

# Advanced Manufacturing ITP Scope

July 2021

## Background

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### Productivity challenge

New Zealand has a productivity challenge. The average New Zealand firm produces just over half of the total outputs produced by a similar firm in other Small Advanced Economies (SAEs) using the same amount of labour input. This weak relative productivity performance is clear in the majority of broad industry categories. Despite being substantially behind labour productivity levels in other SAEs, New Zealand shows little sign of catching up.<sup>1</sup>

Manufacturing productivity growth remains middling compared to other New Zealand industries. Meanwhile, manufacturing globally is undergoing a significant shift through the application of Industry 4.0 and related technologies, with likely disruption to value chains, business models, and business processes. Significant improvements in productivity, efficiency and reduced design/development time are expected. These changes are reshaping the competitive landscape and manufacturers are increasingly forced to grapple with how and where to invest in, and adapt to, Industry 4.0 and related technologies.

### The Advanced Manufacturing Industry Transformation Plan

Manufacturing in New Zealand is a broad and diverse sector. Given its interconnectedness with other sectors and potential for technology adoption, a thriving manufacturing sector is an important element for creating a more productive, sustainable and inclusive economy.

To help realise the sector's potential, the Advanced Manufacturing Industry Transformation Plan (ITP) is being developed to:

- help lift the sector's productivity, sustainability, inclusivity and the quality of work
- grow aspects of manufacturing where New Zealand has an existing or emerging competitive advantage.

ITPs bring together all relevant parties around an industry to agree a long-term vision for the industry, and identify the actions that can be taken by industry, government and others to realise this vision. More information on Industry Policy can be found at <https://www.mbie.govt.nz/business-and-employment/economic-development/industry-policy/>.

This scoping document outlines the focus and direction of the Advanced Manufacturing ITP based on initial stakeholder engagement on the challenges and opportunities facing the sector.

## Manufacturing's role within the New Zealand economy

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Figure 1 below highlights the degree to which manufactured goods are part of our everyday lives. However, the significance of the manufacturing sector's contribution to the economy and employment is often not well understood.

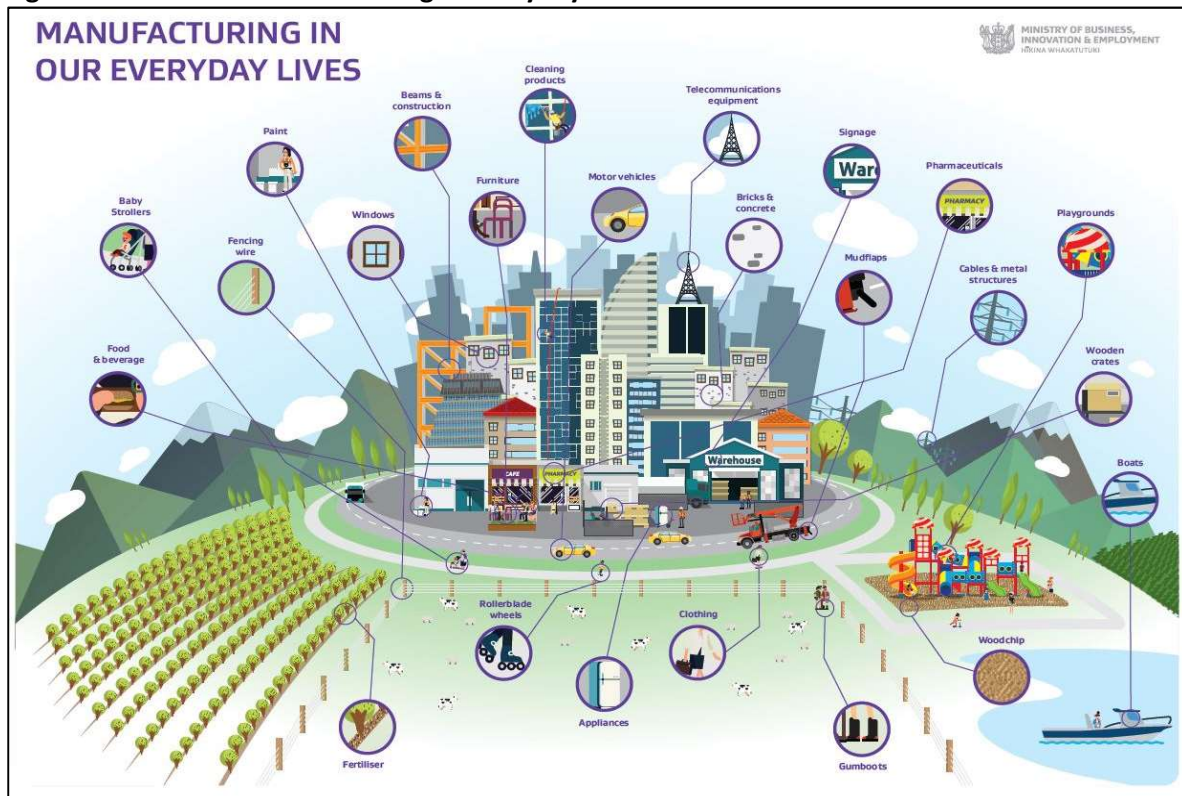
This is perhaps partly because much of what New Zealand manufactures is an input into a domestic or global supply chain, rather than producing a final retail product for the public. It may also reflect that New Zealand has relatively few large manufacturers to give the sector public recognition. Only 4 percent of the 21,528 manufacturing firms are large firms with more than 50 employees, and these

