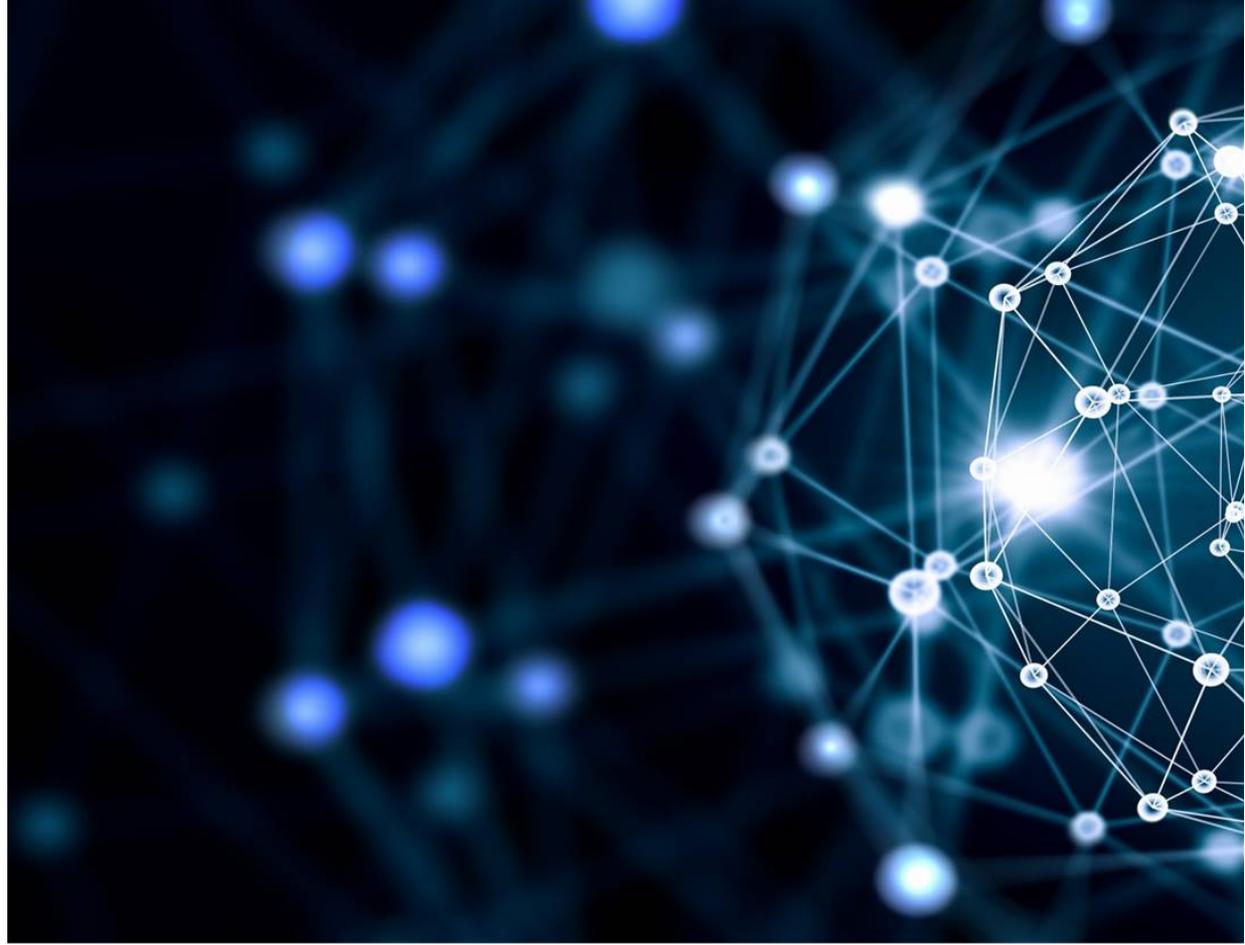




Charged for growth

15 November 2018



AGENDA

15:00	What is TT now	Richard Tyson, CEO
	Leveraging R&D to differentiate and grow	Tim Roberts, Sensors and Specialist Components
	Expanding our capabilities in power solutions	Tom Garvey, Power
	Q&A	
	Coffee break	
16:05	Our new offering: connectivity	Charlie Peppiatt, Connectivity
	Business development and strategic partnerships	Michael Leahan, Global Manufacturing Solutions
	TT's position for the future	Richard Tyson, CEO
	Q&A	
17:00	Product showcase	All leadership team



