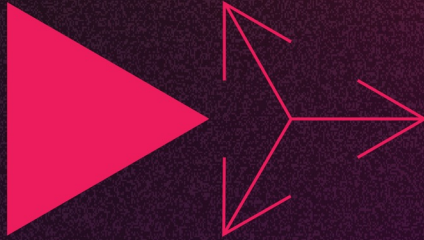


INNOVATIVE
MANUFACTURING
ACCELERATED

Thursday, 9 June 2022
8:00am-1:00pm
UTS Tech Lab Sydney



David Chuter
IMCRC

Closing Address

Forward thinking: What's next for Australian manufacturing

IMCRC | we champion
manufacturing
innovation


Australian Government
Department of Industry, Science,
Energy and Resources
AusIndustry
Cooperative Research
Centres Program

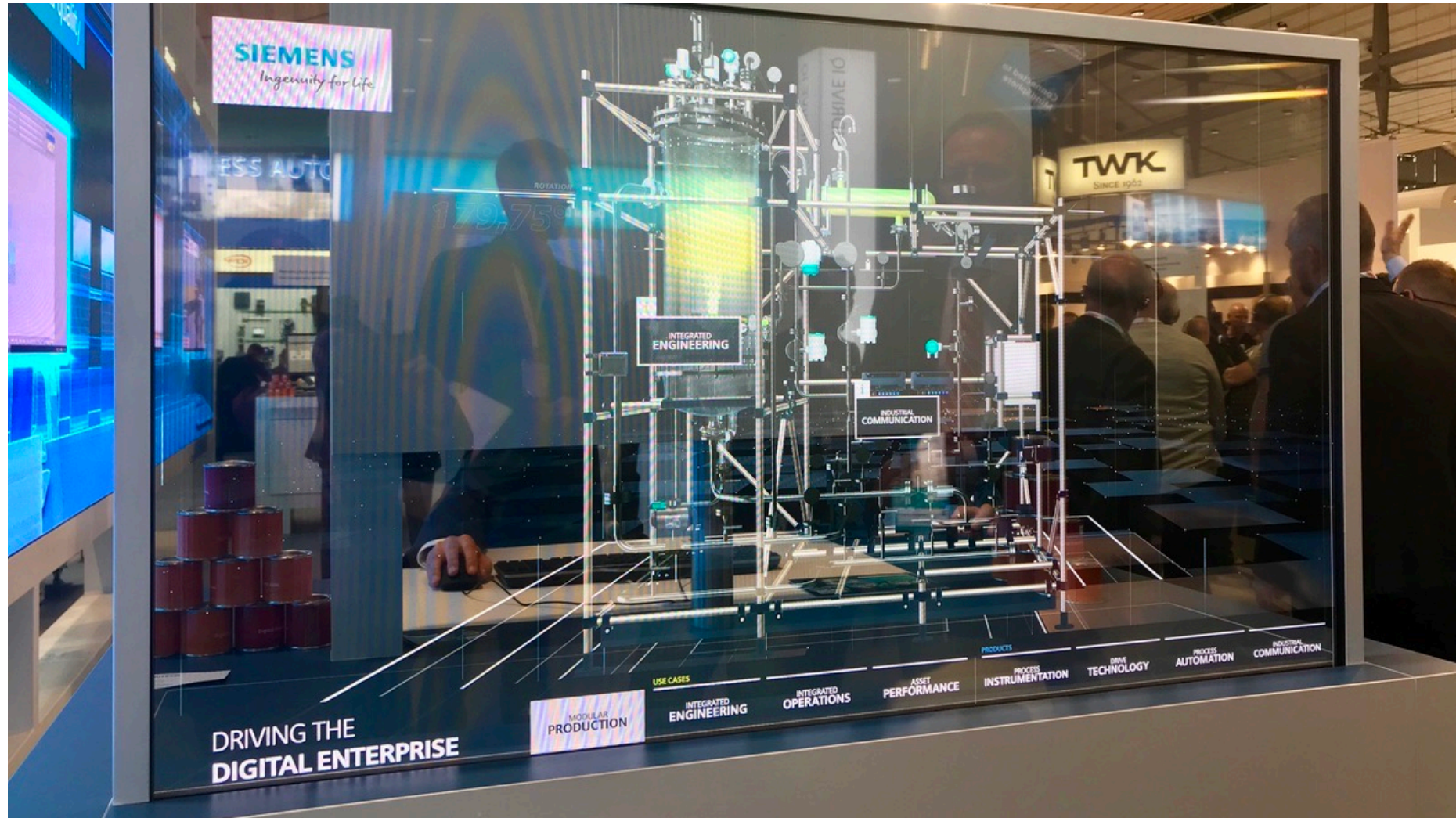
Hannover Messe – Industrial Transformation



