

# The Rise of New Manufacturing:

*Transitioning Skills and Technologies into the Future*



Australian Government  
Department of Regional Australia,  
Local Government, Arts and Sport

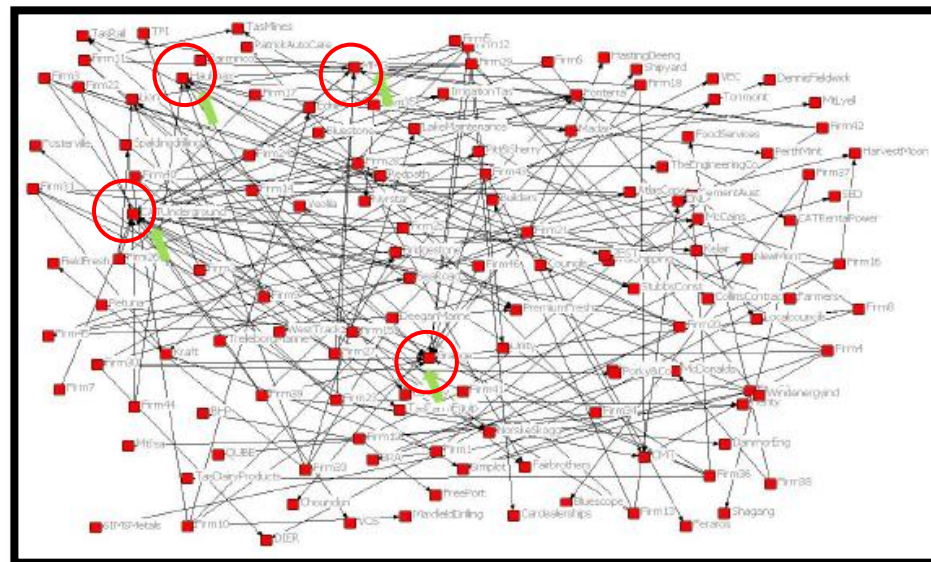


## Manufacturing in Tasmania

As it transforms, manufacturing is undergoing a series of critical transitions.

This presentation examines the how these transitions play out using a case study (*Mapping the Connections*) of a long-established manufacturing cluster with global significance.

We identify 3 important implications arising from these transitions.



*Mapping the Connections*- cluster of firms

# Tasmania, Australia

Population: 495,354  
 Land Area: 62,409 sq km



## North West Coast:

### Cities:

- Burnie (population 19,329)
- Devonport (population 24,615)

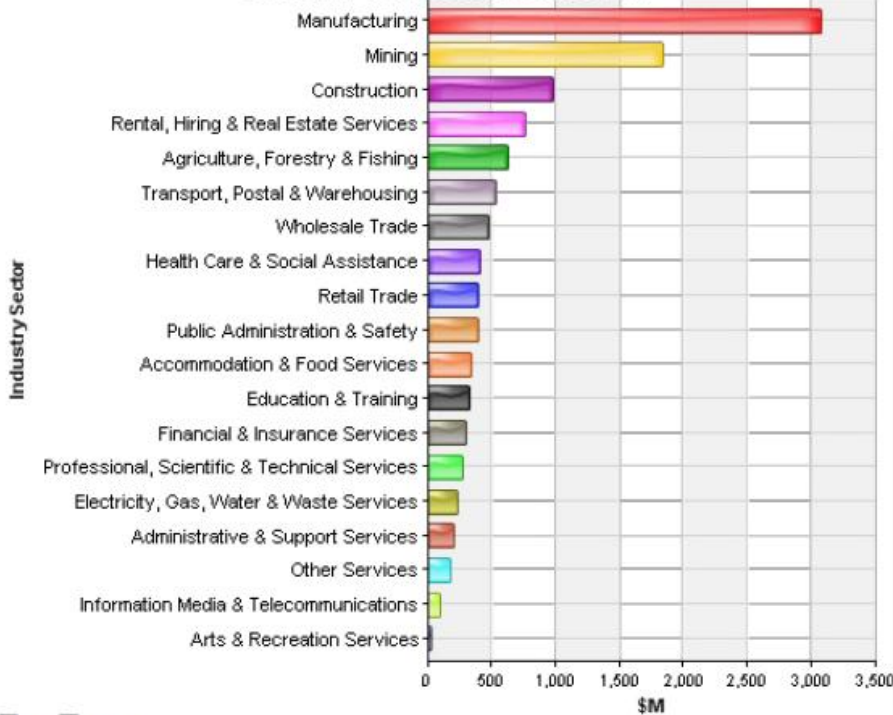
### Industries:

- Manufacturing
- Mining
- Construction
- Agriculture

**Total Output = \$11,481.818m**

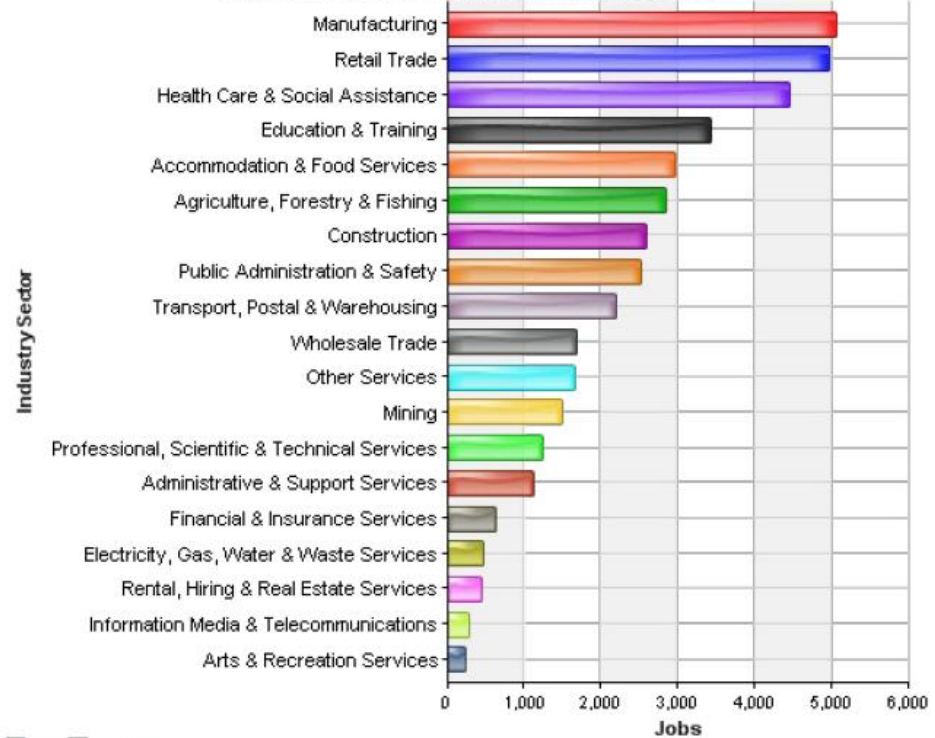
## Manufacturing in NW Tasmania...

Output (\$M) - North West Region (Dec 2012)



NW Manufacturing OUTPUT:  
**\$3,083.924m** (26.9% of NW total)

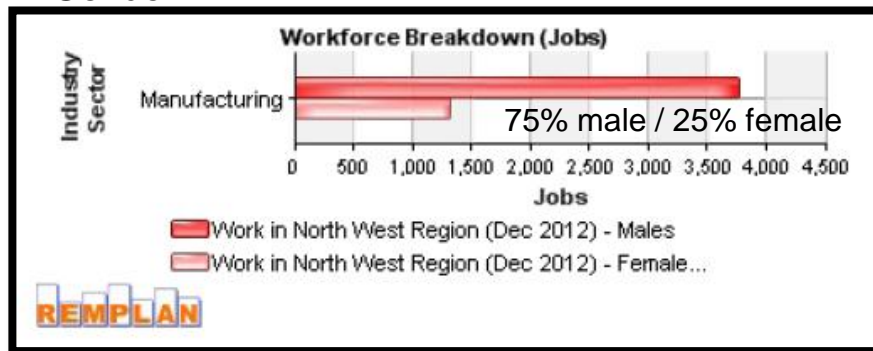
Employment (Jobs) - North West Region (Dec 2012)



