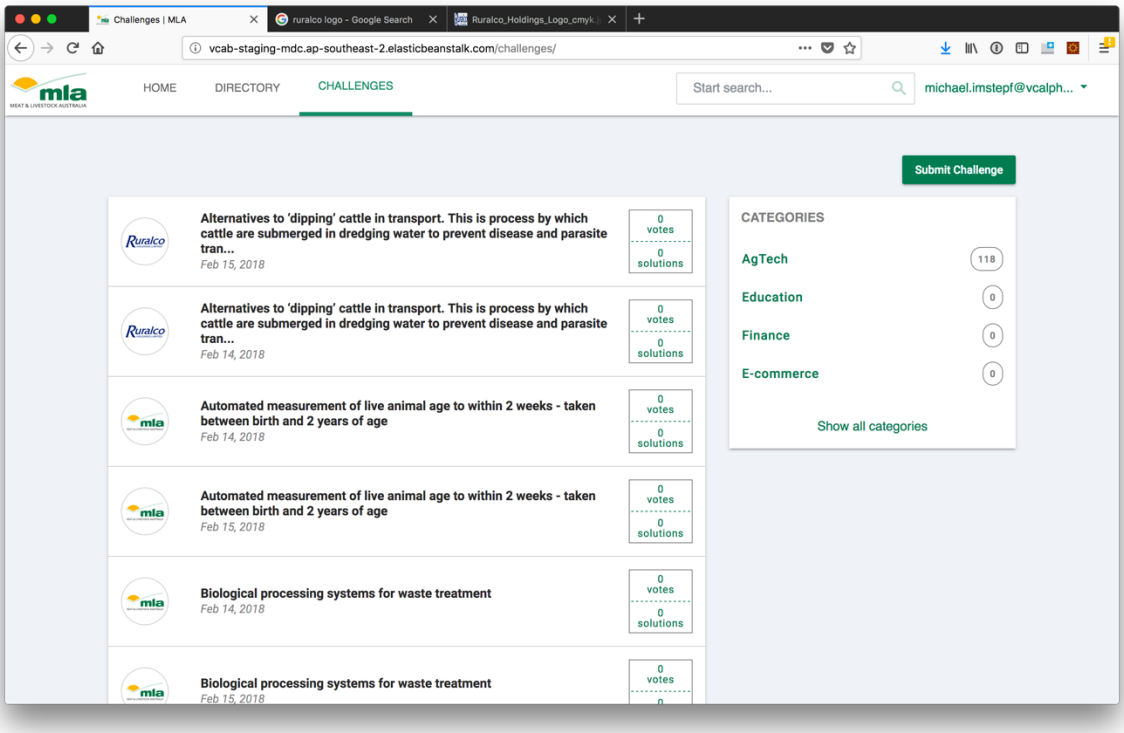

Fig. 25 Screenshot 4 – Browse industry challenges and connect corporates with startups

