final report

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Prepared by: **Petra Andren**
ATP Innovations

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Meat and Livestock Australia Limited
Locked Bag 1961
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ATP Innovation Multiplier Program

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ATP-Innovations (ATPi) – Multiplier Program

MLA has been selected as a key industry partner in the ATP Innovations Multiplier Program, joining Woolworths, Optus, IAG and Cook Medical as inaugural partners.

The Multiplier Program is an industry engagement program established by ATP Innovations to connect Industry with innovative advanced technology Startups and Researchers.

The program enables invited industry participants to tap into ATPi's curated community and explore how up-and-coming start-ups and research initiatives can make a difference to their companies and the synergies that can be exploited for mutual benefit.

The aim of the Multiplier Program is to increase the quantity and quality of collaboration between Industry, Research and Start-ups, utilising the world-class research that comes out of our institutions to help shape our futures industries and generate economic prosperity.

As a Multiplier Program partner MLA has been invited to identify area of interest from which ATP innovations will 'scout' for suitable innovators from (but not restricted to) its community of over 70 tech start-ups and its deep connections its four university shareholders USYD, UNSW, UTS and ANU.

The Format

MLA has been invited to a session outlining areas of interest for innovative solutions followed by individual meetings with a selected shortlist of founders and researchers. This will be based on (but not restricted to) MLAs briefing (comprising this document along with MISP and AIP).

ATP Innovation's will select and invite appropriate start-up founders and researchers from our portfolio companies and stakeholders to take part in these sessions. MLA will send a team of 4 senior staff to participate in these sessions.

The Multiplier Program will culminate in an end of year 'Nobel style' awards ceremony where ATPi will celebrate science and innovation by giving away a cash prize to the most disruptive innovator.

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1.0 MLA Project Ideas

	Issue or Opportunity	Priority 1-5 (5 lowest)	MLA Business Unit Supporting Suggestion
1.	Spaying and 12 month birth control for cattle	2	OIA
2.	Single shot vaccine delivery system	1	OIA
3.	Painless castration	2	OIA
4.	Managing Wild Dogs – keeping dogs away from livestock	2	OIA
5.	Kangaroo control – keeping kangaroos away from livestock grazing areas - non lethal management – reducing competition for forage	1	OIA
6.	Painless dehorning	2	OIA
7.	Weed control in remote areas. May require identification (what and where), deployment of control measures (from robots to seeking cattle/ sheep to eat the weed)	2	OIA
8.	Cheaper fencing that can control, livestock movement, through to stopping wild dogs and kangaroos (and wombats)	1	OIA
9.	Extension and education to change farm practises to ~60,000 farmers	1	OIA
10.	Improving rumen take up of nutrients for more productivity	1	OIA
11.	Reducing livestock methane	2	OIA
12.	Managing total grazing pressure – not just relying on fences and fixed water points to manage desirable (sheep/ cattle) and undesirable (roos, goats) herbivores	2	OIA
13.	Managing/eradicate/control Cattle Ticks	1	OIA
14.	Extension in rangelands (more northern focus)	2	
15.	Automated measurement of live animal age to within 2 weeks – taken between birth and 2 years of age	2	LP
16.	Cheap permanent visual recognition of individual animals from birth without human interventions – metrics to ensure lifetime tracking of animals regardless of if they have been tagged previously, and if they have lost tags over time, etc	2	LP
17.	Tracking feed conversion from pastures at a mob level and using algorithms/? to estimate individual performance	2	LP
18.	Improving productivity gains	2	OIA
19.	Managing/control/eradicate Buffalo fly	1/2	OIA
20.	Stopping flystrike in sheep	3	OIA
21.	Non-invasive way of determining pregnancy	1	OIA
22.	Better soil diagnostics in the paddock for decision making – including “soil health” and soil moisture content	1/2	OIA
23.	Determining yield (and body composition, for farm management) of an animal, cheap tool for producers	1	OIA
24.	Determining yield of a paddock and farm easily	2	OIA
25.	Simple way of determining tenderness of meat (more		LP