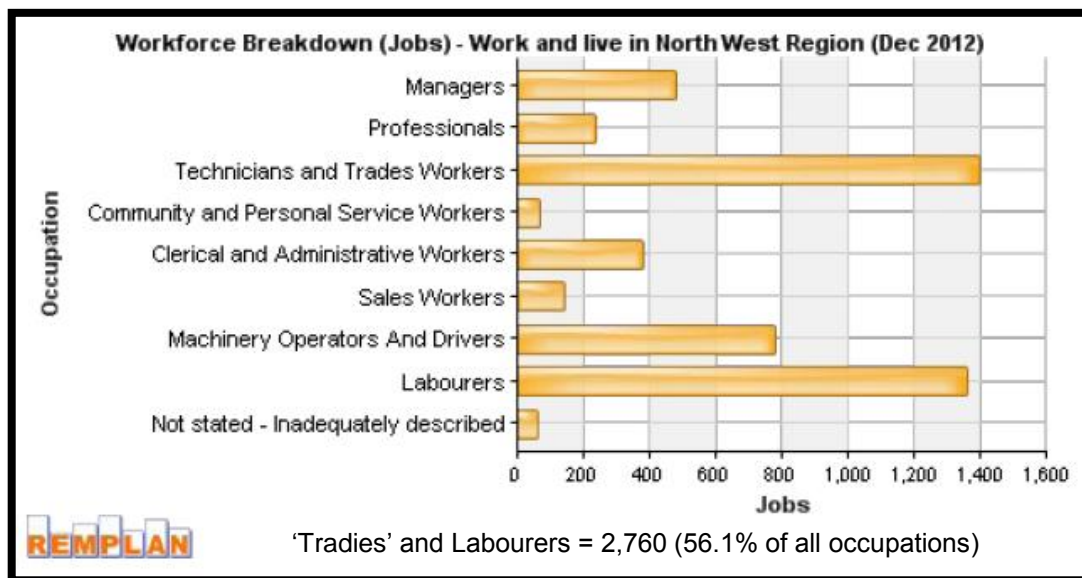
NW Manufacturing JOBS = **5,076**  
 (12.6% of NW total)

## Manufacturing in NW Tasmania...

### Gender

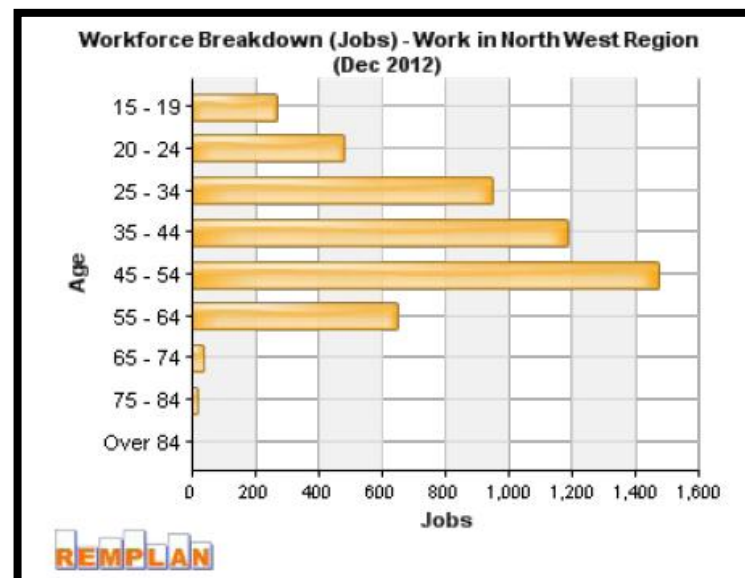


### Professions

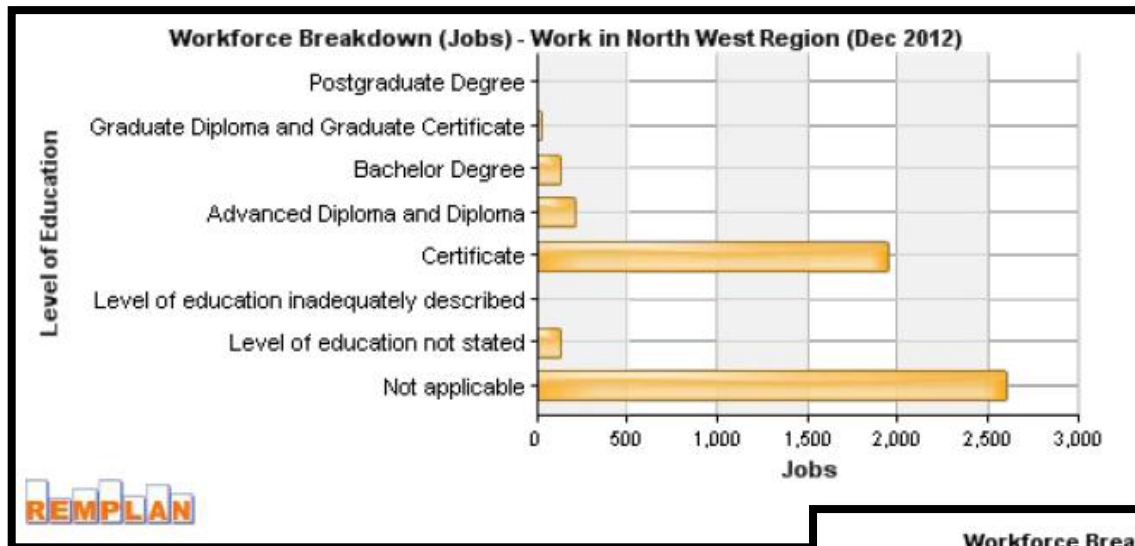


'Tradies' and Labourers = 2,760 (56.1% of all occupations)