Richard Tyson



Mark Hoad



Tim Roberts



Tom Garvey



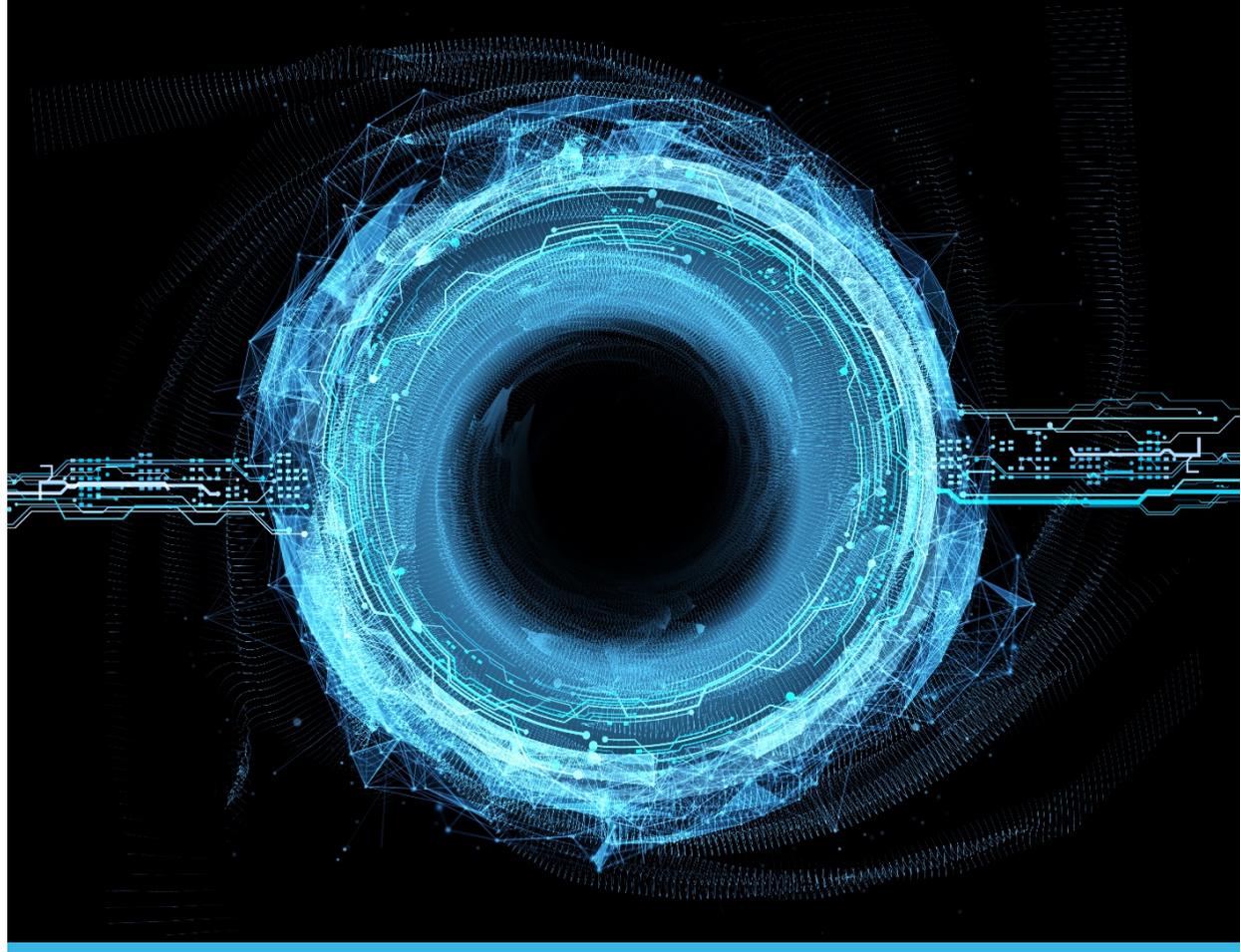
Charlie Peppiatt



Michael Leahan

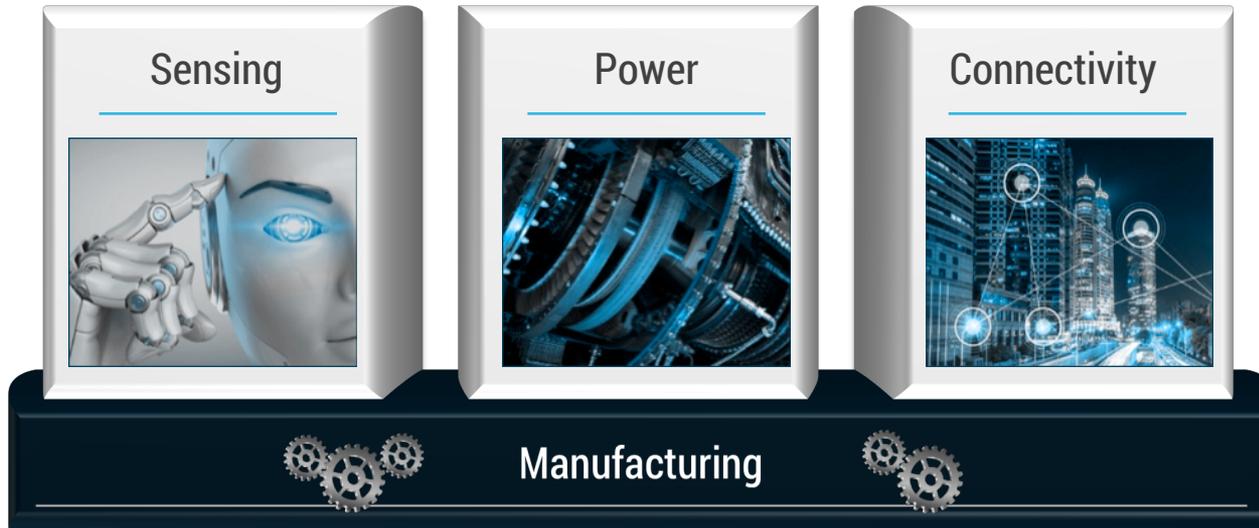
What is TT now?

Richard Tyson



TT's capabilities now

TT is a global provider of engineered electronics for performance critical applications



Market growth driving demand for our solutions

Structural growth drivers leading to increasing sales for our sensing, power management and connectivity capabilities

	% revenues as at HY18	Example end application	Key macro trend
 Industrial	46%	<ul style="list-style-type: none">Automation and controlEnergy and smart devicesInfrastructure	<ul style="list-style-type: none">Robotics and industrial automationMore efficient energy usageConnectivity
 Medical	22%	<ul style="list-style-type: none">Advanced surgical devicesImaging and direct patient careLaboratory automation and diagnostics	<ul style="list-style-type: none">Population growth and ageingInnovation in diagnostics and direct patient careMedical device connectivity
 Aerospace and Defence	18%	<ul style="list-style-type: none">Commercial and military aircraftSpace and satelliteDefence systems and vehicles	<ul style="list-style-type: none">Growing passenger numbersElectrification of aircraft to reduce size, weight and power consumptionIncreased defence spending
 Transportation	14%	<ul style="list-style-type: none">Electric and hybrid electric vehiclesElectronics on rail	<ul style="list-style-type: none">High-speed rail infrastructureGlobal asset and logistics trackingShift away from fossil fuels

Our strategy is delivering

1 Positioned in structural growth markets

2 Create differentiated capabilities

3 Work with our customers to solve their toughest electronic challenges



Reshaped portfolio

7.5% margin, up from 4.2% 3 years ago

We are growing at 5%

Clear focus on capabilities, markets, and customers

Embedded culture

**...and we have
set TT up to
deliver more...**



Advancing our strategy through our four strategic priorities

1 Positioned in structural growth markets

2 Create differentiated capabilities

3 Work with our customers to solve their toughest electronic challenges



Strategic business development



Value-added product solutions and R&D



Operational excellence



Value-enhancing acquisitions



Tim Roberts

Leveraging R&D to differentiate and grow



Tom Garvey

Expanding our capabilities in power solutions



Charlie Peppiatt

Our new offering: connectivity



Michael Leahan

Business development and strategic partnerships

Leveraging R&D to differentiate and grow



Tim Roberts



Meeting our customers needs

- Our customers' core needs
 - Speed to market for new products
 - Engineering expertise and product understanding
 - Superior power management and sensing technology
- Why our customers choose us
 - Trusted long-term partner
 - Platform products with customised solutions
 - Rapid speed to market



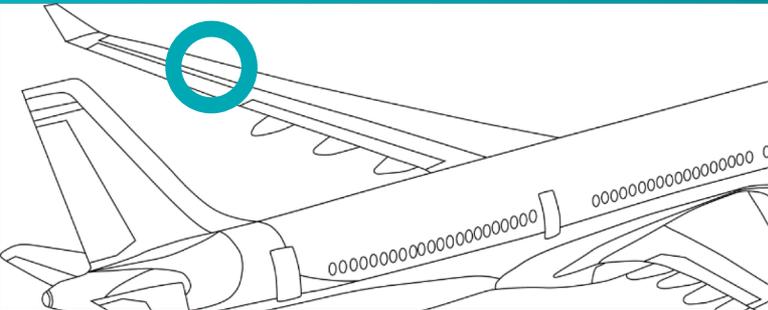
Platforms combined with customised solutions

- Developing new platforms can take 3 years to develop
 - Supports customer products for 7-10 years+, underpinning growth
 - Credibility as innovators and investor in R&D
- Custom solutions; capturing more value
 - Dedicated engineers focused on custom development
 - Designed into customer product; often single sourced
 - Increasing proportion of revenue