	conclusive than shear force)		
26.	Unlocking P in the northern production systems (high pH)	2	OIA
27.	Improving soil pH in low pH soils	2	OIA
28.	Making rain (or irrigation of paddocks with little water)	1	OIA
29.	Predicating major weather events (including heat) days before the event hits	1	OIA
30.	Remote calving alert	2	OIA
31.	Ear tags that don't fall out and follow cattle for life	1	OIA
32.	Management framework for improved beef productivity and benchmarking industry practices	1	OIA
33.	In paddock diagnosis for intestinal worms (Barbers worm pole, etc)	2	OIA
34.	Novel solutions for management of intestinal worms	1	OIA
35.	Novel management of weeds in paddocks	1	OIA
36.	Enablers to facilitate automated beef carcase breakdown such as clean deboning of primals, or seam separation of muscles;	1	VCI
37.	The ability to track sub-primal products (ie; bone-in or de-boned muscles) through a processing plant, from slaughter to load-out	1	VCI
38.	The ability to evaluate the eating quality of red meat products	1	VCI
39.	The ability to use 'big data' collection and mining, to predict availability of suitable livestock for consumer market segments	1	VCI
40.	The ability to optimise or explore the combination of red meat and other natural flavour notes to enhance the eating or nutritional experience of consumers	2	VCI
41.	What will the next generation of robots be able to achieve on-farm and in-plant, and how will they be programmed	1	VCI
42.	How do you best connect the livestock grown to the consumer that will pay for it, and create an efficient logistic	1	VCI
42.	Detection of very low levels of (specific kinds of) bacteria on carcases within a few seconds / minutes	1	VCI

2.0 Background

The ATPI was founded in 2000 by four Australian Universities – University of Technology Sydney, University of Sydney, University of New South Wales and Australian National University – ATP Innovations has a client portfolio of more than 70 high growth startups working on novel products in life sciences, hardware and enterprise software technology sectors. Our full-time mentors have over 50 years of combined experience working with early-stage technology businesses, helping them raise over $150 million, sell products across the globe, and for eight, exiting their business via a trade sale or an IPO.

3.0 Automed

Automed is a comprehensive system designed to provide solutions to challenges surrounding compliance and traceability for the intensive livestock industry. Not solely focused for helping on the farm, the automed system will allow pharmaceutical companies and customers along the supply chain to also benefit from key features created to bring more reliability, accuracy and efficiency across the industry.

4.0 Swagbot

The ACFR has been conducting research in autonomous, remote sensing and developing robotics and intelligent software for the environment and agriculture community over the last 10 years. SwagBot is an omni-directional electric robotic ground vehicle. It has a rugged composite chassis and is capable of navigating through rugged terrain. It has successfully demonstrated the ability to operate in the rugged cattle station environment. Future research will be applied toward autonomous farm activities including monitoring and interacting with plants and animals.

5.0 Institute for Sustainable Futures

Arian is a Chancellor's Postdoctoral Research Fellow within the Centre for Compassionate Conservation. Her research investigates the ecological role of large predators on biodiversity and functioning of novel ecosystems. Her fieldwork is mainly conducted across the Australian arid zone, where she is researching the influence of dingoes on biodiversity and native-non-native coexistence. Arian's research has challenged established paradigms on the cause and treatment of biodiversity decline in Australia, by showing that protecting dingoes enables species to thrive in modern ecosystems, and that lethal control of introduced species is both unnecessary and counter-productive.

Louise Boronyak is Senior Research Consultant and has expertise in environmental sustainability and stakeholder engagement. Her research focuses on natural resource management and the intersection of animal welfare and conservation biology. Louise has strong interpersonal skills and has experience in designing, facilitating and evaluating stakeholder and community engagement activities. Louise has worked on a number of research projects that have focused on climate change mitigation and adaption. Her work on the Bushfire Partnership project was highly commended in the Resilient Australia Awards 2013. This project engaged communities in Sydney to be better prepared to deal with bushfires, while also protecting local biodiversity. For the past two and a half years

Louise has been working in the Natural Resources research stream of ISF. She is also the General Manager of the newly established Centre for

Compassionate Conservation at the University of Technology, Sydney, where she works on projects that aim to conserve biodiversity in a way that does not impact the welfare of individual wild animals. Prior to working at ISF, Louise has worked both in Australia and internationally for start-up renewable energy companies.

