Australian Government
Department of Industry, Innovation and Science

Maximising SME use of Australia's **Innovation Lab** infrastructure - Consultation Paper

February 2018

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Purpose of this Paper

The Department of Industry, Innovation and Science (the Department) would like your ideas to help shape the $10 million Innovation Labs initiative, announced as part of the Australian Government's $100 million Advanced Manufacturing Fund.

The proposed Innovation Labs initiative will help manufacturing Small and Medium Enterprises (SMEs) in South Australia and Victoria build their capabilities. The initiative will focus on enhancing manufacturing business capability in the digital age, while improving the use of existing innovation lab infrastructure by manufacturing SMEs. Some examples of innovation labs in Australia include:

- Tonsley Manufacturing Innovation Hub;
- CSIRO's Lab 22;
- RMIT's Additive Manufacturing Testlab and Flinders University's Centre for NanoScale Science and Technology;
- other research facilities such as the Australian Synchrotron; and
- State-based initiatives such as the South Australian Government's virtual shipyard program.

The initiative will bridge the gap in current service offerings by ensuring eligible businesses can access a range of digital and other advanced manufacturing services, as well as existing innovation lab infrastructure, but will not fund new physical infrastructure. This approach is intended to help manufacturing SMEs create new products and adopt new business processes to assist in the transition from traditional to emerging forms of manufacturing.

Your responses to this paper will help the government tailor the initiative to meet industry needs and understand what would make the initiative successful, including:

- access to funding;
- what services should be funded;
- how the initiative should be administered; and
- the best metrics to evaluate the usefulness of the initiative in the transition towards advanced manufacturing.

Background

Australia's economy is in transition and with it our manufacturing sector. Manufacturing will continue to be important to Australia's economic growth and is a key part of having a diversified local economy. Its future lies in embracing new technologies and developing high value-added products and pre- and post-production services. As such, our manufacturing

businesses need to adopt new advanced technologies to maintain or improve market competitiveness.

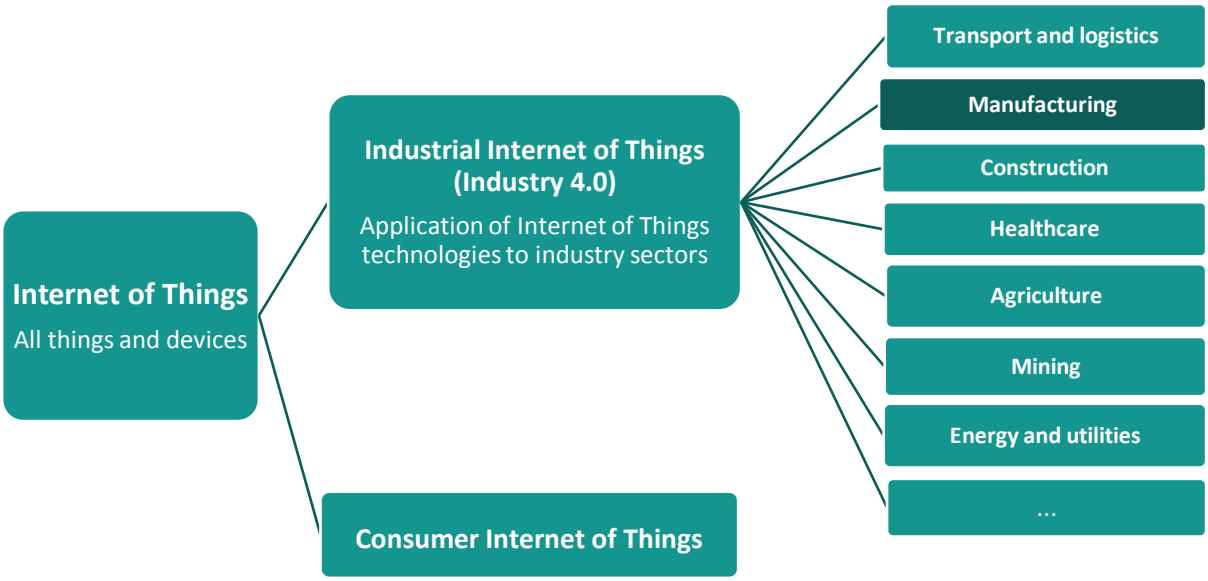
The proposed $10 million initiative will assist SME manufacturers based in South Australia and Victoria, including those in the automotive industry, on their journey towards digitally-enabled advanced manufacturing. This will enable improved efficiency and quality; reduce costs; and provide business insights to improve their decision-making.