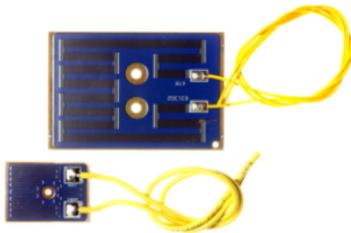




Market: Aerospace and defence



Application: Flight control actuator



TT product: Power management - resistor

Application of a new material to take capabilities to aerospace

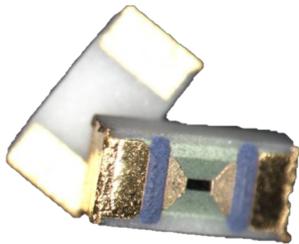
- Market growth from the more electric aircraft
- New process developed; resistors printed onto steel instead of ceramic
- Reduced weight; improving aircraft fuel efficiency
- Greater reliability; withstands temperature cycling and dissipates heat
- Same technology applied to different aircraft and applications
 - Airbus A350 and Boeing 787 Dreamliner



Market: Industrial



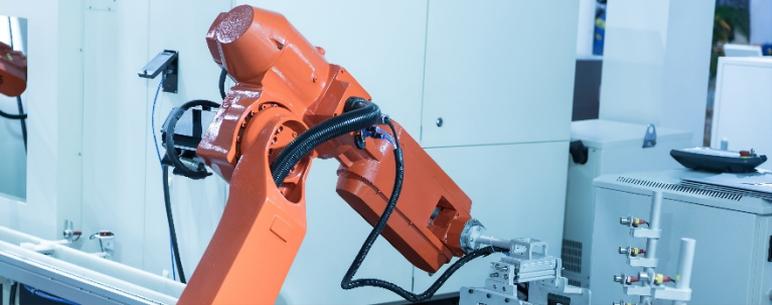
Application: Detonators for demolition and mining



TT product: Power management - signal conditioning

Scalable platform approach for revenue growth across multiple markets

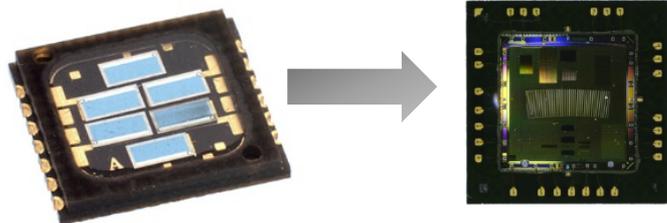
- Launched a major new platform for signal conditioning in 2015 following 2 years of development
- New technology delivering
 - Extreme precision
 - Leading moisture resilience
- Technology for aerospace and defence applied to industrial applications



Market: Industrial



Application: Robotic arm in automated production



TT product: Sensor – optoelectronic encoder

Aligning R&D to structural growth markets

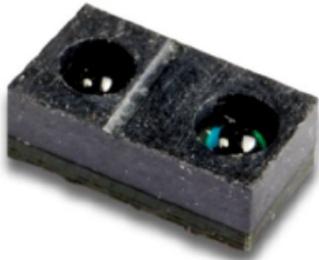
- c.6% CAGR in automation and control to 2023
- Over 20 years experience in industrial automation; over 10 million units shipped
- High resolution sensor optimises robot performance
- Next platform development underway; 2019 launch schedule



Market: Industrial



Application: Industrial printing



TT product: Sensor – optoelectronics

Technical capabilities driving growth

- Launched major new infrared light sensor platform in 2017
- New capability developed; calibrated sensor to detect colours and transparency as well as position
- Miniaturised technology; ultra-small space saving solution
- Worked with Datacard for 10+ years providing 40+ custom solutions
- Joint customer with Global Manufacturing Solutions



New joint venture announced with Uniroyal

- Uniroyal is the world's second largest manufacturer of resistors
- Longstanding relationship; more than 10 years
- Uniroyal brings manufacturing scale and broader Asia sales presence
- TT brings technical expertise and worldwide distribution channels
- Higher volume opportunities including with existing customers
- Revenue expected H2 2019

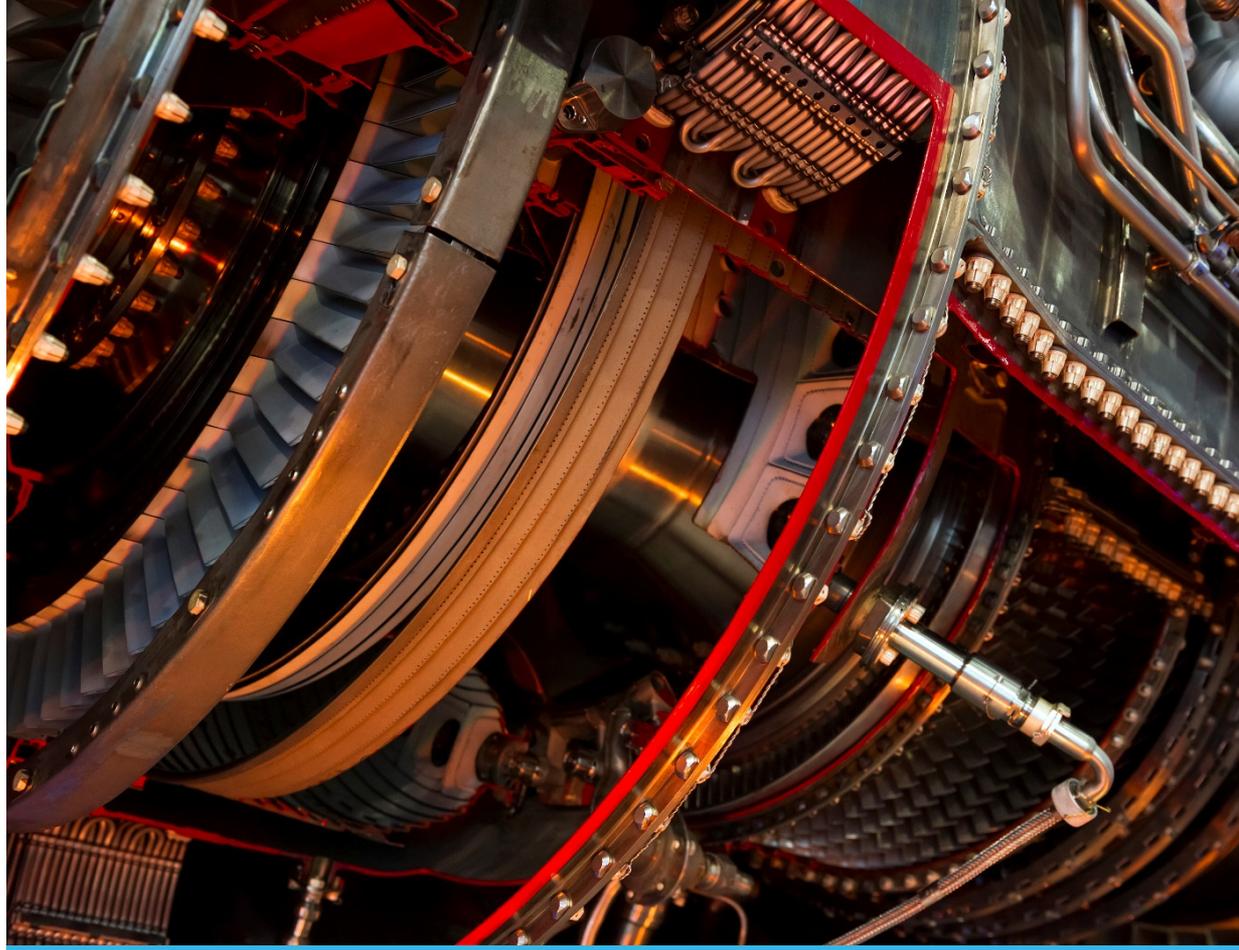
Leveraging R&D to differentiate and grow