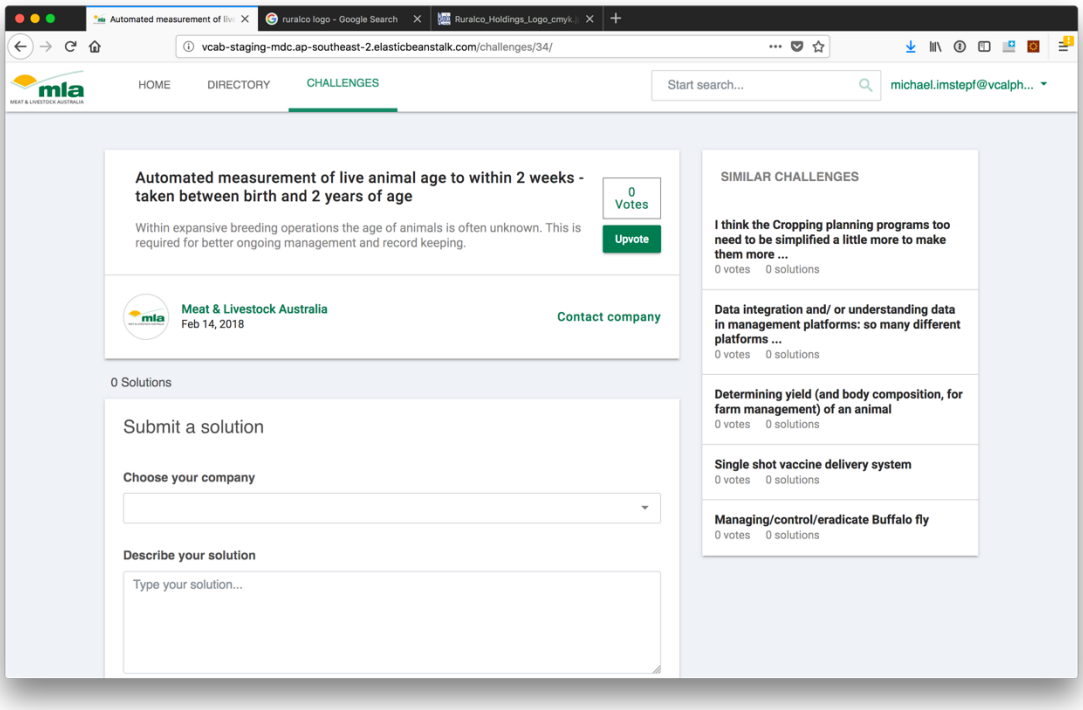

Fig. 26 Screenshot 5 – See industry challenge

Corporates can also add new challenges:

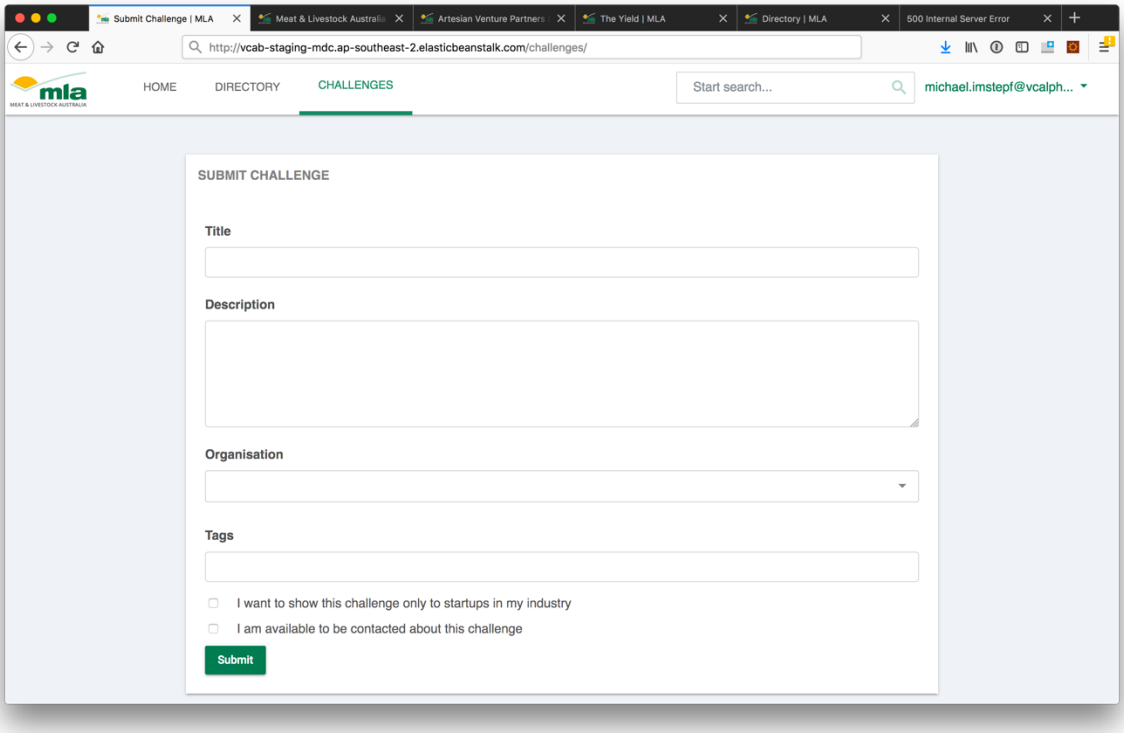

Fig. 27 Screenshot 89 – Adding new industry challenges

5 Discussion

I+E Connect has distinctive value propositions to attract and engage the different users across the startup ecosystem:

For entrepreneurs, startups and scaleups: I+E Connect can provide expertise, network mapping as well as tailored support including pathways to existing accelerators and incubators for student entrepreneurs or sector-specific routes to market for more mature founders. Startups and scaleups would benefit from a platform that provides access to customer networks and capital sources. In addition to ecosystem mapping, industry news feeds and information about relevant competitors would incentivise founders to return to the platform. Furthermore, engagement from investors and potential corporate customers would incentivise entrepreneurs to update their individual profile and company records.

For corporates, corporate accelerators and venture funds: I+E Connect can help to build internal capabilities to innovate, disrupt and support intrapreneurship as well as provide a peripheral view on new and disruptive technologies. News about innovative business models, technologies and industry shifts are key for broader strategic decisions and will therefore attract and engage corporates looking for acquisition, (co-)investment and partnership opportunities.