The objective is for the initiative to provide businesses with advanced manufacturing technology guidance and solutions that are tailored to their needs, using strategic support to make the best use of existing innovation lab infrastructure and government programs.

The proposed initiative is part of the Australian Government's $100 million Advanced Manufacturing Fund (AMF) that aims to drive innovation in our manufacturing sector to create jobs, grow businesses, improve productivity and be globally competitive.

Advanced Manufacturing

Advanced manufacturing is intertwined with the fourth industrial revolution (Industry 4.0) and entails the application of advanced technologies to the manufacturing sector, from the laboratory bench to the manufacturing shop floor, to improve market competitiveness. The manufacturing sector captures activities such as food product manufacturing; transport equipment manufacturing; medical and surgical equipment manufacturing; and mining and construction machinery manufacturing. As such, advanced manufacturing cuts across industry sectors.



Enabling technologies for advanced manufacturing include automation and robotics; cloud connectivity, sensors and data analysis; advanced materials and composites; machine learning and artificial intelligence; nano, micro and precision manufacturing; biotechnology; and additive manufacturing (often referred to as 3D printing), to just name a few[1]. The proposed initiative will assist manufacturing SMEs apply these technologies and business capabilities throughout the entire value chain from product inception to logistics, sales and marketing and servitisation.

State of Play

There are a number of national activities, both commercial and public, that offer advanced manufacturing research and laboratory services to businesses, including, Factory of the Future at Swinburne University; Centre for NanoScale Science and Technology at Flinders University; RMIT Advanced Manufacturing Precinct; CSIRO's Lab 22; and other Australian research facilities such as the Australian Synchrotron. Collectively, these facilities are referred to as 'innovation labs' in this paper. These facilities offer targeted support, usually in the form of assistance with product development, test services or R&D, but few have integrated business capability development services to support and guide the business through the journey towards becoming an advanced manufacturer.

The proposed initiative aim to bridge gaps in the business journey through providing new and extended levels of industrial transformation and technology support and services, related to the adoption and application of next generation business models and technologies. It is not proposed that the initiative will fund expenditure on capital equipment or facilities.

An international concept similar to the proposed initiative is the European Network of Living Labs, which also has a heavy user-centric approach. It provides access to products and services in solving industry issues, rather than pushing technology onto companies[2]. The French government's 'Industry of the Future' project is another successful initiative that has a focus on solving industry problems in the take up of advanced technologies towards industrial modernisation in France[3].

In Australia there are numerous specialised innovation labs where businesses can gain specific technology and research support. These include:

- Tonsley Manufacturing Innovation Hub;
- CSIRO's Lab 22;
- RMIT's Additive Manufacturing Testlab and Flinders University's Centre for NanoScale Science and Technology;

[1] Advanced Manufacturing Growth Centre (2017). *Advanced Manufacturing Growth Centre: Sector Competitiveness Plan 2017.* Available online at: https://12262-console.memberconnex.com/Attachment?Action=Download&Attachment_id=15

[2] The European Network of Living Labs. Available online at: http://www.openlivinglabs.eu/

[3] International Trade Administration (2016). *Advanced Manufacturing in France: Convergence for the Industry of the Future.* Available online at: https://www.export.gov/article?id=Advanced-Manufacturing-in-France-Convergence

- other research facilities such as the Australian Synchrotron; and
- State-based initiatives such as the South Australian Government's virtual shipyard program.

The proposed initiative will create a pathway to and through these and other Australian initiatives, by providing funding for associated end-to-end capability building services.

The government is also establishing a new $5 million Industry 4.0 Testlabs initiative, expected to be delivered during the 2018-19 financial year. The Testlabs initiative is expected to fund capital expenditure to modernise research centres at educational institutions with Industry 4.0 technologies. These research centres would be available to provide practical guidance about technologies and processes to businesses on how to incorporate relevant Industry 4.0 elements into their operations. The Innovation Labs initiative will be able to connect businesses into these Testlabs, once they have been established.

Objective

The proposed initiative aims to enhance SME's advanced manufacturing capabilities by providing access to support services related to the adoption and application of next generation manufacturing approaches.

Proposed Implementation

The initiative is expected to be complementary to the Entrepreneurs' Program (EP) and dovetail with existing EP elements. The firms most likely to benefit from the initiative are those that have recently (i.e. the last couple of years) received EP Business Management services and demonstrated the potential for further transformation and growth by successfully implementing most of the recommended improvement action. As such, one option is to assign a merit-based gateway eligibility criteria for high potential South Australian and Victorian manufacturing SMEs.

