Transforming tomorrow together

Capital Markets Day 2024

Will Lee
Chief Executive

RENISHAW
apply innovation™

Agenda

10.00 – 10.45

Mission, ambition & strategy

Q&A

Will Lee,
Chief Executive

Allen Roberts
Group Finance Director

10.45 – 11.15

Markets & competitive position

Marc Saunders
Director of Group Strategic Development

11.15 – 12.20

Strategic priority seminars

Rotations #1 and #2

12.20 – 13.35

Lunch & exhibition

Buffet lunch with exhibition stands

13.35 – 14.40

Strategic priority seminars

Rotations #3 and #4

Growing in existing markets

Steve Oakes
Director of Position Measurement

Increasing technology value - IM

Derek Marshall
Director of Industrial Metrology

Increasing technology value - AM

Louise Callanan
Director of Additive Manufacturing

Extending into new markets

Blake Kendrick
Industrial Automation S&M Manager

14.40 – 15.05

Refreshments

Tea & coffee

15.05 – 15.35

Manufacturing strategy

Gareth Hankins
Group Manufacturing Director

15.35 – 16.05

Growth investment & driving returns

Marc Saunders

16.05 – 16.30

Summary of day & final Q&As

Will Lee

16.30

Event ends

Coach departs for station at **16.40**

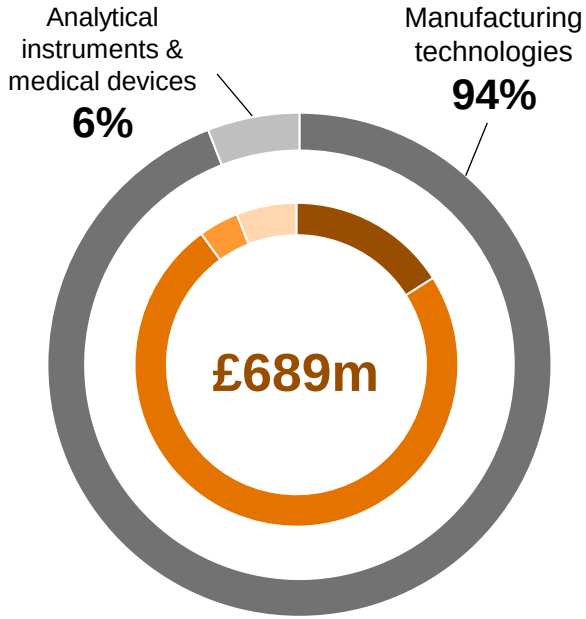
Renishaw today

We make it possible to create the products, materials and therapies that will define our world in the decades to come and touch billions of lives

END-USE MARKETS

Manufacturing technologies			Analytical instruments & medical devices
Semicon production equipment	Machine shop	Robotics & automation	Lab & clinic

FY23 revenue



End-use markets where our products are used [1]

- Semicon production equipment (16%)
- Machine shop (74%)
- Robotics & automation (4%)
- Lab & clinic (6%)

