



final report

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Development and Implementation of Design-Led Innovation to Xinova-MDC Strategic Co-Investments: Innovation Manager

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Abstract

The application of a Design-led approach permits clear problem definition and project scoping during the early phases of project planning, leading to a clear allocation and direction of resources toward a successful outcome.

Executive summary

The Design-led thinking process ensures the needs of multiple users along the value chain are met, by focussing solutions on the needs of these end users. The Design-led approach also requires a new project partnership and governance model, (detailed in this report), and a custodian of this process in the form of an Innovation Manager, to work in conjunction with the Program Leader and Project Managers.

The new process will help prevent misspent time and energy formulating solutions that do not address the key underlying problems. Complex and multi-disciplinary problems require a full analysis of the value chain prior to the search for technical solutions, to ensure project activities are directed effectively at solving the initial challenges.

The Innovation Manager role has evolved over the past twelve months from one of only defining governance and process improvement, to one of an active project participant, where the new process can be monitored and fine-tuned using real life examples of project execution. There is a need for the partnership to continue to fund the Innovation Manager role especially at a project level to ensure that the project methodology and processes are embedded into the fabric of each project and the appropriate level of real-time fine-tuning is made. Working together with the small number of MLA staff experienced in the theory and application of design-led thinking will achieve more widespread understanding and use of the model and tools throughout MLA.

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1 Background

MDC has been co-investing with Intellectual Ventures - now Xinoa, as a key strategic partner across a number of research areas since June 2013. A portfolio of inventions and IP has been generated in response to Xinoa's Request for Innovation (RFI) process. The RFIs were guided by industry problems/opportunities identified by MLA as recalcitrant to resolution using traditional R+D investment models. To date, the partnership has committed to the projects identified in Table 1 following:

Projects	Status
Tattoo and Applicator for Animal Lifecycle Monitoring (P.PSH.0709)	Proof of Concept (POC) and prototype development on one invention (Smart Tattoo), and preparing invention development proposals for several other solutions.
Open Innovation Invention for Feedlot Dag Prevention / Management (P.PSH.0700)	Filed patent applications on 6 of over 40 novel solutions. Proof-of-concept animal field trials are underway on 3 solutions.
Open Innovation Invention for Livestock Identification /Tracking (P.PSH.0752)	> 50 novel solutions were submitted for review which MLA & Xinoa are currently reviewing to determine which to progress
Smart Packaging Open Innovation for RnD4profit (insights2innovation) (P.PSH.0765)	Scoping 2 RFIs on improvements to packaging or supply chain for export of meat products into China, as part of MLA's Food Without Fear, Insights to Innovation program.
Use of Red Meat Protein as a Snack Food Ingredient (P.PSH.0812)	Xinoa Product Development proposal submitted to MDC. Objective to provide one or more red meat protein-based snacks. Part of MDC 2Morrows Food

The appointed Innovation Manager, in conjunction with the Program Leader and teams assigned to each project, were intended to:

- Decide which projects in the portfolio are worth reviewing using a Design-led approach, and which need to be finalised.
- Realign and recommit to the agreed projects, assessing each for missed opportunities and reviewing project methodology as required.
- Complete and generate Final Reports, in conjunction with the Program Leader and project team.

The Innovation Manager was to assist the above process and, operating under a revised Partnership and Governance Model, work with the Program Leader to optimise the implementation of each individual project.

2 Methodology

In May 2016 the MDC Board endorsed further development of the MDC/Xinova collaborative model and an in-principle budget up to \$7 million p.a. for new projects each year for 2 years (50:50 matched between MDC and Xinova) as approved. An enhanced MDC/Xinova collaborative strategy has been developed focusing on '*wicked-problems*'- those that are recalcitrant to traditional R&D approaches¹. The MDC/Xinova strategy provides the framework and agility, based on principles of design-led innovation, to navigate ambiguity associated with these wicked problems. This involves sourcing by Xinova of potential solution strategies (*options*) e.g. via their inventor network (requests for invention), technology scouting, etc. The desirability, feasibility and viability of the various options will be assessed based on available information (technical, market application, IP, etc) and used to triage / prioritise different options with prioritisation driven by the value to the red meat industry, time to market and risk/reward profile of the portfolio 'options'. Several approaches to determine ranking will be used, for example, the option could be scored against multiple (weighted) objectives (e.g. Industry BCA, strategic importance, desire for quick hits) that are offset by costs (e.g. development, commercialisation, IP, etc.) and risk adjusted (e.g. likelihood of technical, commercial and/ or regulatory success).

A Shared Resource

The MDC/Xinova collaborative strategy identified the need for a shared resource to focus on developing commercial outcomes from the co-investment, that provide impact to the red meat industry. This resource is justified on the basis of:

- size / growth of MDC/Xinova investments,
- shift in emphasis from the problem definition and invention sourcing intensive activities towards the commercial validation of opportunities, technology development, and commercial impact and
- implementation of a design-led innovative approach requires sourcing, analyzing and interpreting information from diverse sources to determine the relative desirability, feasibility and viability of the different options generated.

This resource, Innovation Manager (IM) - would be experienced in the commercialization of new inventions and familiar with design-led principles. The 2 primary objectives of the IM would be to 1) design a process (identifying resourcing needs, key relationships, incentivizing of stakeholders, etc) and for the treatment of new inventions coming from Xinova's RFI process, using elements of design thinking, and 2) demonstrate this process in action using existing projects and/or new investment themes. The IM would be a 12-month position, with optionality to extend as required. The requested budget was \$200K AUD jointly funded via the collaborative partnership model's \$7m allocation.

¹ The use of the term "wicked" here denote resistance to resolution. Horst Rittel and [Melvin Webber](#) formally described the concept of wicked problems first in 1973 in the context of social planning challenges.