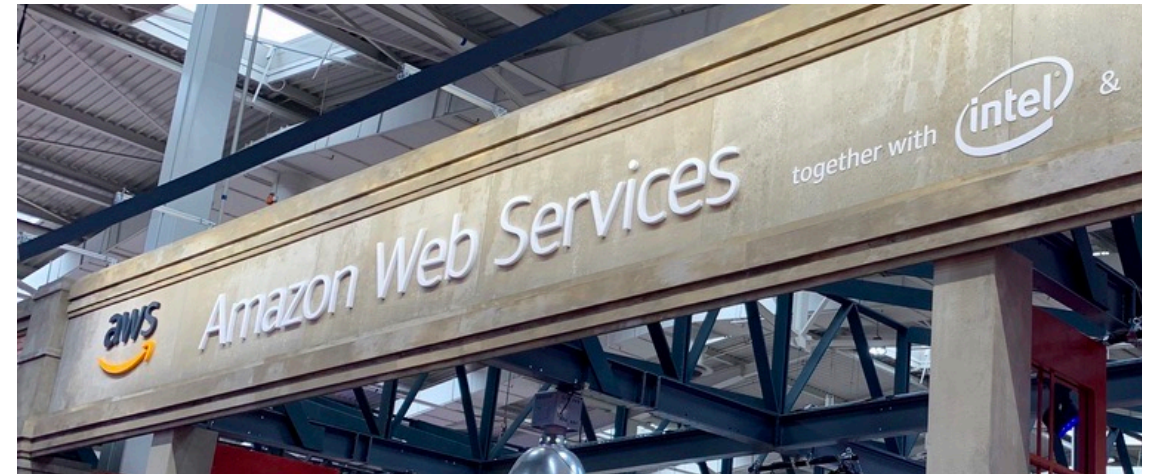
Hannover Messe 2017 – discrete technologies



