

“

One hundred inspired New Zealand entrepreneurs can turn this country around. This is the challenge for us all”

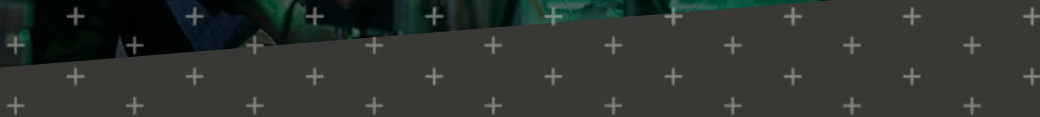
Sir Paul Callaghan, 1947–2012



CallaghanInnovation

New Zealand's Innovation Agency

Industry 4.0: The Value Beyond the Hype



Natural Health Products NZ 2023 Summit

Future Fit

How ready is the room to take on opportunities of tomorrow?

1. What does Industry 4.0 mean to you?
2. Where are you on your Industry 4.0 journey?



GO TO
menti.com

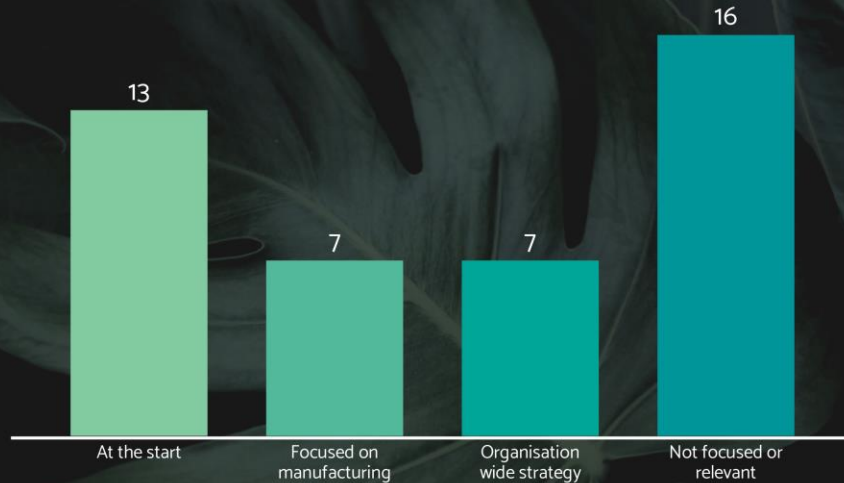
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What does Industry 4.0 mean to you?



Where are you on your Industry 4.0 journey?



Industry 4.0 growth opportunities

Callaghan Innovation is committed to supporting businesses that strive to become NZ Industry 4.0 champions and digital disruptors.

Digital Champions **spend smarter, not more:** 61% of Digital Champions spend less than 4% of revenue on R&D, compared with average spend of 4.5% across the 1000 companies tracked in PWC's annual Global Innovation Survey.



Only
10%
of surveyed businesses
are 'Digital
Champions'⁴

Biggest areas for improvement among surveyed businesses ⁵:

67%
Don't have an
Industry 4.0 strategy
or take ad-hoc
approach.