Note

1. Unaudited management estimates – majority of sales are indirect, via machine builders and distributors

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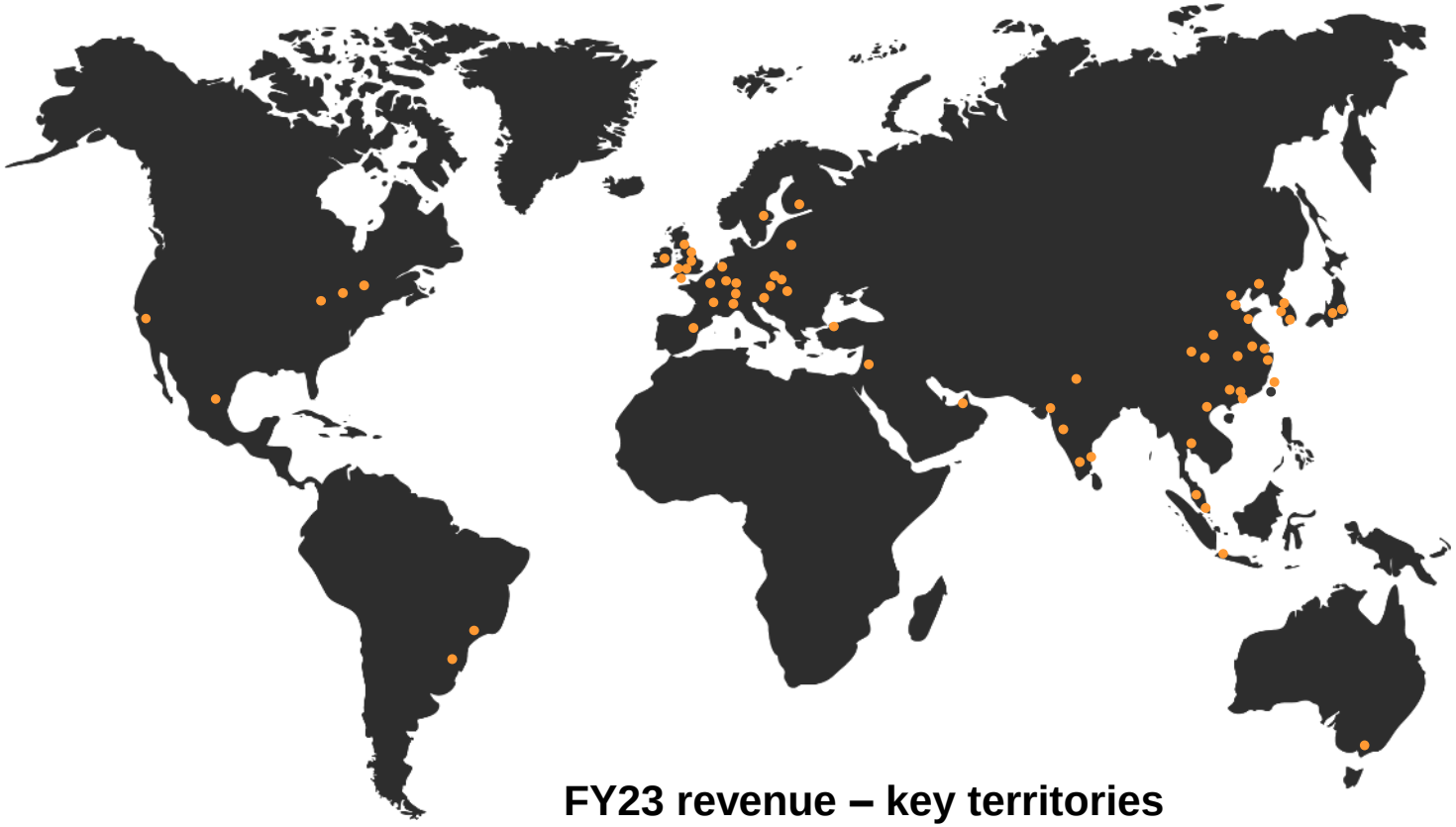
Global footprint