Hannover Messe 2018 – digital twins



Hannover Messe 2019 – SAAS, visualisation



Hannover Messe 2021 – 2030 Industry 4.0 vision

2011

New-age production

The nine technologies that will collectively drive production in the future




2021

2030 VISION FOR INDUSTRIE 4.0

Shaping Digital Ecosystems Globally

PLATFORM
INDUSTRIE4.0

 More Information

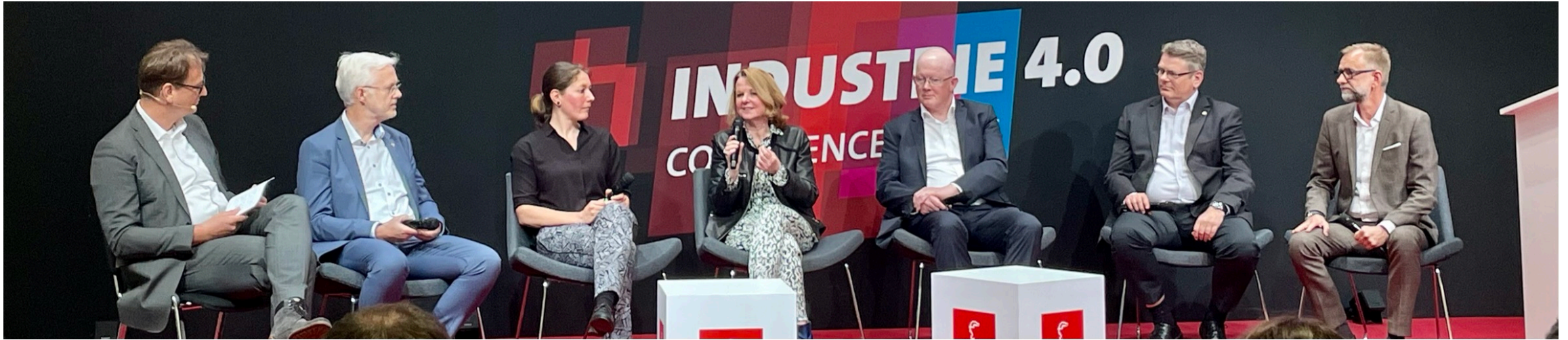
Interoperability

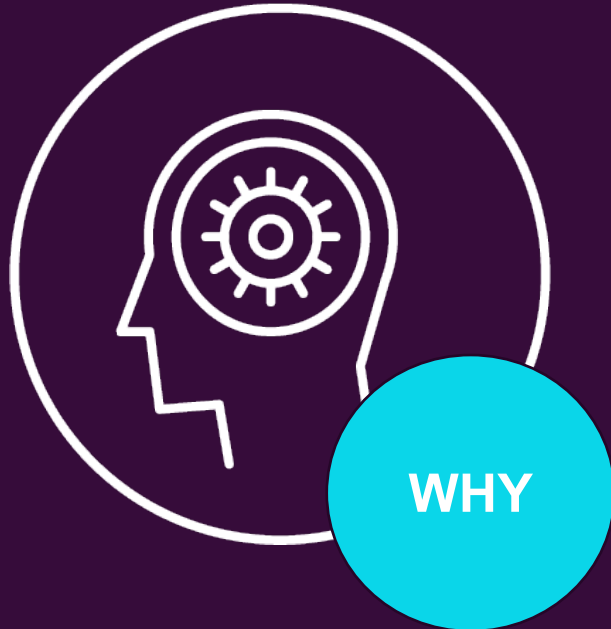
Autonomy

Sustainability

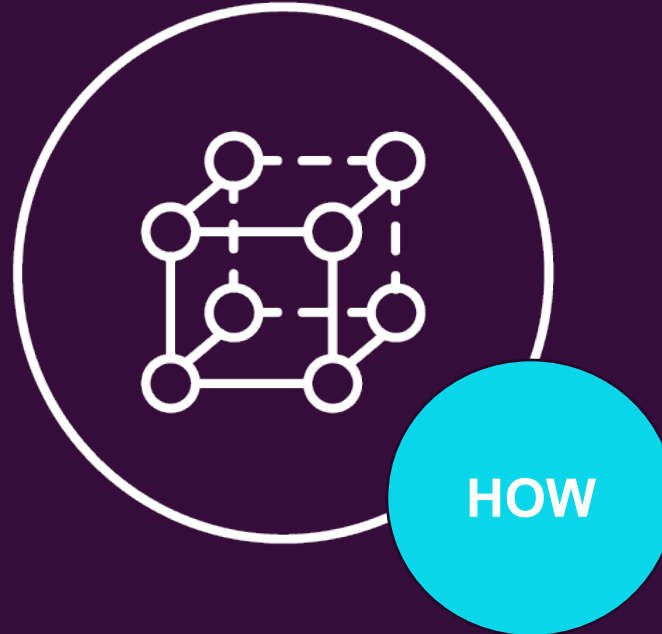
DE | EN

Hannover Messe 2022 – sustainability, data

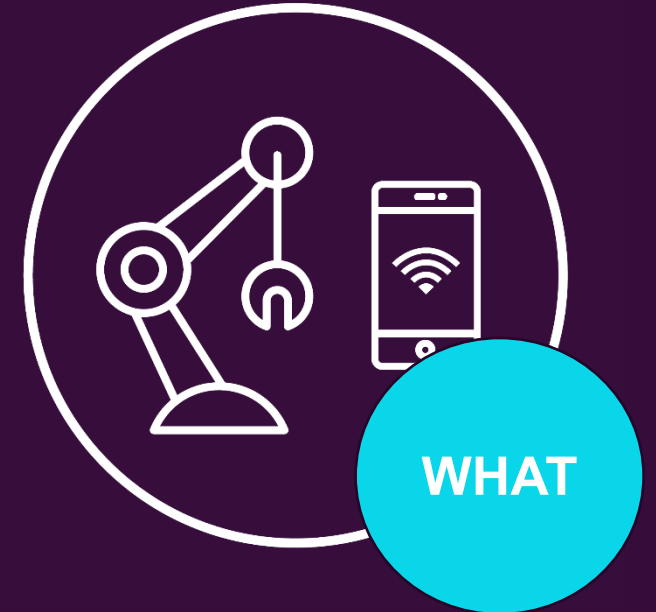




**MANUFACTURING
LEADERSHIP**



**BUSINESS MODEL
INNOVATION**



INDUSTRY 4.0

Industry 4.0 value proposition

Value capture – internal



Productivity optimization

- Data analysis
- Labour efficiencies
- Asset utilisation and uptime
- Maintenance by design
- Energy use
- Supply chain sequencing
- Production planning



Risk mitigation

- Materials as needed
- Inventory management
- Line of sight through value chain
- Virtual design and testing
- In market risk
- Resilience

Value creation – external



Incremental growth

- Connected products (IoT)
- Service opportunities
- Design, R&D
- Aftermarket engagement
- End of life management
- Customer analytics
- Customer strategic lock-in



New growth

- New products, processes
- New services
- New markets (incl global)
- Merger and acquisition

Industry 4.0 – what is it now enabling

Value capture – internal			Value creation – external		
Flexible production	Convertible factory	Optimised logistics	Use of data	Customer-oriented solutions	Resource-efficient circular economy
<ul style="list-style-type: none">• Every step digitally networked and coordinated• Machine load planning	<ul style="list-style-type: none">• Modular design• Productivity and efficiency step change• Affordable low volume batches• Mass customization	<ul style="list-style-type: none">• Algorithms determine routings• Optimal flow of goods• Automated machine scheduling and restocking	<ul style="list-style-type: none">• Product and process data combined• Predictive• Efficiency gain• New business models and services	<ul style="list-style-type: none">• Producers and consumers move closer• Customised design and manufacturing• Connected products driving further improvements	<ul style="list-style-type: none">• Entire life cycle approach• Data supported• Design phase determines recycle and reuse

Observations

- It is all about digitalisation and the data – internal and external + interoperable
 - Rapid emergence of machine learning, applied artificial intelligence
- Sustainability has emerged as a core industry 4.0 mission and opportunity / imperative
 - Carbon penalties, circular economies, social responsibilities + now energy security
 - Future of meaningful and valuable work, education, skills development (including green skills)
 - Resilience of supply chains + now resilience of economies