- Focused on markets with structural growth drivers
- Differentiated technology and deep engineering talent
- Investing in new platforms and providing custom solutions faster
- Well positioned to win more business with more customers



Expanding our capabilities in power solutions

Tom Garvey

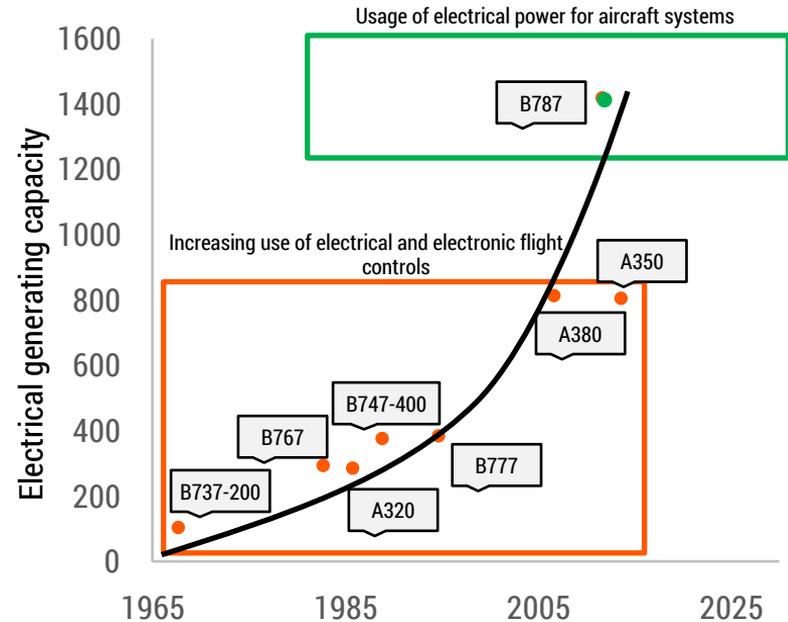




Electrification of aircraft means growing demand

- Hydraulics and pneumatics replaced with electrical systems
- Electrification increasing exponentially
- 1% weight decrease results in c.10% increase in profits
- Aviation electronics expected to grow at c.7% CAGR to 2022

Step change in electronic generating capacity in successive platforms



Source: TT Electronics and Roland Berger



Our pedigree and how we can build on our position

- Market leading customers in airframe, engine and avionic systems
- Core capabilities at the heart of system requirements
 - Electromagnetics, hybrid microcircuits and power modules
 - c.1,000 people, 3 continents, c.125 engineers
- Focused on leveraging:
 - Component heritage
 - Strategic customer relationships
 - New North American footprint

ELECTROMAGNETICS

HYBRID MICROCIRCUITS

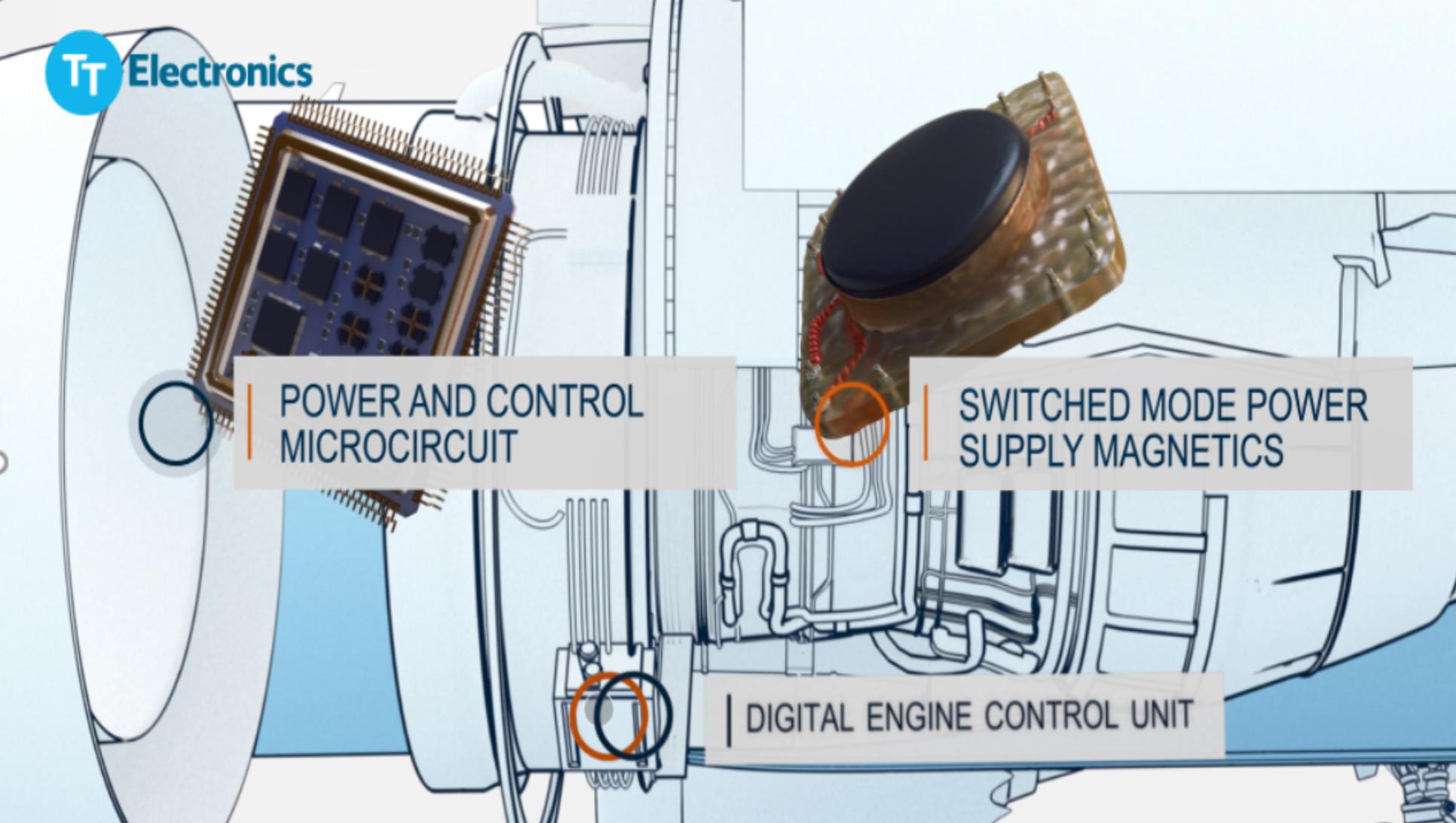
POWER MODULES



POWER AND CONTROL
MICROCIRCUIT

SWITCHED MODE POWER
SUPPLY MAGNETICS

DIGITAL ENGINE CONTROL UNIT





Meeting Rolls-Royce's technical challenges

- Strategic partner to Rolls-Royce for the brain of the aircraft engine
 - Provide electromagnetic and power and hybrid microcircuit solution
 - Chosen to work with Rolls-Royce because we could:
 - Improve yield
 - Reduce cost, weight and size
 - Manage product transfer from Rolls-Royce
 - Provide technical support
 - TT given the “Trusted to Deliver Excellence Award” for our respective category by Rolls-Royce in recognition of our achievements and the depth of our relationship