### Age Profile



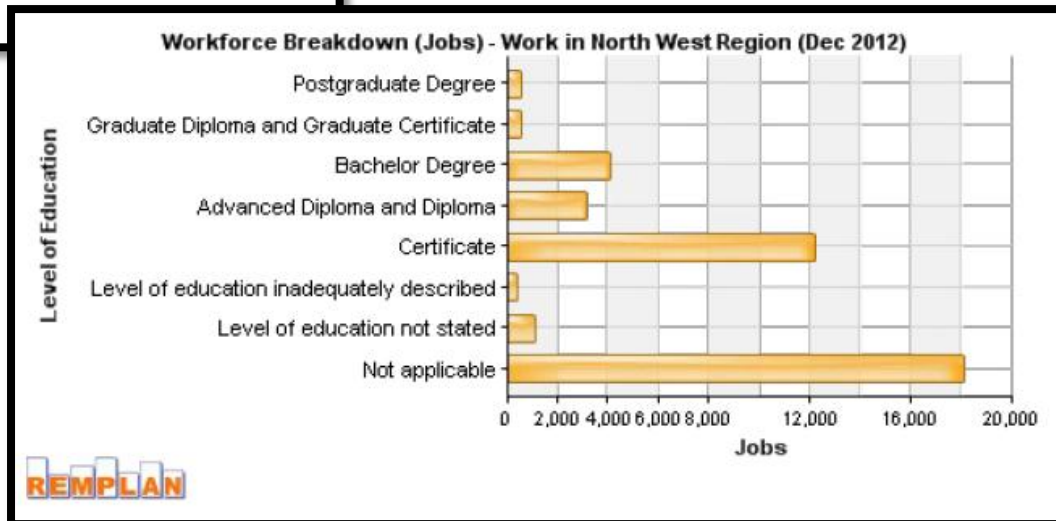
## Manufacturing in NW Tasmania...



## Manufacturing

Bachelor Degree or above = 179  
(3.4% of all jobs)

**General**  
Bachelor Degree or above = 5,305  
(13.2% of all jobs)



# Mapping the Connections study...

46 businesses interviewed

Focus areas for interviews:

- About the business
- Supply-chain linkages
- Education & Skills
- Regional Assets
- Competition and Growth

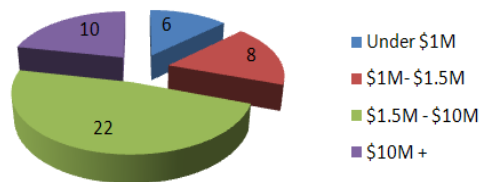
3 types of manufacturing: Equipment, Food Processing & Mining