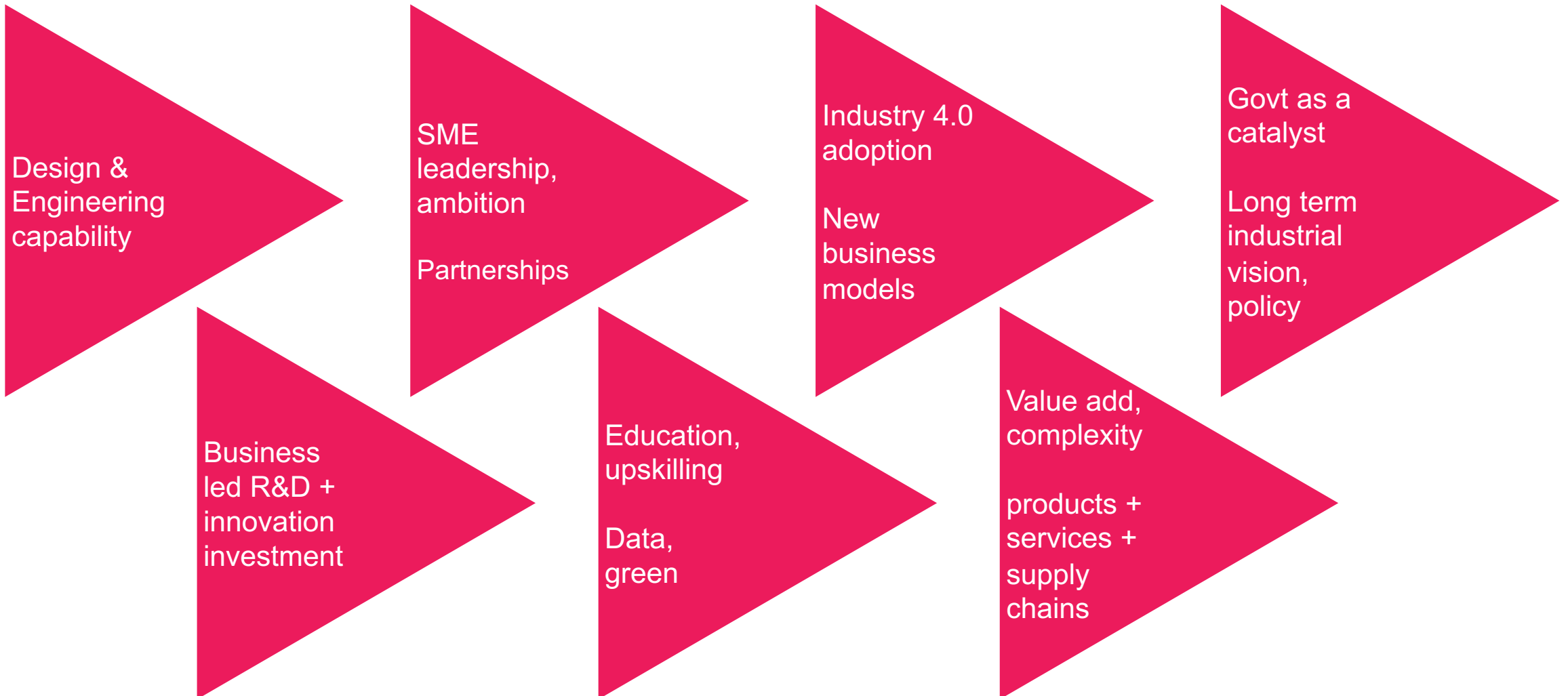


Observations



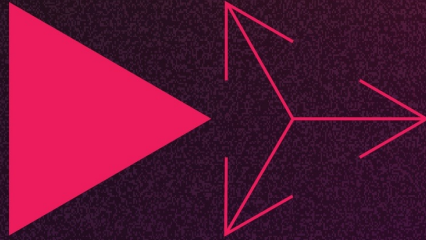
- Germany intends to continue to lead the digitalisation journey + Industrial AI (IAI)
 - Have the leading OEMs, platform providers and structure to do this
 - Urgent need to drive innovation, capability strengthening + accelerate Industry 4.0 uptake
- We (and probably many others too) are some way behind
 - Focused on the technology and equipment to upgrade (but this isn't made in Australia)
 - Less on the value proposition or the business model opportunity
 - *The early adopters are reaping the rewards*

What do we need (a lot) more of?



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