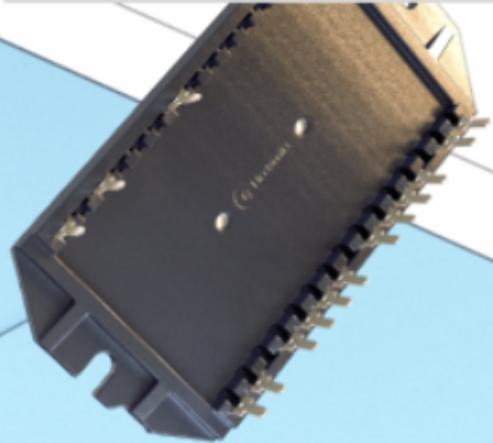
ELECTRIC LOW PRESSURE
FUEL PUMPING SYSTEM



TRANSFORMER RECTIFIER UNIT



RUGGEDISED PLASTIC
POWER MODULE





Developing a strategic partnership with Eaton

- Solved technical challenge for Eaton on A380 fuel pump
- Expanded relationship with Eaton
 - Our engineers act as the go-to partner for technical challenges
 - Won positions on MC21 and other business jet platforms
- Exposure across multiple customers and platforms places us in a unique position

Moving up the value chain

Component heritage



Power and Control
Microcircuit

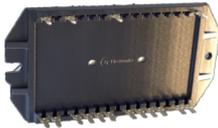
Transformer
Rectifier Unit



Flyback
Transformer



Ruggedised
Power Module



Wound
Components



Manufacturing and
system design
support

TT Designed Prototypes



ATRU (Auto Transformer
Rectifier Unit)

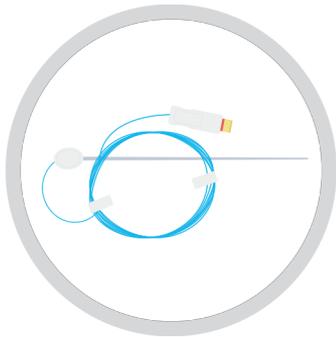
Value Added Products



Power Distribution Panel

Acquisitions provide new geographic reach in North America

- Cletronics (2017) and Precision (2018) provide new opportunity for growth in North America
- Large North American market provides new opportunities, particularly in defence
- Precision's electromagnetic products add a differentiated capability in medical
- Electronics market applied to medical is estimated to be growing at c.5% to 2022





Further opportunity in North America, and to move up the value-chain

- Building a significant aerospace and defence capability
- Strong customer relationships in the UK
- Growth potential in North America
- Customers starting to pull us up the value-chain



Q&A

Coffee Break



Our new capability: connectivity

Charlie Peppiatt





Integration of Stadium ahead of plan

- TT enhances Stadium's opportunities:
 - Increased R&D investment
 - Greater scale
 - Optimised supply chain
 - Global operating footprint
 - Prospects for cross-selling



What is connectivity?

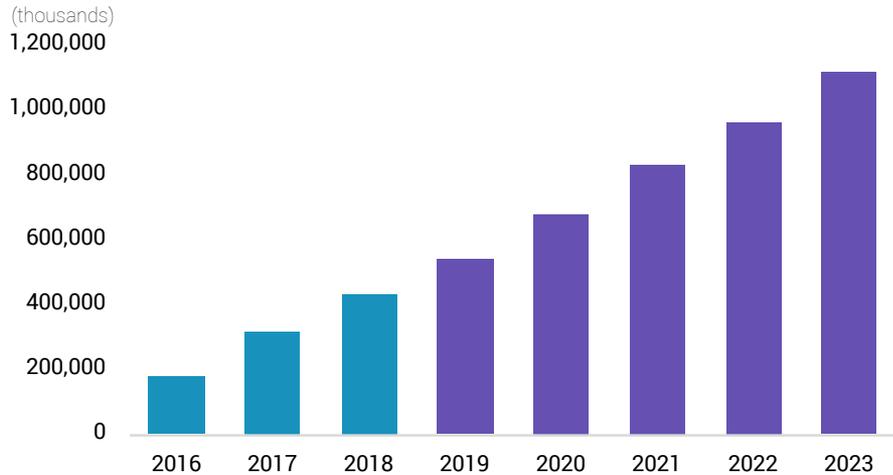
Technology to wirelessly network devices allowing you to exchange information that is enabling the digital transformation of enterprises.

What connectivity brings to TT

- Huge, growing industrial connectivity market
- Connectivity offering is a new capability for TT
- Potential synergies with power and sensing offerings
- Pipeline of new design projects

Positive market fundamentals in Industrial IoT

Cellular IoT device shipment forecast (World 2016–2023)

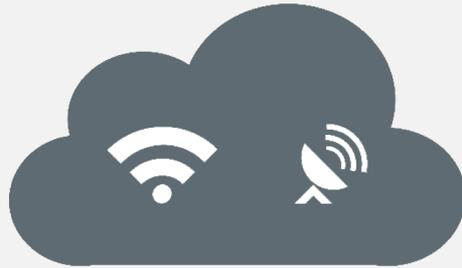


Berg Insight Research

- Large, established market; adoption underway and accelerating
- Exponential growth; appetite to monitor and manage data to improve efficiency

Connectivity roadmap

Hardware requirements from consumer electronics now become mainstream in Industrial IoT