5,175 employees

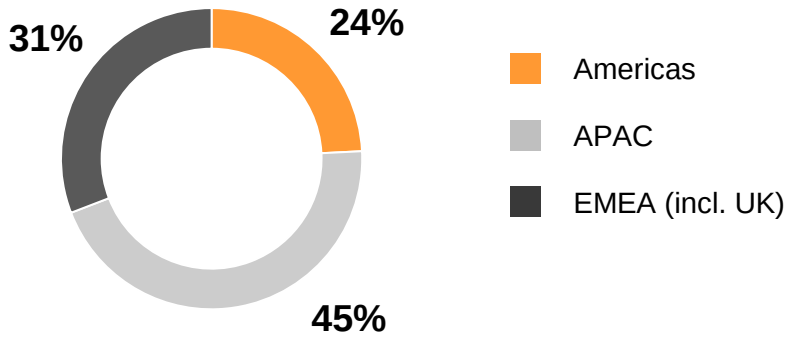
67 locations

36 countries

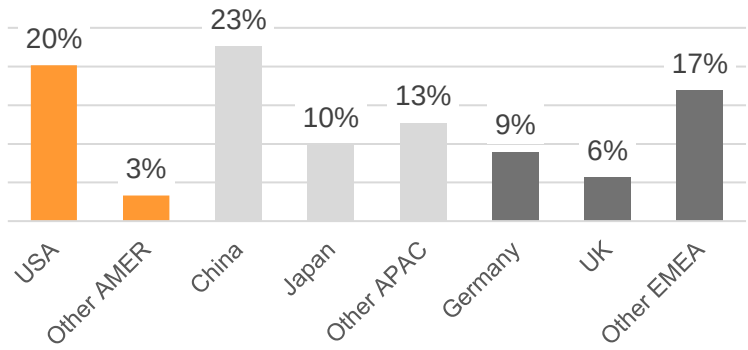
- R&D mostly in UK
- Main manufacturing in UK, Ireland and India
- 94% revenues outside of UK



FY23 revenue by region



FY23 revenue – key territories



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Our ambition

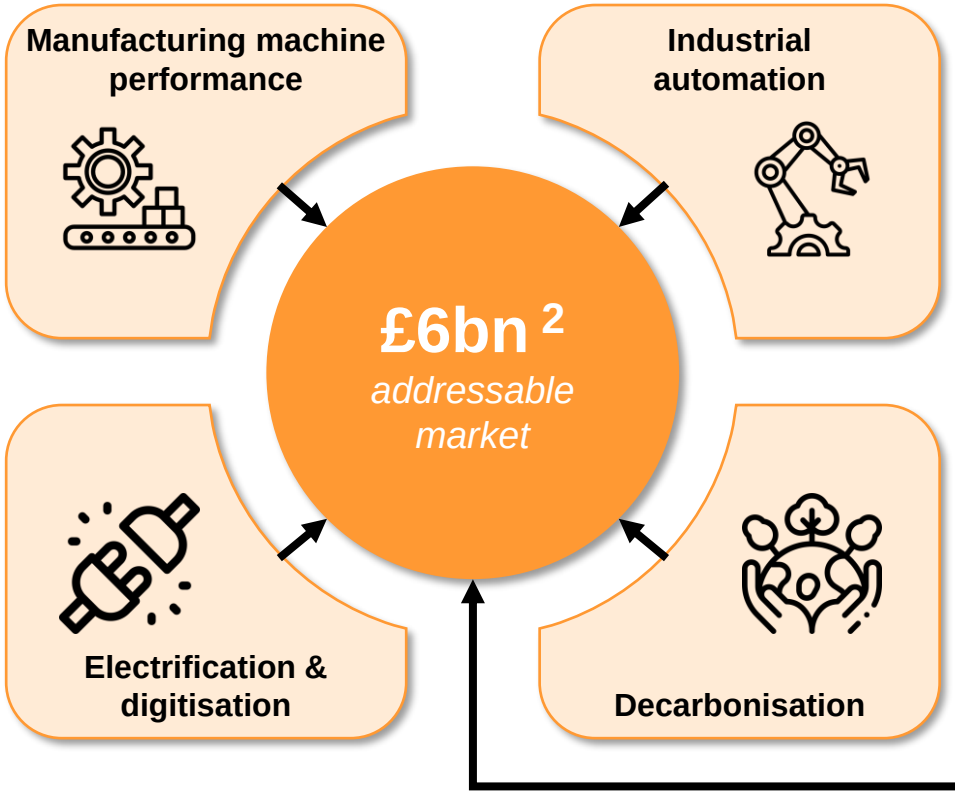
Manufacturing technology powerhouse

- Innovator in technologies for an automated, sustainable world
- Leading positions in an expanding range of high-growth markets
- Portfolio of sensor and software-enabled systems businesses
- High single digit through-cycle organic growth with >20% EBIT margin
- Responsible business that creates value for all our stakeholders

Long-term value creation model

Targeting high single digit through-cycle organic growth

Well positioned in markets growing at >5% [1] p.a.