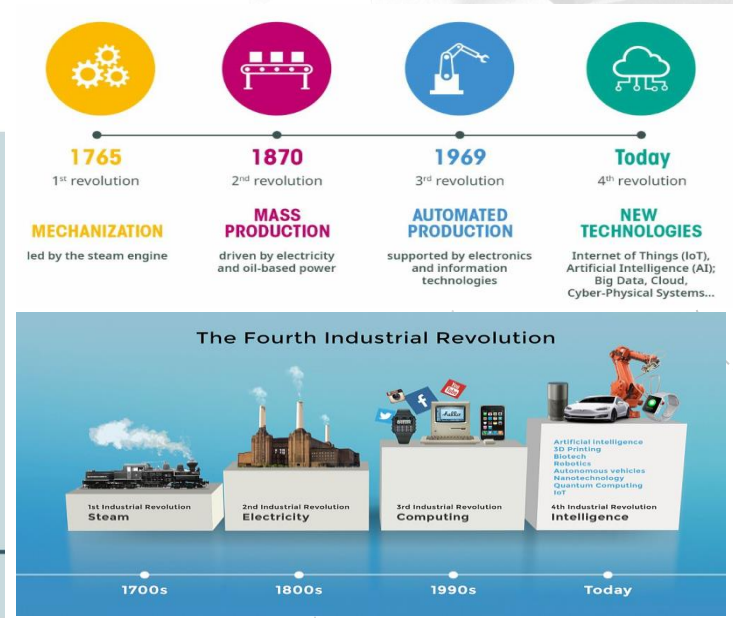
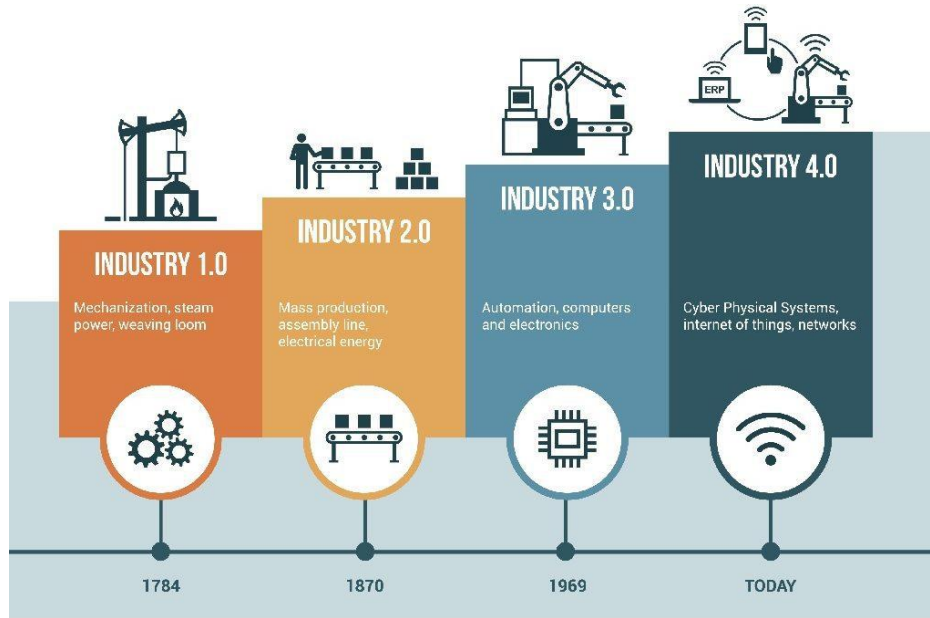
91%
Haven't started to
update their
business model.

80%
of leaders say their
organisation doesn't
have Industry 4.0 skills
they'll need
in future.

⁴"Digital Product Development 2025; Agile, Collaborative, AI Driven and Customer centric". PwC, 2019

⁵"The Fourth Industrial Revolution; at the intersection of readiness and responsibility; "Views from Industrial Products leaders" Deloitte 2020

Industry 4.0 / 4th Industrial revolution is there a difference ??




How did Industry 4.0 arrive ?

Industry 4.0 across the globe















Main initiatives, partnerships and influences as of March 2017

United States
Industrial Internet (Consortium)
Smart Manufacturing
Industry 4.0




- **Industrial Internet:** US concept (GE) but Industrial Internet Consortium global and collaborates with Industry 4.0 Platform.
- **UK:** Industry 4.0 and 4IR initiative. Post-Brexit unknown.
- **China:** Industry 4.0 the framework of "Made in China 2025"
- **Japan:** several initiatives, collaboration Industry 4.0 Platform.

EU / Western Europe


-  Austria: Industrie 4.0 Österreich
-  Belgium: Factories of the future
-  Czech Republic: Průmysl 4.0
-  Denmark: MADE
-  France: L'Industrie du Futur
-  Germany: Industrie 4.0
-  Hungary: IPAR4.0
-  Italy: Industria 4.0
-  Netherlands: Smart Industry
-  Portugal: Indústria 4.0
-  Spain: Industria Conectada 4.0
-  Sweden: Smart Industry / Produktion 2030
-  UK: Industry 4.0 / 4IR
-  EU: aligning national plans

"Born" in Germany

China
Made in China 2025



Japan
Robot Revolution Initiative
Society 5.0



INDUSTRY 4.0



Industry 4.0 Business Plan and Roadmap?



Industry 5.0

Not another revolution, a complement

Shifting the focus to the role & contribution of industry to society

*“Industry 5.0 is a model of the next level of industrialization characterized by the return of manpower to factories, distributed production, intelligent supply chains and hyper customization, all aimed to deliver a tailored customer experience time after time”
(Frost & Sullivan)*



Society 5.0

Future society that Japan should aspire to

Balances economic development and solves social issues

“A human-centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space”



Journal of Manufacturing Systems

'Industry 5.0 and Society 5.0—Comparison, complementation and co-evolution'

Industry 4.0: The **value** beyond the hype

BUSINESS

Industry 4.0-enabled businesses use real-time data to inform decisions. They're agile and quick to act on opportunities and unlock new business models.