Road Map



Smart Home



Mesh Network



Asset Tracking



Smart Warehouse



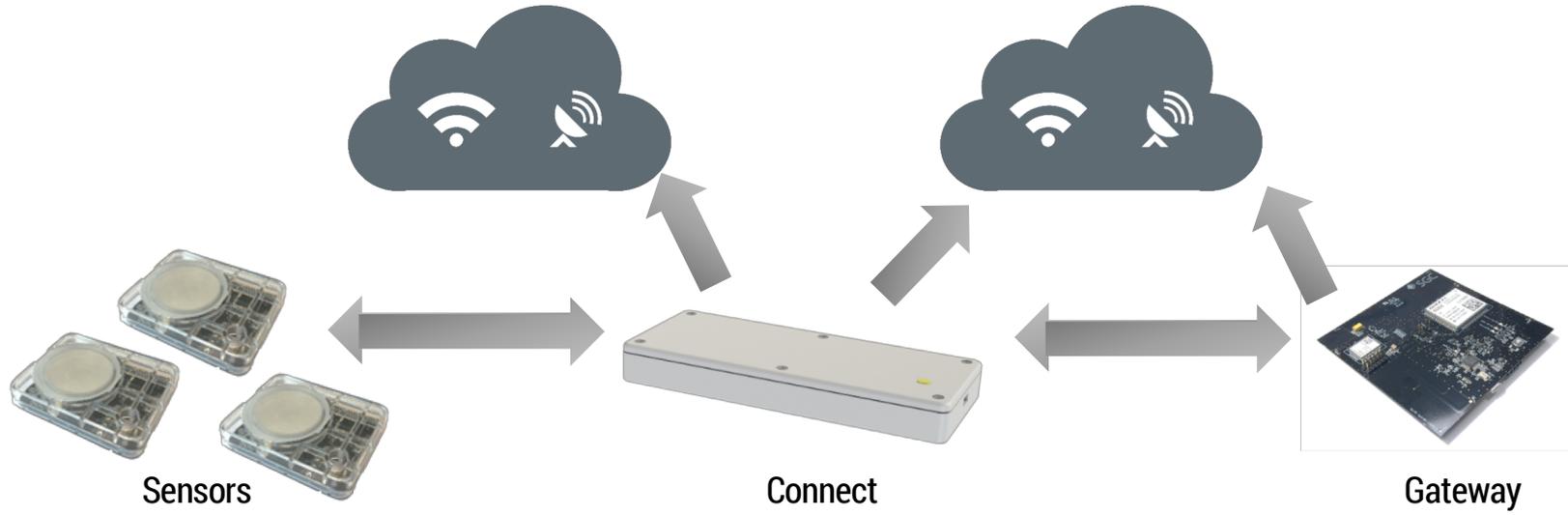
Sensor, Gateway, & Hub

Roadmap focused on:

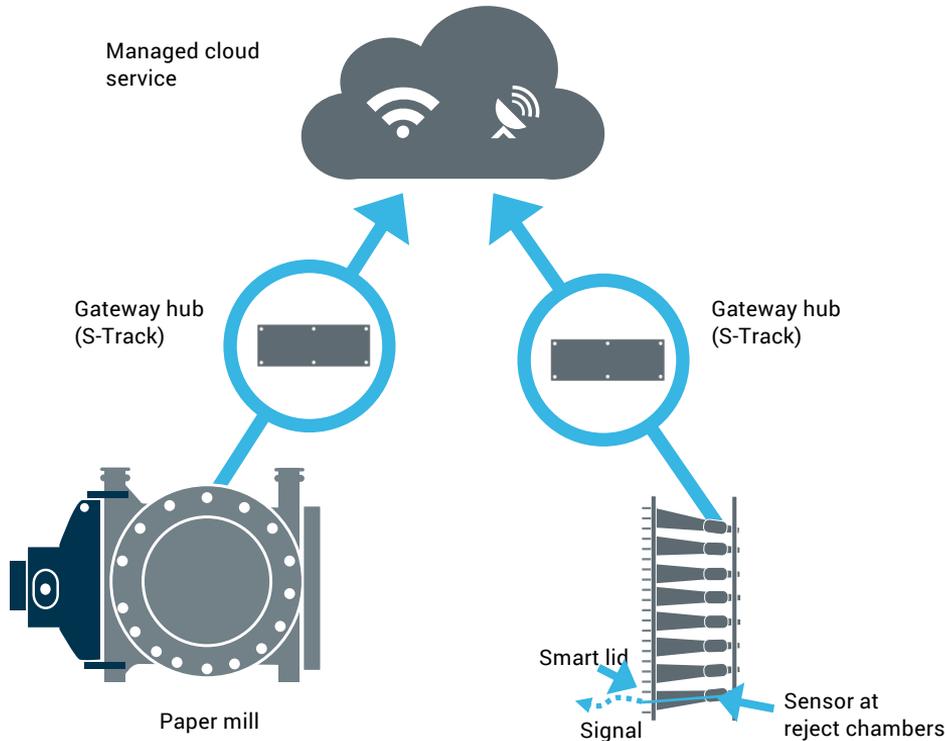
- Increasing miniaturisation
- Feature-rich devices
- Higher operating speeds and associated memory capacity
- Better power management and battery efficiency
- Reliable wireless connectivity

Our technology and where we operate in connectivity

Clear end-market focus across industrial, medical and transportation



Industrial connectivity in action



Example: Paper mill

What

- Developing a connectivity solution for preventative maintenance in a paper mill
- Ability to monitor filtration cylinders for blockages

How

- Custom connectivity device can be linked to pressure sensor from Sensors division

Value to customer

- Reduced downtime
- Improved yields
- Optimised preventative maintenance

Connectivity capabilities

- Two R&D centres in wireless design hubs
- Speed to market
 - Developing core platform products; c.75% standardised, 25% customisable design
 - Reduces time to market by c.6-12 months
 - Two connectivity platforms launched in 2018
- Technical talent



Shenzhen, China, R&D centre



Kista, Sweden, R&D centre

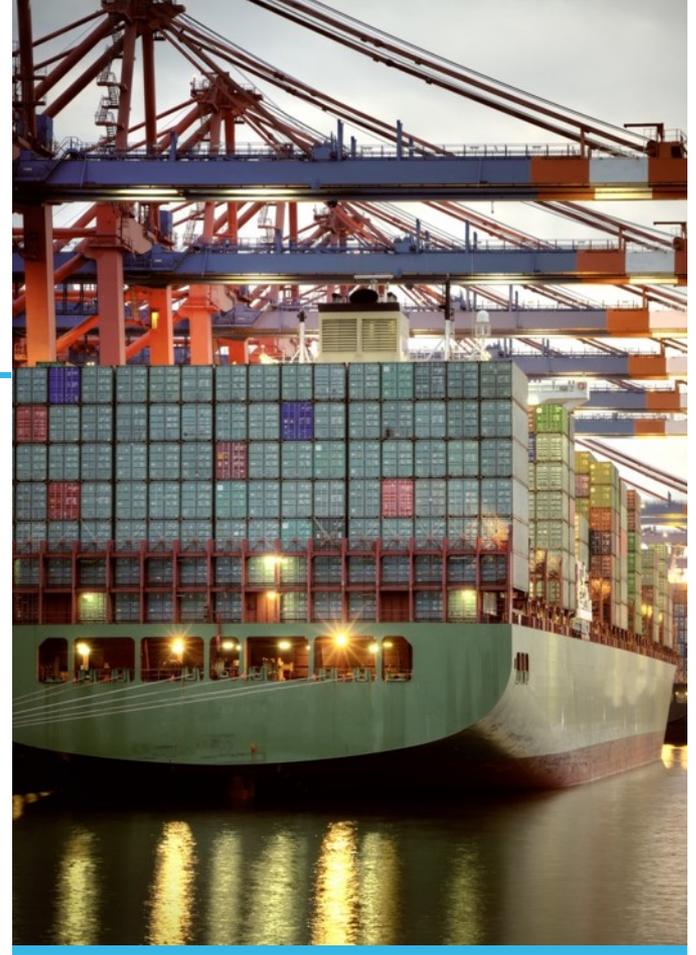
Platform strategy in action

- **Trend:** Increased need for efficient maintenance of rail infrastructure
- **Application:** Fitted on underside of train carriages to sense, detect and transmit movement of the train across the track to signal track damage
- **Benefit:** Enables customer to identify precisely where the track might require repair, improving efficiency and cost