Once the applicant is deemed suitable for extended levels of service, an experienced business advisor from EP will review the business operations and strategy, with an emphasis on digital growth opportunities. Various diagnostic tools will be used to provide a comprehensive 'deep dive' Industry 4.0 readiness/maturity gap analysis. Then a series of recommendations will be made to address gaps in skills, knowledge and technology. This will point the participant towards various existing government and external services available that can assist in implementing those recommendations. As such, the proposed initiative intends to fill an existing gap in service delivery rather than duplicate existing efforts.

Services to be supported by the initiative could include, but are not limited to:

- Business model innovation;
- Services to integrate digital technologies with existing products, manufacturing equipment and systems;
- Project advisory, feasibility and scoping services in the development of new products (preferably internet enabled) and servitisation solutions;
- Manufacturing leadership improvement;
- Direct incentivisation for collaboration; and
- Funding incentives to encourage and support the early adoption of new fee-for-service activities (such as the use of cloud-based software systems, data analytics and optimisation modelling services).

The recommendations will assist the participant in harnessing key advanced manufacturing value drivers. Examples of these drivers include: opportunities for new revenue streams and business models, connectivity to gain real-time data analysis, production, visibility and remote support; and flexibility and scalability of sensors to retrofit existing systems.

If off-the-shelf solutions are available for a particular industry problem, the EP Business Advisor will direct the participant towards those products or services. If an off-the-shelf solution is not available, and it requires access to specialised knowledge and equipment, the participant will be directed towards specialist services such as those mentioned above.

The company will then be able to take its particular industry problem to an innovation lab/research facility with subject matter experts to develop specific digital capability enhancements in collaboration with those experts.

The identified needs and expert collaborations could be funded through a ‘coupon’ system to access existing fee-for-service facilities. This avoids undercutting businesses already providing those services on a commercial basis. The maximum value of all services to any one participant is proposed to be $100,000.

The Government proposes to use an objective mechanism to determine the value of any individual service to be provided to a participant, based on that participant’s needs i.e. objectively determine that Participant A will require $25,000 worth of e.g. business model innovation services based on its needs, while Participant B will only require $5,000 worth of such services to address its needs.

The Government is disposed towards having an industry co-contribution amount to ensure commitment from SMEs in achieving the desired outcomes. It is proposed that any additional Government cash contributions would also be matched with equal additional industry cash co-contributions.

Questions:

1. Which particular services would you like to see offered via coupons by the initiative?
2. How much should participants co-contribute towards the services?
3. Are you satisfied with the maximum value of all services to any one participant to be $100,000? If not, what should that amount be and why?
4. What would be the best way to objectively determine the value of any individual service to be provided to a participant?
5. Are there any other implementation design changes that you'd like to make in ensuring the initiative achieves its desired objective?
6. What is the best way to capture the performance of the initiative?
7. What other performance measurement metrics would you like to suggest in addition to those mentioned on page 9?

Possible Measurement Metrics

Below table contains possible measurement metrics that can indicate the success of the initiative.

Innovation Lab Outcome	Key Performance Indicator	Possible Measurement Metric
Participants improve their business systems and processes	Percentage of relevant participants who demonstrate that their advanced manufacturing management capability has improved	Ratio of participants who receive advanced manufacturing management capability recommendation(s) vs those who implement it (by service, priority, category and impact type)
		Change in participants' operational and/or strategic management capability
Participants improve their ability to innovate	Percentage of participants who demonstrate an improved ability to innovate	Percentage of participants introducing new advanced products, processes or services post participation
Participants improve their business performance	Percentage of relevant participants whose business performance improves in relation to their previous performance and/or a control group, or industry norm	Change in participants': - total sales - productivity (Total sales/wages, salaries and other payments) - export sales - other GST-free sales - gross value added (GVA: Total Sales – Non-capital purchases) - export intensity (Export sales/ Total sales)
Participants value the program	Satisfaction levels amongst participants with the services they received	Level of participant satisfaction and dissatisfaction with the services received (facilitation, advice and guidance)
		Proportion of systemic issues identified through feedback that result in initiative delivery changes

Your Views – Have Your Say

To get involved in shaping the initiative to fit your needs, join the online discussion at: https://consult.industry.gov.au/industry-growth/maximising-sme-use-of-australia-s-innovation-lab/

You can make a submission through our Consultation Hub, email at Advanced.Manufacturing@industry.gov.au or mail your submission to:

Advanced Manufacturing Section
Department of Industry, Innovation and Science
GPO Box 2013, Canberra ACT 2601

You can submit your feedback on the Consultation Paper until 19 March 2018.