Making things better

SMARTER PROCESS

Industry 4.0 processes enable flexibility: Data and digital tools drive automation and system-wide monitoring enables operational consistency.



Making better things

SMARTER OFFERING / PRODUCT

Businesses gain competitive advantage through consumer data and real-time insights, fostering brand loyalty and creating value.

Significant productivity improvements through Industry 4.0 with **smarter process**:



**ASSET EFFICIENCY
IMPROVED BY:
+10-20%**



**QUALITY
IMPROVED BY:
+10-35%**



**COSTS
REDUCED BY:
-20-30%**



**SAFETY AND SUSTAINABILITY
IMPROVED BY:
+3-10%**

**Significant productivity
boosts for NZ industry 4.0
pioneers**



Silver Fern Farms,

Using AI and data driven forecasting gain a 5% yield increase in a bi-product. Financially means a \$33,000 yearly profit increase, scaled across multiple sites would be a \$500K a year profit increase

Tait Communications,

successfully applied machine learning and computer vision techniques to improve efficiency of their circuit-board production lines by up to 37%.



² "Digital Lean Manufacturing, Industry 4.0 technologies transform lean processes to advance the enterprise". Deloitte, 2020

Disrupting competitors with **smarter products**

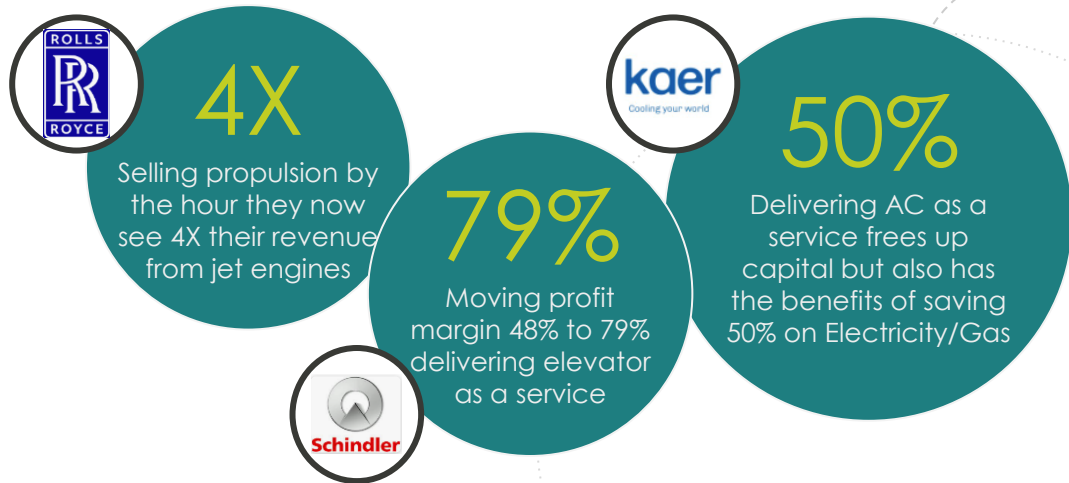
Moving products to an “As A Service” model can bring significant benefits to the bottom line

Leaders in product as a service are likely to be disruptors and **make higher margins over the lifetime of the product.**

This being said we **see little uptake in NZ**, some local examples of people starting the journey

- BOA hydraulics
- Scott Technology
- TOMRA (was Compact Sorting)

Global leaders who have pivoted to product as a service:





CLEVER FIRST AID

Smarter product from day one

- Clever First Aid® is the world's only smart first aid system
- Manage and monitor first aid compliance
- Utilising machine learning, sensors and cloud software
- Analytics and metrics that allow you to see current and future trends



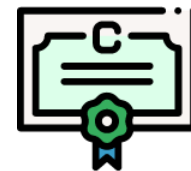
Incident Alerts



Usage Overviews



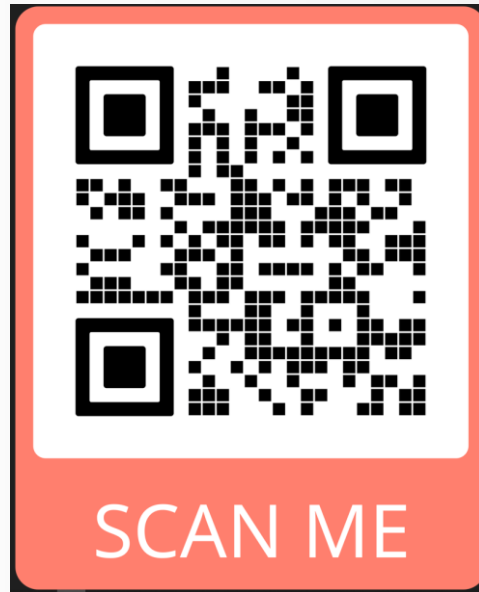
Couriered Stock



Keep Compliant

<https://cleverfirstaid.com/>

Digital products don't need to be as smart as you think.