Platform strategy in action

- **Trend:** Government agencies, logistics providers and insurance companies managing and monitoring assets remotely
- **Application:** Device placed on assets to track location and quality of goods
- **Benefit:** Improved efficiency and cost-saving by monitoring and managing vital signs to prevent asset loss or deterioration



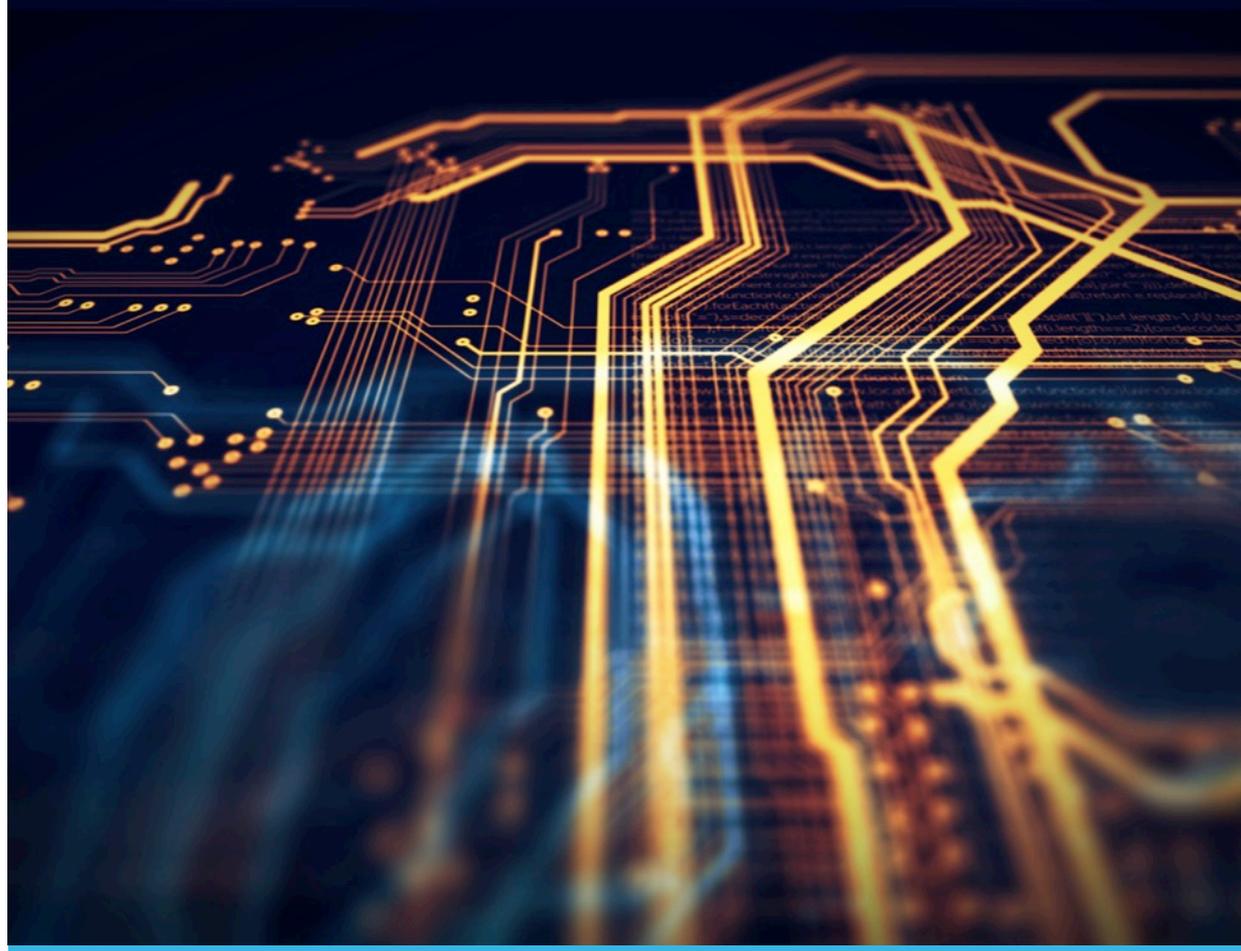


Well positioned for sizeable opportunity

- Large fast moving industrial connectivity market
- Talent and technical capabilities to address demand
- Differentiated go-to-market strategy; ability to execute at speed
- Global operating footprint

Business development and strategic partnerships

Michael Leahan





What makes us different

Instead of being transactional and tactical, TT offers:

- Business partnering approach
- Testing and value-engineering services
- World-class operational excellence

Exciting progress

6%

Organic revenue growth (HY18)

13

New customers won so far this year
(up from 7 in 2017)

20%

YoY growth with globally managed
strategic customers

7%

Operating profit margin
(HY18, up from 3.3% HY17)

What makes us different?

“ **TT really gets our business.** They've helped us achieve our own strategic growth goals by **streamlining our supply chain** and taking the burden off some of our engineers so that they can focus on R&D. In fact, our **engineering teams often work collaboratively** on new designs or product refreshes, which has helped us stay competitive – because speed to market is everything. ”

Bruce Graham, Director, Global Sourcing, Thermo Fisher



Target customers

- Focused on parts of underserved low volume high mix markets
 - Aerospace and defence
 - Medical
 - High-end industrial
- The “right fit” customers matter
- Engineers supporting complex end-product and systems manufacturing

What makes us different?

“ *TT Electronics has truly become an extension of our engineering organisation. Their **extensive technical capabilities coupled with a collaborative approach to supporting the product development cycle has set them apart from the competition.* ”**

Mark Walker, Director EMEA Operations, Spirent Communications



Our focus on business development

Starting to deploy sophisticated approach to business development across TT:

- Company-wide training program
- Business development council
- Key account management program

What makes us different?