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<sup>1</sup> Zheng, G., Hoang, D. & Pacheco, G. (2021). Benchmarking New Zealand's frontier firms, New Zealand Productivity Commission (pages 9 and 25). Available from [www.productivity.govt.nz](http://www.productivity.govt.nz)

are considered small by international standards. Most manufacturing firms in New Zealand (90 percent) have fewer than 20 employees.

**Figure 1: The role of manufacturing in everyday lives**



Despite not being well understood or recognised, the sector generates approximately 11 percent of GDP. It also accounts for 60 percent of New Zealand’s total exports, the majority of which are food and beverage products.

Manufacturing is also a significant contributor to employment nationally and regionally. Over 244,000 people are employed in the sector, including a high number of Māori (35,000) and Pacific Peoples (24,100). Approximately 9 percent of Auckland’s workforce and 12 percent of Southland’s workforce are employed in manufacturing, indicating its importance to securing the economic and social wellbeing of regions.

## Defining advanced manufacturing

Advanced manufacturing relates to how products are manufactured, rather than what products are manufactured. It means looking across manufacturing and understanding how to advance the processes, systems, technology and skills involved.

This recognises:

- that improving manufacturing processes, systems and technologies can increase a firm’s ability to add value and maintain or gain international competitiveness
- the potential for a range of manufacturing sub-sectors to drive productivity improvements, rather than focusing on a small number of manufacturers developing high-tech products
- that because manufacturing is highly interconnected both within the sector (e.g. low and medium tech manufacturers produce components for high-tech manufacturers) and across other sectors through supply chains, additional gains can be generated across the economy.

## There are two core features for the ITP scope

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The ITP scope has been developed following stakeholder engagement with businesses, workers, Māori, government agencies, and other key stakeholders.

The focus of the ITP will be to address the challenges and exploit the opportunities outlined below so the sector can be more productive, continue to move from volume to value, and improve international competitiveness.

The ITP will have two core features:

- Building the sector's capability to drive transformation. This includes attracting and developing a skilled workforce, growing productive and customer-focused firms, preparing for a low carbon and environmentally sustainable future, and maximising our global brand and international connections.
- Identifying opportunities to grow the sector by supporting high potential areas where New Zealand manufacturing has an existing or emerging point of competitive advantage.

### ***A) Building the sector's capability to drive transformation***

The sector faces a number of challenges that need to be addressed, and opportunities that can be enabled to help lift productivity, sustainability, inclusivity and the quality of work. These broadly fit into four key themes:

1. Attracting and developing a skilled workforce to address skill shortages and manage the transition to increased use of Industry 4.0 technologies
2. Growing productive and customer-focused firms through greater capital investment, innovation, customisation and servitisation
3. Preparing for a low carbon and environmentally sustainable future
4. Maximising our global brand and international connections to support export growth.

#### **1. Attracting and developing a skilled manufacturing workforce**

**Attracting new staff:** Recruiting workers with the right skills can be difficult because there is an ageing workforce, strong international competition for skills, and a limited number of graduates and apprentices. The ITP will consider how:

- a pipeline of appropriately skilled workers can be created
- to enhance the manufacturing brand within education and skills pathways to lift the attractiveness of manufacturing as a career option
- to increase diversity at all levels within the sector, with a particular focus on women, Māori and Pacific Peoples.

