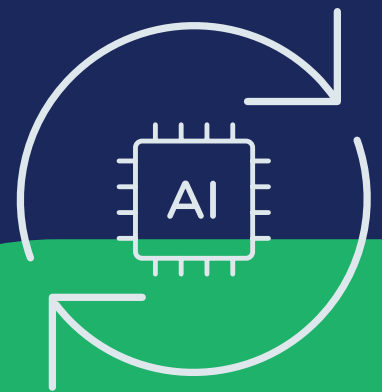business **nbn**™

Enabling operational efficiency and Industry 4.0

The industrial sector is in the midst of its fourth revolution.

The first was powered by water and steam, while the second used electricity to power assembly lines and mass production.

The third industrial revolution used electronics and then computers to supercharge production, but that is now being taken to the next level as machine learning, AI and soaring access to data enable industrial production to become smart and autonomous.

Also known as Industry 4.0, it means everything from connected machines that can optimise their own production and maintenance to logistics systems that automatically react to unfolding events.

And just as the cloud has transformed software with the inexorable rise of Software-as-a-Service (SaaS) offerings, this new era on connectedness is doing the same with production, through what has become known as 'servitisation'.

Under this model, customers no longer purchase an asset itself, but instead a service or capability, with the manufacturer remaining responsible for the ongoing maintenance of a given asset.

Future state

In this service-driven economy, outright ownership of an asset or product remains in the hands of the provider, which makes maintenance, repair and overhaul (MRO) a critical business function.

In an age of increasingly complex systems, innovative network solutions have emerged to support new technology to keep equipment and operations running smoothly, such as through-life engineering services (TES).

Cost-benefit paralysis

The promise of digital innovation can appear limitless, but opportunities require investment to realise potential benefits.

According to one McKinsey report, successful digital transformation can increase productivity by 14 to 15 per cent and reduce costs by up to 6 per cent.

In the manufacturing sector, McKinsey estimates the global productivity gains due to digital transformation to be somewhere between $1.2 and $3.7 trillion by 2025.

Industry 4.0 case study:
Through-life Engineering Services (TES)

TES is the provision of technical services required to support the performance of a complex engineering system throughout its life.[1]

TES uses monitoring, diagnostic, and prognostic technologies to optimise performance, maximise efficiency and reduce the whole-life operating cost of a system.
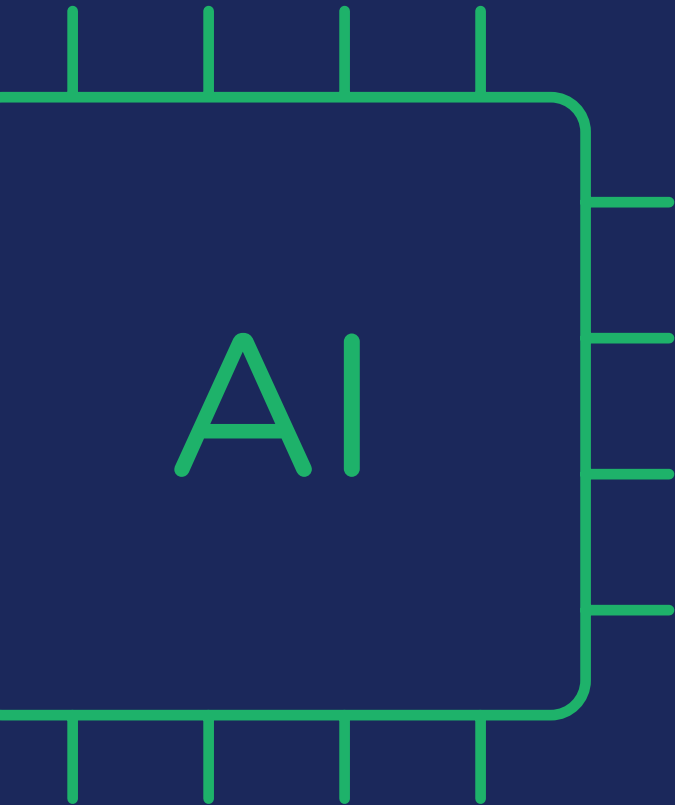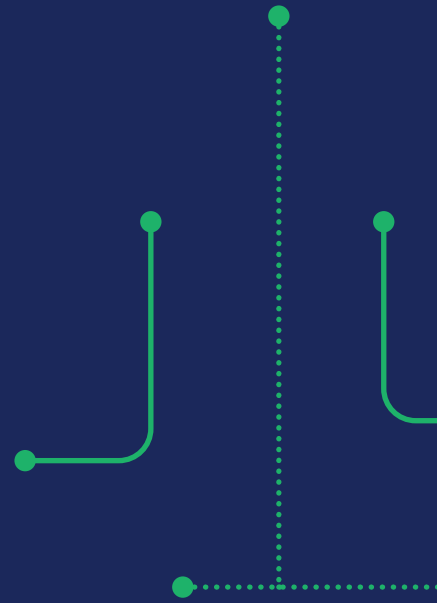
How AI fuels TES

AI and machine-learning allow manufacturers to use data collected in real-time to alter operations in response to key inputs without human intervention, optimising performance and efficiency and improving decision-making.