6.0 Connected Cow

LiveCare has developed the first long term pH rumen bolus lasting the average lifetime of a beef animal. Currently, as seen in our competitor analysis, there are companies offering pH rumen bolus devices but these only have a lifespan of 100 days or even 5 years or lifetime of cattle after which time the bolus becomes inactive yet remains within the animal until slaughter. The problem with these boluses is that the rumen acid corrodes the sensor nodes rendering the bolus useless. ' *Our solution is to patent multi-node sensors, covered in biodegradable plastics*

(it is made of 'sugarcane') of different strengths (Australia IP)'. The goal of having biodegradable covers on the sensor nodes being that as one sensor node is corroded by the rumen acid, a second sensor node's covering will be finished degrading (naturally by the rumen acid) and be ready for use. Our R&D department tested the boluses and gauge the correct degradability needed for each node cover in order to develop sensor nodes within the bolus with the capability to measure rumen pH over a period of years rather than months or even exaggerating 5 years. Our extensive research into rumen pH measurement and, subsequent consultations has shown that this product has huge commercial viability. The major selling point of this is that our product would be the only rumen bolus in the world with the ability to measure pH levels in the rumen long-term, a revolutionary concept.

7.0 CheckVault (ATP Innovations portfolio company)

Checkvault is a transaction solution for SME's and Marketplaces. Their modular software allows their clients to customise their payment offering for complex payments such as escrow, split-payments, complex payment routing, and fully hosted applications.

8.0 Maia Technology

Maia Grazing is a cloud-based application that captures your real-time data. It provides you with a view of your grazing position at all times, enabling you to make decisions with confidence.

9.0 Multi Media / Data analytics lab UTS Researcher

Jian Zhang is a member of UTS's Advanced Analytics Institute (AAi) and the Big Data Technologies Centre (GBDTC), Faculty of Engineering and Information Technology (FEIT). As a research lab leader of Multimedia and Data Analytics, his research focuses on Industry management data analytics, surveillance video content analytics and social media analytics. He has actively engaged with research projects, supervised PhD research students, as well as developed new analytics courses. As a leading chief investigator, he has led more than 10 research projects with industry partners

including Microsoft Research, Nokia Research Centre and Huawei Technologies in US, Finland, Australia and China. Apart from more than 100 paper publications and book chapters from his research output, he was co-author of more than ten patents filed in US, UK, Japan and Australia including six issued US patents and one China patent.

10.0 Pallas Advanced Learning System (ATP Innovations portfolio company)

Pallas is an education technology company that uses AI and cognitives sciences with computer modelling to understand complex ideas and issues, such as climate and ecosystems. Pallas software has the potential to plug skills and information distribution gaps in the meat and livestock industry.

11.0 Rumen Neogenesis

Rumen neogenesis is working on a novel solution to rumen bloat in cattle. The major treatment involves an unwieldy 12cm sustained release capsule, expensive to buy and administer (along with risk of death). RNG is looking at affordable novel solutions, improving the health and welfare of livestock.

12.0 ITL Biomedical

ITL design and produce biological sampling systems for livestock producers, veterinarians, breeders, zookeepers, and other animal healthcare providers around the world. ITL's innovative TEGO™ products are made specifically for animals and the people who care for them. Our blood and fluid collection devices for disease detection, pregnancy testing , and DNA testing are designed to be safe for the handler, cost effective, simple to use, and, above all, easy on the animals. At ITL BioMedical Animal Healthcare, we are committed to enhancing safety, efficiency, and reliability through innovation.

13.0 Entropro

Entopro is an insect-powered, nutrient recycling company. Entopro harness the natural digestive properties of insects to bio-convert low-value food waste into high quality protein for animal feed. We mimic nature in everything we do, so there is zero waste, because the insect poop is a valuable, rich organic fertiliser with an ideal NPK value for crops and gardens.

14.0 LX Group - Smart Elements

Smart Elements are the sensors that will monitor your entire farm, all of the time, in the simplest possible way. Deploy your own local network with massive wireless range, and add a huge variety of sensors for peace of mind and better decision making. LX is a product design consultancy providing a high-quality, comprehensive and efficient product development service for clients locally and internationally. LX offers a full range of product development services from concept generation, research and prototyping through to volume manufacturing and onsite engineering contracting.