Average age of businesses = 24 years

Average size of businesses =  $\frac{3}{4}$  SME's with annual of under \$10m

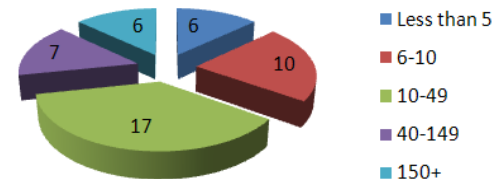


Figure 3.1: Turnover ranges of participants



Source: Interviews with North West Engineering Mapping participants

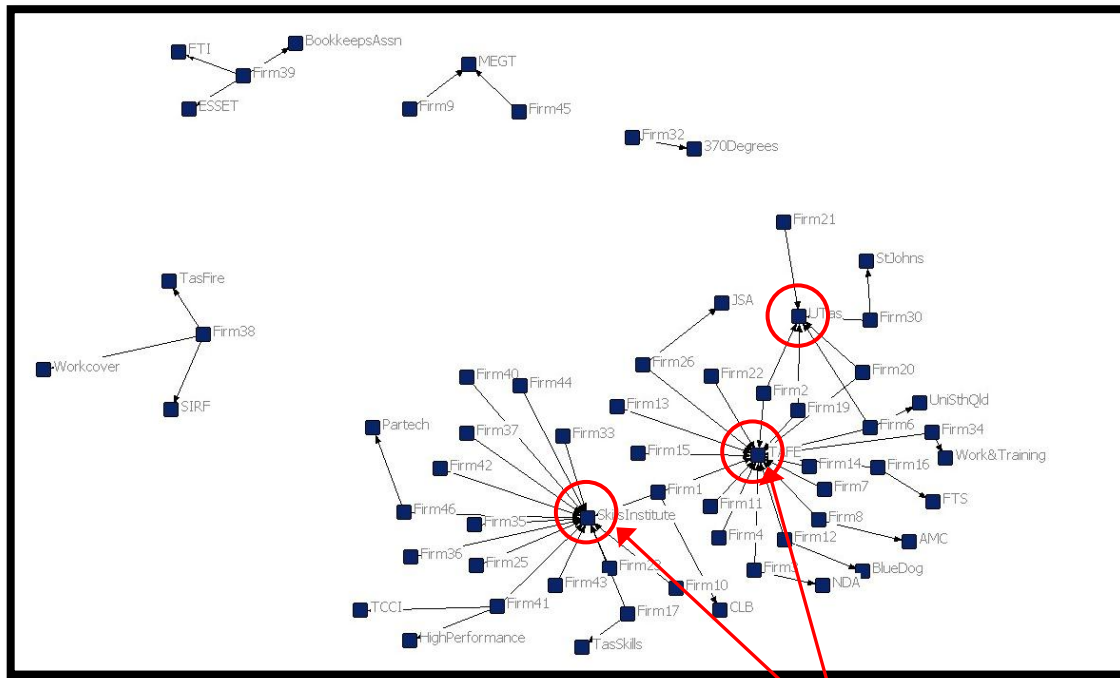
Figure 3.2: Number of employees per firm



Source: Interviews with North West Engineering Mapping participants

# Mapping the Connections

## Training & Professional Development



Most businesses use TAFEs



# Transitions

1. **Low to high value:**  
Shedding of low skilled jobs, recognition of the need for high skill jobs- pathways education, high tech/sophisticated equipment and high level skills
2. **From Black to Green manufacturing**  
Firms are beginning to talk and recognise sustainable practices and to supply it is a requirement/increasing expectation from customers.

***A growing relationship between the pipe fitter and the physicist.***



# Transitions

## 3) The game changers:

- Robotics (implications for skills), change in the processes, low volume high value add, supply chain implications on quality, skilling up local supply chains

## 4) Beyond products to services:

- General unawareness of the opportunities for firms to provide services as a 'value add'.
- Through Enterprise Connect and University intervention, sparked awareness and a need to for strategic intervention (e.g. *Manufuturing*).

## 5) New forms of partnerships:

- Professor Goran Roos – inner table vs outer table: great engagement from young staff in emerging businesses, trust and engagement between the businesses and the university. Not just consultation, but true engagement and collaboration.
- New forms/modes of dialogue
- Maintain workforce, but up-skilling and increasing productivity whilst doing so (added incentive for recruitment)



## Transitions in brief..

*Stability*

*Capability*

*Cognitive proximity*

*Regional characteristics demonstrate readiness for emerging development platform with the right strategic intervention*

*(Cook 2001; Harmaakorpi, 2007)*



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<https://mining.cat.com/>

# Skilling up for future success: *Skills, Training and pathways*



Growing recognition of the need to go from *low level skills to high level skills* (fewer positions, but more disposable income)

*Strongly embedded trades culture* and no clarity around how to transform those skills (O'Reilly-Briggs, 2010)

*Practice, change and productivity*: tension regarding the time and place of upskilling (increase productivity plus transformed skills suggests the solution is skilling on the job)

Proposal put forward: *Skilling the supply chain*

*Change in learning environments* and a shift to 'blended' curriculum – a significant challenge not only for industry, but also the university.

## Gearing-up for future success



- Identifying and articulating the *capability* of the technology platform?
- How do you *mobilise* the technology platform emerging?
- What are the best *strategic interventions*?

*Foster* cognitive proximity (complementary competencies- e.g. big machine harness design) (Lazzeretti, Capone & Cinti 2008)

# Clever solutions for future success: *New Dialogues*

- Catalysing change along the supply-chain
- Snowballing of localised 'know-how'

*Identified need for dialogue that builds on past development trajectories and presents future potential to produce competitive advantage, by leveraging resource configurations differently.*



Continuous Improvement Group-  
Visit to SIMPLOT Australia

## References:

- Lazzeretti, L., Capone F. and Cinti, T. (2008). *Regional Development Platform based on 'Related Variety': Some Evidences from Tuscany*. Orkestra, San Sebastián.
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- Cook, P. (2001). *Regional innovation systems, clusters, and the knowledge economy*. Industrial and Corporate Change. Vol. 10, No 4.

## Thanks to our partners:



**Australian Government**  

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