**Upskilling existing employees:** Investing in worker capability through on-the-job training has been recognised as an important contribution to address skills shortages and manage the transition to increased use of Industry 4.0 technologies. The ITP will consider how:

- firms can address skills shortages through upskilling and training
- the introduction of new technology and equipment can be supported by on-the-job training of existing staff to ensure it is fully utilised
- the aspirations of Māori and Pacific Peoples working in this sector can be supported.

**Leadership and management capability:** A skills gap was also identified at management level regarding commercialisation, training, strategic planning and capital investment planning. The ITP will consider how:

- best to lift leadership capability

- to improve knowledge of the availability, value and application of more advanced manufacturing equipment and technology
- work conditions can be improved through automated machinery undertaking repetitive or riskier production, while reducing the reliance on overnight shift work.

## 2. Growing productive and customer-focused manufacturing firms

**Access to capital and investment:** Access to capital and investment can be challenging and hinder further investment in new technology or innovation through research and development. The ITP will consider how:

- risk/growth capital can be more widely accessed to ensure greater investment in equipment and technology to boost capacity, capability and productivity
- transitioning to low or carbon neutral manufacturing will affect manufacturers' need for investment
- innovation can be driven through more commercialisation-focused R&D. This includes a focus on the adoption of innovative business models, knowledge and techniques.
- how investment barriers for Māori firms can be addressed.

**Targeting customer need:** While expanding into new overseas markets remains challenging, there are opportunities for manufacturers to target niche markets with high value, innovative, or bespoke products. The ITP will consider how:

- better to understand global trends and market demands and target these demands by being nimble, agile, and responsive
- to meet the growing demand for 'servitisation' (using services as a growth driver) of manufacturing by providing complementary services such as design, set-up and installation, real-time data, customer service, and maintenance and repair
- to leverage success and catalyse growth through other adjacent sectors e.g. primary and forestry sectors.

**Procurement:** Much of the sector sees government's procurement as an opportunity to support domestic manufacturers, drive innovation and smooth economic cycles through infrastructure spending. The ITP will consider how:

- to embed knowledge of procurement changes that place greater emphasis on the total public value across the project
- future procurement opportunities in New Zealand and Australia can be highlighted to prospective firms, or clusters of firms.

## 3. Preparing manufacturing firms for a low carbon future

**Environmental footprint:** Customer expectations and regulatory requirements around sustainability are rapidly changing, which provides an opportunity for firms who are able to understand and respond to these. The ITP will consider how:

- to boost the sector's capacity and capability to understand and address, environmental sustainability expectations and requirements
- to help the sector consider a move towards low emissions/circular business model manufacturing.

## 4. Maximising our global brand and international connections

**Market development:** Expanding into global markets can be expensive and time consuming, particularly for smaller firms specialising in niche or highly customised products. The more specialised a firm becomes, the greater market reach it tends to have to have. The ITP will consider how:

- to increase visibility and availability of existing government initiatives that support manufacturers to grow and access international markets
- the sector can be supported to maximise global connections and market access.

**International branding:** There is an opportunity for the sector to establish its point of difference internationally, and build a reputation for being an advanced manufacturing hub that produces niche, high value products. The ITP will consider how:

- to build New Zealand's brand as an advanced manufacturing hub.

## ***B) Building on existing and emerging competitive advantage to grow the sector***

The second key feature of the ITP scope will be exploring opportunities to grow the sector by identifying and supporting high potential areas within manufacturing. This will be centred on where New Zealand manufacturing has an existing or emerging point of competitive advantage.

Identifying where these competitive advantages are will be important in helping New Zealand become an international leader, and maintain international leadership, in key aspects of manufacturing.

### **Out of scope**

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Some stakeholders raised a number of challenges that are considered out of scope for this ITP. These include:

- Recent supply chain disruptions: The long term focus of an ITP does not align well with these shorter-term issues faced by New Zealand businesses. There is an active cross-government work programme addressing supply chain disruption as this affects many sectors.
- Immediate COVID-19-related support to the sector: The long term focus of an ITP does not align well with the short-term COVID-19-related issues faced by manufacturers.
- Import restrictions: Calls for direct import restrictions to boost domestic manufacturing do not align with the ITP principle regarding consistency with our international obligations and trade policy settings.

### **Your views**

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We invite you to indicate your interest in being informed as the ITP is developed by emailing [IndustryTransformationPlans@mbie.govt.nz](mailto:IndustryTransformationPlans@mbie.govt.nz).