3 Outcomes

Experience and Attributes

Candidates were vetted by both organisations for suitability, however the chosen candidate was a proven entrepreneur, with experience in commercialising early stage technology. The candidate was also intimately acquainted with the principles of design thinking and utilising this knowledge to design a process to refocus the Xinova-MLA strategic relationship toward commercially viable solutions in the selected areas of activity.

David Ireland has now been operating in the role of Innovation Manager (IM) for the past year, and it is recommended that this position be retained and extended for a further 12 months. Refer to the link below for his CV:

<https://www.linkedin.com/in/david-ireland-0038484>

Outputs and Associated Schedules of Work

The IM has worked closely with both organisations to design and demonstrate an innovation decision framework that best benefits the relationships objectives. As part of carrying out this work, related projects requiring additional funding were refocused and scoped out. Using the refined design thinking model, an assessment of these projects was conducted which included the following activities;

1. An Assessment of all current joint projects (ie, Smart Tattoo, Feedlot Dags, Red Meat as a Protein Snack, Smart Packaging, NLIS Animal Identification Tracking and Traceability) was conducted. Consideration was given to Desirability (Human), Viability (Business), Feasibility (Technical) perspectives.
2. An assessment was conducted on all “high priority” inventions on the Objective Carcass/Biochem assessment of meat” RFI, from Desirability (Human), Viability (Business), Feasibility (Technical) perspectives.
3. An assessment for each of the proposed new Strategic Program Areas (SPAs) from Desirability (Human), Viability (Business), Feasibility (Technical) perspectives was undertaken. This included some of the early RFI outputs that identified past technical progress in a field, highlighting areas for invention opportunity, and IP landscape mapping. (Note the SPA concept was abandoned by MDC during the IM’s tenure)

The IM, in consultation with both partners, presented a paper that detailed the innovation decision framework highlighting its operation with at least one real example.

Objectives

The participant achieved the following objective(s) to MLA's reasonable satisfaction:

It was anticipated that this project will deliver the following outcomes:

1. Assessment and ranking decision framework for Xinova/MDC projects/ programs based on design-led innovation principles.
2. Analyse and rank opportunities from existing portfolio using the decision framework
3. Commercialisation plan for at one of the opportunities listed in table 1
4. *Analysis (desirability, feasibility and viability) and ranking of MDC-Xinova portfolio based on design-led approach.*

Outcomes

A series of milestone reports that met the original objectives and outcomes, including this final report.

4 Learnings and discussion

A New Governance and Project Management Process

The program and processes developed and presented herein are based on three fundamental pillars:

1. The importance of establishing a clear intent, be that both in the Xinova-MDC partnership, but also for each project undertaken.
2. Projects are progressed through a desirability, viability, and feasibility, design thinking framework. This framework ensures that projects consider not just the technical issues / opportunities, but also ensures strong customer / stakeholder and commercial / business viability focus.
3. An element of agility is designed into how the program and project are managed. This is achieved through the assignment clear roles and responsibilities, but also through an iterative build-measure-learn cycle, where significant issue / opportunity exploration undertaken up front decreases the risk of investment into solution scaling and implementation.

Progress Beyond the New Process

Since implementing the new governance process and refined design thinking model, a number of developments have occurred, including:

1. Following a senior executive meeting in Seattle in late 2017, MDC and Xinova began defining the partnership intent.
2. MDC and Xinova have engaged a Program Leader, who will have the responsibility of ensuring that the relationship and projects are progressing according to this new process.
3. A number of project reviews were undertaken, helping to streamline the project portfolio and focus the resources on the critical opportunities and challenges facing Australia's meat and livestock sector.

The partnership had the following active projects prior to the hiring of the Innovation Manager;

1. Smart Tattoo (P.PSH.0709)
2. Smart Packaging (P.PSH.0765)
3. Red Meat Snacking (P.PSH.0844)

4. Grass Seed Spotting (P. PSH.1017)
5. Dag Prevention (P.PSH.0700)
6. Animal Identification, Tracking and Traceability (P.PSH.0752)

During the past 12 months, the Innovation Manager has led a project portfolio review that contributed to the partnership deciding to pursue only projects 3 through 6, with Smart Packaging and Smart Tattoo projects being terminated for commercial reasons and/or misalignment with strategic objectives. For these ongoing projects, the Innovation Manager has assisted the project teams to redefine new milestones, activities, and timelines to align with the new project governance and management processes. This work has been focussed on conducting a shared Intent meeting and the planning and execution of Phase 1 and 2 activities. Project Managers have reported a vastly improved customer / stakeholder perspective as well as greater emphasis on determining market viability and criteria for project success. Whilst only early days, the insights uncovered through a customer / stakeholder focus have had a material impact on the direction and outcomes of these projects.

5 Recommendations

Given the positive developments to date, it is imperative that the partnership continues to operate under the refined design thinking model.

The following recommendations are important to achieve the best possible partnership outcomes:

- Continue with a further 12-month contract for the Innovation Manager. There is a need for the partnership to continue to fund the Innovation Manager role, especially at a project level, to ensure that the project methodology and processes are embedded into the fabric of each project and the appropriate level of real-time fine-tuning is made. Working together with the small number of MLA staff experienced in the theory and application of design-led thinking will achieve more widespread understanding, education and use of the model and tools throughout the organisation.
- Empower the Program Leader with the appropriate delegated authority to effect the necessary change and progress, and ensure regular contact with the Innovation Manager
- Continue to utilise the Partnership Intent discussion as the cornerstone to a transparent relationship, leading to improved project outcomes, and
- Commit to refinement and streamlining of the project proposal and accounting system to allow for more flexibility and agility to respond to new information that arises during the execution of projects.