How much value can you deliver from **smart products**

Willot

Uses IoT pixels to provide.

- Real time tracking
- Temperature
- Traceability
- Auto receiving



BinaryBeer

IoT bolt on to a standard beer keg.

- Real time tracking
- Geofencing
- Temperature
- Movement/ Position
- Supply chain optimization and consumption insights



ARONUI

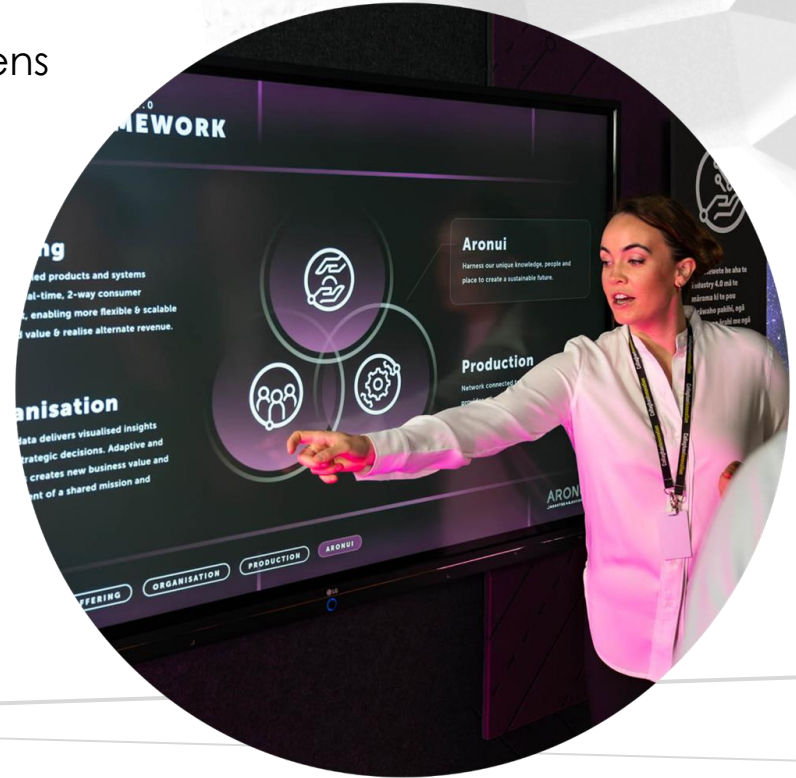
INDUSTRY 4.0 NAVIGATOR

WHAT IS THE i4.0 NAVIGATOR?

THE STORY OF
ARONUI
INDUSTRY 4.0 NAVIGATOR

Aronui - The Name

- Tāne Mahuta's **journey to navigate** the heavens
- Te kete-aronui - the basket of humanities and knowledge seeking and maximising potential
- Aronui - to **sail before the wind**, empowering innovators



Aronui Industry 4.0 Navigator - What is it?

Demystify Industry 4.0, inspire your senior leadership and explore how data can play a pivotal role in the future of your business.

- Guided by a host & facilitator
At a purpose built space in Parnell, Auckland
- Step out of your day-to-day operations
- Explore Industry 4.0 beyond productivity & optimisation
- Witness New Zealand business examples who have already started their journey
- Workshop how your business will compete in a data-driven marketplace
- Map your own industry 4.0 pathway
- Build a roadmap for sustained change



Interested to know more?

Book a discovery call to discuss if the Aronui Navigator experience is right for you & your team

[Click Here](#)



SCAN ME



Connection

Boosting research and commercialisation by facilitating collaboration between research and science sectors, industry and entrepreneurs.

Agritech Support Explorer

Funding, business capability support, information and advisory services for Agritech businesses.

Bioresource Processing Alliance

Co-funded R&D support to help businesses maximise value from their biological by-products.

NZ Food Innovation Network

Facilities, resources and expertise to help food, beverage and nutraceutical businesses create and grow new products and processes.

NZ Product Accelerator

Supporting product development and innovation by connecting the high-value manufacturing sector with scientific expertise.

HealthTech Activator

Information and support to help healthtech businesses de-risk, accelerate and commercialise their innovations.

Founder & Start Up Support Programme

Hands-on mentorship and training to help founders accelerate the growth of their high-impact startup.

Technology Incubator

Driving growth and commercialisation of Aotearoa's deep-tech startups through investment and industry expertise.