In-service data can be used to refine the design of subsequent iterations of a product or system to reduce faults and maintenance issues. It's worth noting that these systems require the transfer of large amounts of data – something that requires dedicated bandwidth from a service provider.

1. https://pdfs.semanticscholar org/675b/75a03785433086a029b48e69442fcf384626.pdf
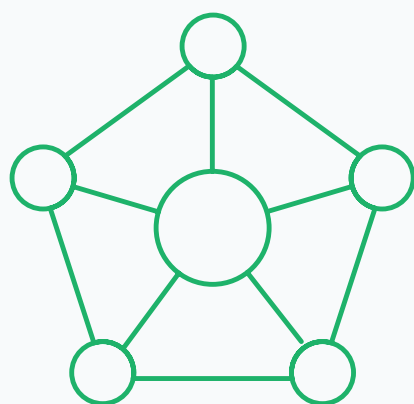
Making it happen

The foundation of Industry 4.0 is network connectivity.

IT systems must be designed to handle large volumes of data generated by intelligent devices and sensors, along with real-time monitoring that can be shared throughout the network in a timely fashion.

Underpinning these emerging technologies is access to high-performance, business-grade broadband connectivity.

Connection speed is just one consideration when it comes to choosing the right network solution. Here's how to evaluate your needs.

Get your priorities straight

For companies aiming to operate at an Industry 4.0 level, it is essential to ensure their network solution is capable of delivering dedicated bandwidth so the most important data packets have right of way on shared networks.

Many Industry 4.0 use cases depend on real-time or mission-critical data, placing data prioritisation as a key feature to consider for support.

Many service provider plans powered by business **nbn**™ include performance targets that help to provide consistency for business-grade applications and help minimise disruption.^

Data can generally be divided into three classes:[2]

Information-based data:

The lowest priority, this non-time critical data can be delivered over networks with relatively high levels of latency and down-time without causing disruption.

Think emails and web browsing. Data plans that utilise "best effort" data may be used for this. But businesses should be aware that speeds experienced are likely to be strongly influenced by other activity on the network.

Real-time data:

This is data that delivers important operational information – think sensors, actuators, instrumentation and robotics. Delays in this data can trigger faults and unplanned production down-time, meaning its delivery must be prioritised over information-based data.

This data should run on networks that can prioritise certain data applications over others.

Mission-critical data:

This is the highest priority data, where delays in its delivery could trigger potential catastrophes.

A combination of features such as priority data, business-grade upload and download speeds, high network uptime and enhanced service level agreements should be considered. Service providers have access to a range of business **nbn**™ products and services, which can be customised to help address these types of requirements.*

2. https://www.controleng.com/articles/three-data-types-companies-need-to-prioritize/

Step 1:
Know which network features suit your requirements

Homes and businesses have different needs, and not surprisingly the **nbn**™ broadband access network offers different wholesale options to help meet those needs. Internet plans that use home **nbn**™ wholesale solutions, are based on "best effort" data where speeds are strongly influenced by other activity on the network.

Once you understand the different classes of priority for your data, you can work with your service provider to assess how much bandwidth you require for information-based data versus real-time data and mission critical data.

Step 2:
Review your ups and downs

With cloud and connected networks becoming the norm, upload speeds have become just as important as download speeds. Symmetrical bandwidth options have the same upload and download speeds, which can help applications run smoother and assist with technologies that require real-time data.

Step 3:
Establish data priority

A network solution with a committed information rate can enable your service provider to prioritise certain data applications over others, and help to reduce the variation, drop-outs or interruptions for these applications.

Step 4:
Consider downtime

When downtime can severely impact productivity and reputation, it is vital to ensure that you have a level of support designed to minimise downtime and keep your business online.

Unlike home **nbn**™, plans powered by business **nbn**™ have a dedicated operations centre and additional connection support. Plans also include an option for enhanced Service Level Agreements (SLAs) between **nbn**™ and providers that can help your RSP provide quicker response times when faults occur.†

With business **nbn**™, service providers have access to enhanced service levels that can increase response time up to 24/7 and reduces target fault rectification times. Enhanced SLAs available via the business **nbn**™ offering can help allow for accelerated fault repair and contracted time limits for how long network faults can remain active.*

* business **nbn**™ is not available on the **nbn**™ fixed wireless network. High network availability targets and enhanced service level agreement options (including 24/7 response times) are only available on the **nbn**™ fixed line network. Priority data and business-grade upload and download speed options are only available on the **nbn**™ fixed line network, excluding HFC. Your experience and available product options may vary depending on factors like your **nbn**™ technology, provider, plan and equipment.

^ Your experience, including the speeds actually achieved over the **nbn**™ network, depends on the **nbn**™ access network technology and configuration over which services are delivered to your premises, whether you are using the internet during the busy period, and some factors outside **nbn**'s control (like your equipment quality, software, broadband plan, signal reception and how your service provider designs its network). Speeds may also be impacted by the number of concurrent users on the **nbn** Fixed Wireless network, including during busy periods. Satellite end customers may also experience latency.

† Enhanced SLA options are only available on the **nbn**™ fixed line network.

business **nbn**™

To help enable today
and the future, **make
sure your business
has business nbn**™