“ *At TT, world-class customer service isn't just a tag line, its embedded in their culture and visible throughout the organisation. From the line operators to senior leadership, the organisation is truly committed to **delivering the best service possible.** ”*

Jacintha Walsh, European Supply Chain Manager, Waters Corporation



Growing existing customer relationships

Trend: market for smart labels projected to grow at c.17% CAGR to \$10bn by 2021

- The “right fit” customer: global industrial labeling and packaging device company
 - Growing business with global footprint
 - New product pipeline requiring support from a manufacturing partner
 - High-end products with lots of electronic content
 - Industry leaders in a market we know well
- Provided a tailored manufacturing solution to develop new products faster

Result: Awarded 5-year contract for full systems manufacturing in China. Tripling size of customer account



Cross selling with TT's blue-chip customers

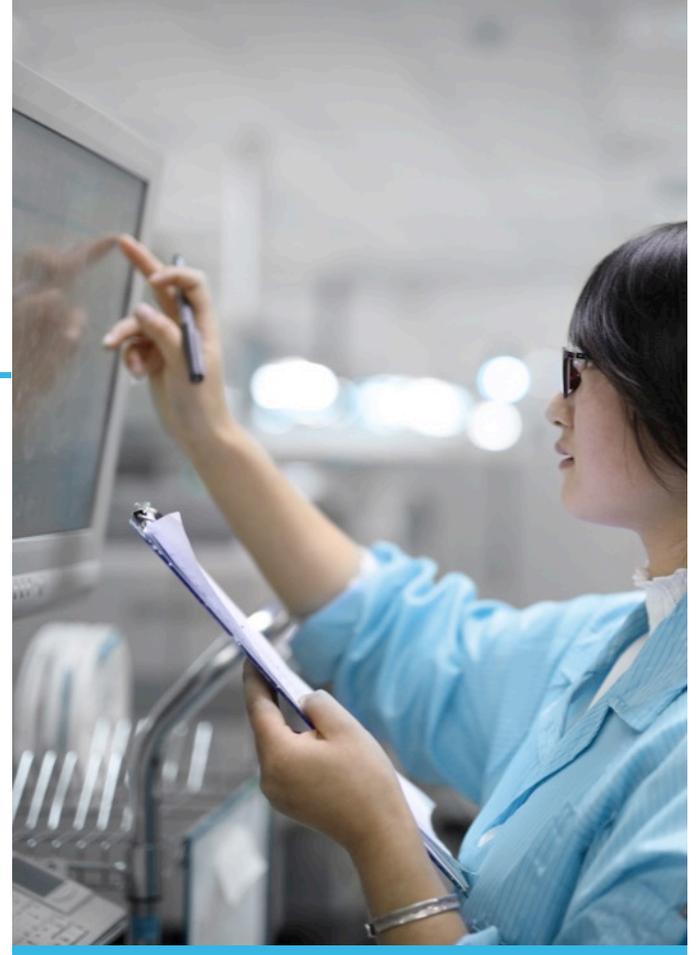
Trend: supply chain consolidation in aerospace and defence

- The “right fit” customer: leading aerospace and defence manufacturer
 - Existing strategic relationship with our Power business
 - Customer had problems with operational performance in pre-existing supply chain
 - Leading manufacturer in aerospace and defence, an industry we know well
- Worked collaboratively with the Power business to secure introduction

Result: Awarded contract to manufacture navigational processors for several commercial aircraft

Supporting TT's product capabilities

- TT's product divisions are moving up the value-chain, requiring greater manufacturing capability
- Connectivity is vertically integrated
- More opportunity for Global Manufacturing Solutions to operate as TT's global manufacturing foundation



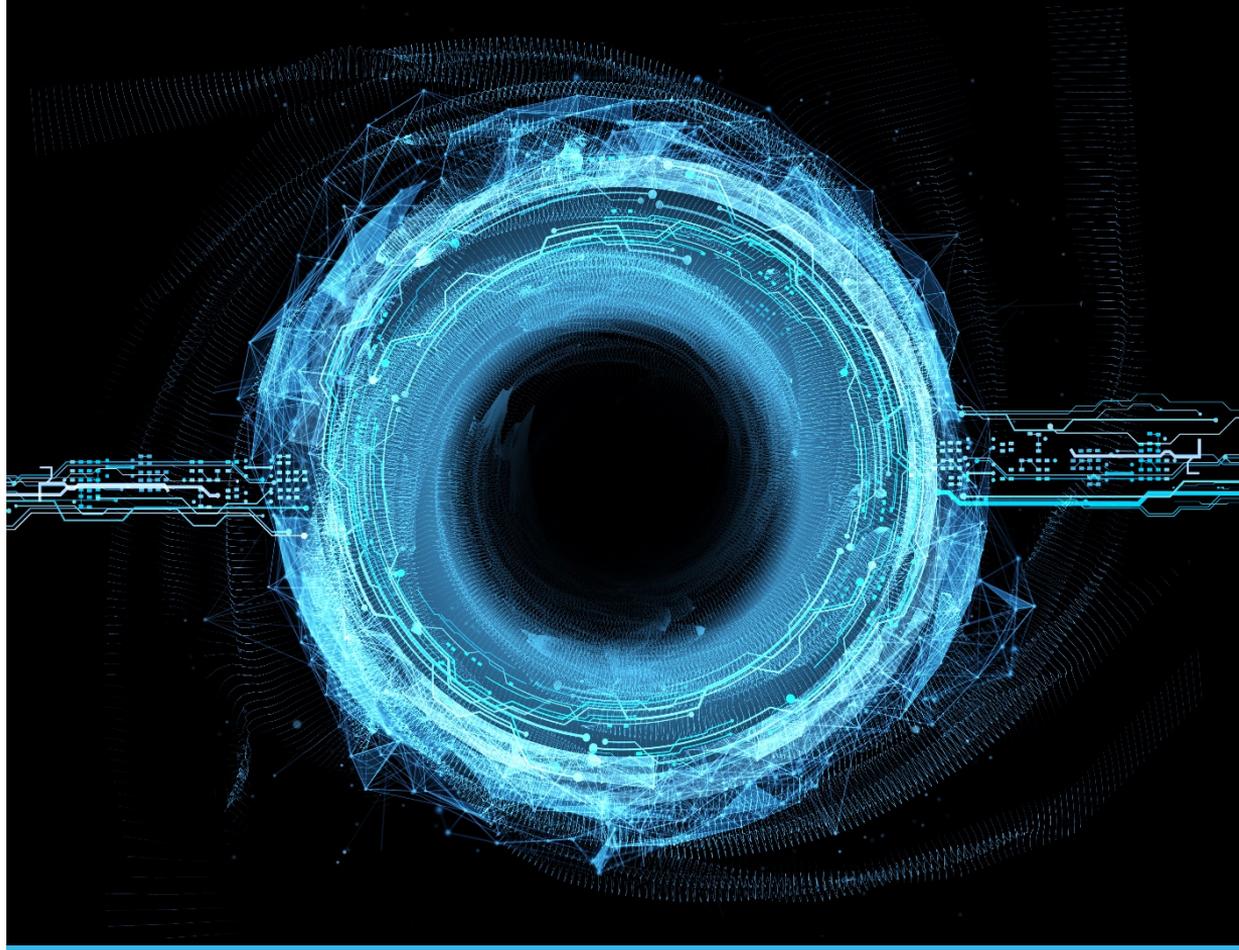


Global Manufacturing Solutions delivering value

- Proven business development approach winning new business and growing our existing relationships
- Value-added services for customers with highly complex products
- World-class operations
- Delivering results...more to come

TT's position for the future

Richard Tyson



Well positioned for growth and margin progression

- Higher-quality, higher-margin business
- Well placed in growing markets
- Investing to enhance capabilities





Q&A