For incubator programs, accelerator programs and co-working spaces: I+E Connect can provide access to quality startup applicants, a tool upon which to develop deep industry networks (mentors and investors) to potentially attract sponsorship and establish their foothold as a startup centre of excellence. Connecting incubators and accelerators with such players through I+E Connect will allow them to track their portfolio through the platform.

For investors: I+E Connect can provide visibility across the startup ecosystem landscape and access to qualified (co-)investment opportunities. Investors are also interested in using a tool with accurate data to create bespoke reports on specific industries or verticals that can be shared with their clients to show unique insights and demonstrate thought leadership.

For universities: I+E Connect can assist universities in identifying industry specific opportunities for application of solutions developed by students and faculty members within the academic environment. A platform which aggregates industry specific problems and provides a pathway to commercialisation for research projects and intellectual property fostered within universities will assist in creating technology outcomes for industry.

For governments: I+E Connect can help government bodies identify support opportunities, implement policy and provide measures for impact. Individuals within government may wish to track the success of innovation initiatives and grant programs by tracking the trajectory of participating startups and scaleups. There is currently no comprehensive and reliable data set to track startups or scaleups within the broader innovation ecosystem in Australia and abroad.

For industry bodies: I+E Connect will provide landscape mapping across the startup ecosystem with the option to filter for industry specific verticals. By leveraging off the broader VC Alpha Beta data collection, synthesis and analysis platform, industry bodies can develop thought leadership to attract and engage the various user types to ultimately support the innovation ecosystem within their respective industries, attract commercial opportunities and strengthen their brands.

6 Conclusions/recommendations

With the MVP built the next step is to focus on filling the database with relevant data. This includes building out of web scrapers and natural language processing (NLP) capabilities to query the web, make sense of unstructured data, categorise information and store it in a consistent manner. Machine Learning algorithms and statistics can be used to verify acquired data by cross checking records with other data sets and sources to establish a minimum confidence level before integration. If the confidence level falls below a threshold, the record will be flagged for manual review.

Once a significant amount of high quality AgTech data has been imported, beta testers can be sourced to test the platform and provide feedback. Some ideas for future features are outlined in Chapter 4.2.2. Through feedback from beta tester and through more user research, additional product opportunities are expected to surface. Such opportunities are best managed with a product backlog, prioritised using an impact / effort matrix and implemented following agile Scrum practices. Simultaneously, the data pipeline can be extended to include data from other verticals such as FoodTech, Drones and more.

7 Key messages

Entrepreneurs, members of corporates, managers of accelerator programs, investors, academics and government agents were interviewed to better understand the pain points these startup ecosystem participants face when interacting with the startup ecosystems. Several themes emerged from these 30 qualitative, semi-structured interviews.

Many participants of the startup ecosystem reported that there is a lack of accurate and comprehensive data on startup activity and tools to draw insights, measure impact and create reports based on this data. Another theme evolved around the difficulties in navigating and mapping the startup ecosystem, as well as acquiring and transferring this knowledge. Managers of accelerators observed that entrepreneurs sometimes create solutions that do not solve any industry problem and at the same time entrepreneurs mentioned that it is hard for them to find first customers. Corporate members found it difficult to stay updated with new industry innovations and startup activity. Academics spoke about the lack of commercialisation of research and the many factors that lead to this issue. Lastly, investors and managers of government programs that issue grants wished there was a tool to better track their portfolio.

The MVP built consists of several features to address these issues. Once signed in, the user is shown a dashboard with news about their industry and the companies that are relevant to them. Users can filter and browse the startup ecosystem database. Each company and person associated to a company has a profile page. All entries can be edited and new entries can be created. Lastly, the MVP has a section where members of coporates and industry bodies can post challenges that a particular company or the industry as whole is facing. Startups can then view these challenges and register their current or planned solution to these challenges upon which an introduction can be made if the person entering the challenge chose to be contactable.

Suggested next steps include the acquisition of more data, which includes the scaling of the data pipeline, and a more rigorous approach to validating data input. Once a significant amount of high quality AgTech data has been imported, beta testers can be sourced to test the platform and provide feedback.

8 Bibliography

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Nielsen Norman Group 2016, *Design Thinking 101*, digital image, Nielsen Norman Group, viewed 23 October 2017, <https://www.nngroup.com/articles/design-thinking/>