Mobile Showcase (Industry 4.0)

Engaging and inspiring businesses by demonstrating the benefits of new Industry 4.0 technologies.

Network Site Visits (Industry 4.0)

Creating opportunities for manufacturers to better understand Industry 4.0 technologies.

Smart Factory Showcase (Industry 4.0)

See first-hand what a high level of maturity in Industry 4.0 technologies looks like.



Innovation Skills

Helping businesses develop innovation and commercialisation skills.

Product 360

A knowledge hub helping businesses assess their product idea's market potential and determine steps for scaling it.

Beyond IP

Helping businesses gain a competitive edge by identifying and maximising IP assets.

Capital Education

Teaching New Zealand start-ups and early stage businesses to successfully raise equity capital.

Lean

Helping businesses prioritise activities that add value and enhance customer service.

Digital Lean (Industry 4.0)

Helping businesses boost their competitive advantage by incorporating new technologies into their operations.

Aronui (Industry 4.0 Navigator)

An interactive experience introducing businesses to strategies for thriving in a data-driven world.



Commercialisation

Providing deep tech and problem solving expertise to help businesses leverage opportunities presented by new technologies.

RDS Services

A range of contract R&D services, from expert advice and consultancy to end-to-end product development and large process design and scale-up projects, including:

Biotech Team

Our experts help businesses to develop new food and health products derived from biological sources.

Applied tech team

Our experts help businesses to develop deep tech solutions, based on engineering, physics, chemistry and data science to pioneer R&D solutions to make things work.

Manufacturing Robots Trials (Industry 4.0)

Assisting the development of customised industrial robotics and automation systems for manufacturing and production processes.

Starter Service (Industry 4.0)

Helping businesses learn how to discover new opportunities and improve productivity by adopting Industry 4.0 processes and technology.



Funding

Encouraging New Zealand businesses to invest in research and development (R&D) through grants, tax incentives, and other financial support.

Ārohia: Innovation Trailblazer Grant

Funding for businesses whose non-R&D activity contributes to the development of capabilities or offers benefits to other members of the NZ innovation ecosystem.

New to R&D Grant

Helping businesses build the skills necessary for long-term R&D success.

R&D Tax Incentive

A tax credit for businesses whose R&D activity addresses scientific or technological uncertainty.

R&D Career Grant

Enabling businesses to harness the skills of postgraduates to help boost their capability for R&D.

R&D Experience Grant

Helping businesses accelerate their R&D projects by tapping into fresh talent, while giving students access to real-world industry experience.

CallaghanInnovation
New Zealand's Innovation Agency

Products & Services 2023

www.callaghaninnovation.govt.nz | 0800 422 522

22080 | Version 02b | 13.02.23



Unlocking your Industry 4.0 potential

www.industry4.govt.nz

Mobile Showcase



FIND OUT MORE

Network Site Visits



FIND OUT MORE

Smart Factory Showcase



FIND OUT MORE

Manufacturing & Industry 4.0

The fourth industrial revolution has begun. Are you ready?



www.callaghaninnovation.govt.nz/industry-4

CallaghanInnovation
New Zealand's Innovation Agency



Aronui - Industry 4.0 navigator

As an impartial advisory service, Aronui Industry 4.0 Navigator is a guided experience to inspire business leaders to think beyond optimising for productivity.

[Read more about Aronui - Industry 4.0 navigator](#) →



Lean programme

Boost business productivity and increase staff engagement with our Lean one-day workshop and a 12-month co-funded coaching programme

[Read more about Lean programme](#) →



Digital Lean programme

Ready to reap the rewards of incorporating new technologies into your business model? Find out how the Digital Lean programme can boost your performance.

[Read more about Digital Lean programme](#) →



Trial a manufacturing robot

Trial a collaborative robot in your workplace to see how automation could benefit you, including increased productivity and employee satisfaction.

[Read more about Trial a manufacturing robot](#) →



Industry 4.0 Demonstration Network

An initiative to help NZ businesses realise the benefits of a range of digital technologies that will enhance manufacturing performance, output, monitoring and control

[Read more about Industry 4.0 Demonstration Network](#) →



Industry 4.0 Starter Service

Learn how to adopt Industry 4.0 to improve productivity and discover new business opportunities.

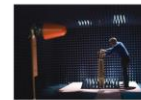
[Read more about Industry 4.0 Starter Service](#) →



Advanced Manufacturing

Energise and improve your R&D with our manufacturing experts.

[Read more about Advanced Manufacturing](#) →



Data and IoT

Our Internet of Things and Data experts will accelerate your product development.

[Read more about Data and IoT](#) →

Thank you

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