9 Appendix

9.1 Appendix A: Participants of problem statement discovery phase

Table 2 Participants of problem statement discovery phase

Research Participants	Name	Role & Company	Industry	Description
Entrepreneurs, startups and scaleups	Ian Riley Al Bently Matthew Pryor	CEO – Agersens CEO – Simply Wall St CEO / CTO – Observant	AgTech FinTech AgtTech	Early stage (pre-Series A) startup Early stage (pre-Series A) starup Late stage (acquired) startup
Corporates, corporate accelerators & venture funds	Sam Trethewey Paige Stein	General Manager Agri-Innovation – Findex Project Coordinator - Riley	AgTech AgTech	Innovation department Innovation department
Incubator programs, accelerator programs, co-working spaces	Andrew Lai Tida Tippapart Alfred Lo Alan Jones Nicola Hazell Lisian The Rosary Coloma Duco van Breemen	Accelerator Director – SproutX Program Manager – UTS Hatchery Investor-in-Residence – Cicada Innovations Entrepreneur-in-Residence – BlueChilli SheStarts Directors – BlueChilli Development Manager – Melboune Accelerator Program Manager of International Engagement – UTS General Manager – Haymark HQ	AgTech Agnostic Agnostic Agnostic Agnostic Agnostic Agnostic Agnostic	Accelerator Incubator Incubator Incubator Incubator Incubator Accelerator Co-Working space
Investors	Vicky Lay Jeremy Colless Luke Fay Alexandra Clunies-Ross Sveva Frederica Semi	Manging Director – Artesian Venture Partners Managing Partner – Artesian Venture Partners Investment Manager – Artesian Venture Partners Analyst – Artesian Venture Partners Lead Analyst - Artesian Venture Partners	Agnostic Agnostic Agnostic Agnostic Agnostic	Venture Capital Venture Capital Venture Capital Venture Capital Venture Capital
Universities	Massimo Garbuio Salah Sukkarieh	Sydney Genesis startup program – University of Sydney Associate Dean (Industry and Innovation) – University of Sydney	Agnostic Agnostic	Startup programs / Business school Industry & Innovation

Research Participants	Name	Role & Company	Industry	Description
	Andrew Harris	Director of the Centre for Translation Research – University of Sydney	Agnostic	Commercialisation
	Martin Bliemel	Director of Diploma in Innovation	Agnostic	Innovation & Startups
Government	Nashid Chowdhury	International Engagement Manager – City of Sydney	Agnostic	Local government
	Victory Moxey	Program Manager, Tech startups – City of Sydney	Agnostic	Local government
	Will Dalton	Manager Strategic Projects (Food & Fibre) – Department of Economic Development, Jobs, Transport & Resources	AgTech	State government
	Duncan Read	Cluster Champion – Jobs for NSW	Agnostic	State government
	Laura Rahn	Manager Accelerating Commercialisation Strategy & Incubator Support – Department of Industry, Innovation and Science	Agnostic	Federal government
	Matthew Proft	Client Manager – Jobs for NSW	Agnostic	Sate government
	Charnelle Mondy	Strategy Advisor – City of Sydney	Agnostic	Local government
Industry Bodies	Charles Thomas	General Manager, Digital & Industry Partnerships – National Farmers' Federation	AgTech	Industry body

9.2 Appendix B: Problem statement discovery questions

The attitudinal and qualitative questions were designed to be open-ended and semi-structured. The objective was to open a conversation with the interviewees as opposed to going through a list of questions. The exact questions were tailored to each user, but all adhered to the following structure:

1. How do you interact with the startup ecosystem?
2. Can you tell us how you currently achieve [a user goal that we strive to improve with this platform] (e.g. build internal capability to innovate for corporates or create industry insights for accelerators)
3. What tools and processes do you use?
4. What works well with this process/workflow and these tools and why does it work for you?
5. What frustrates you with this process/workflow and these tools. What is missing?
6. What do you think is missing in the community as a whole?
7. What are the workarounds that you use to get your work done?
8. What other functionalities and tools do you wish were available to you and why?
9. What devices do you like to use or do you feel most comfortable using?
10. How do you currently use data and what do you like about it and don't like about it?
11. Do your current tools provide any visual analytics? if so, which visualisations help you the most and which ones do you feel least uncomfortable with?
12. Do you or your team do any data-analytics with third-party data? How do you currently interact with this data and what are your thoughts on this method?

9.3 Appendix C: Participants of design testing phase

Table 3 Participants of design testing phase

Name	Role	Company
Matthew Proft	Manager MVP Grants	Jobs for NSW
Charnelle Mondy	Strategy Advisor Tech Startups Plan	City of Sydney
Laura Rahn	Manager Accelerating Commercialisation Strategy	Department of Industry, Innovation & Science
Paige Stein	Project Coordinator	Ridley
Sam Trethewey	General Manager Agri-Innovation	Findex
Sveva Frederica Semi	Lead VC Analyst	Artesian Venture Partners
Alexandra Clunies-Ross	VC Analyst	Artesian Venture Partners
Shaon Diwakar	Founder	NewsMaven
Tida Tippapart	Innovation, Entrepreneurship & Creative Intelligence Unit	University of Technology Sydney

Name	Role	Company
Martin Bliemel	Director of Diploma in Innovation	University of Technology Sydney