Strategy driving consistent outperformance

Growing in existing markets	Increasing technology value	Extending into new markets	Strategic priorities
Fitment levels, cross sales & customer wins	*Systems, software and smart factory solutions*	*Robotics & industrial automation*	

Capital allocation

Commercial focus | **Innovation** | **In-house manufacturing**

Portfolio growth

Future	Emerging [4]	Established [3]
• R&D in attractive adjacencies	• Rapid share gain to grow profit %	• #1 / #2 • Profitable • Growing

Notes:

1. Estimated weighted average through-cycle demand growth of Renishaw's addressable markets
2. Unaudited management estimates from a combination of external market research and Company market knowledge
3. Established portfolio products occupy a leading market position (#1 or #2 market share)
4. Emerging portfolio products operate in more fragmented markets with significant opportunity to gain market share

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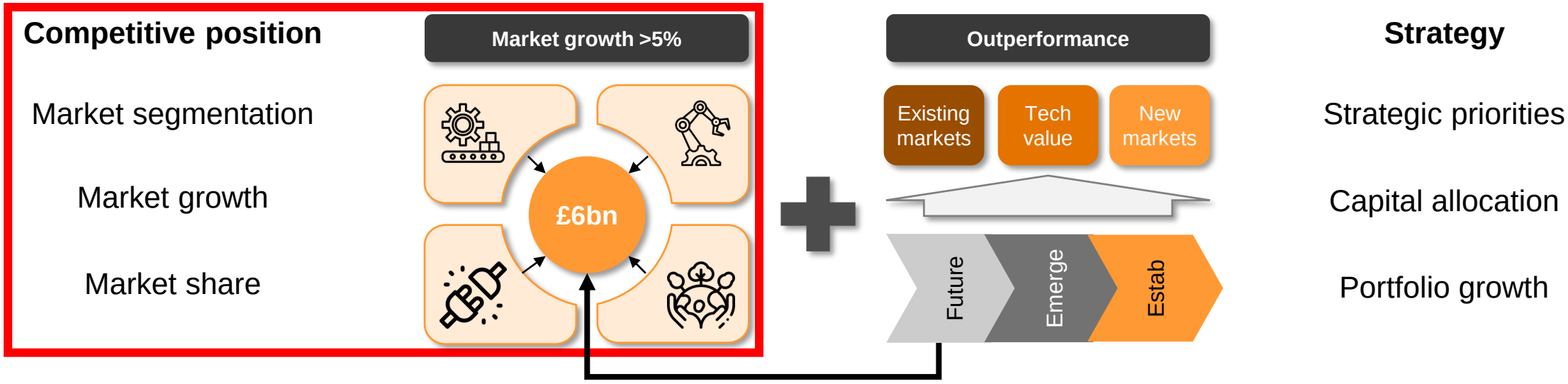
Markets & competitive position

Value creation model

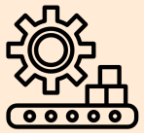


Attractive markets growing at >5% p.a.

Structural growth drivers underpinning sustained market growth

MANUFACTURING TECHNOLOGY

Manufacturing machine performance



Relentless drive to improve the **precision, speed and capability** of manufacturing equipment to make the advanced products of the future

Industrial processes are becoming more **automated** as manufacturers grapple with skilled labour shortages and aim to become more productive

Industrial automation

CHANGES IN WIDER SOCIETY

Electrification & digitisation

As the world becomes more **electrified** and **connected**, we are seeing sweeping changes in the transportation, electronics and semiconductor industries

The drive to **decarbonise** is forcing every manufacturer to rethink how we design, make and support our future products to minimise our environmental impact

Decarbonisation

Strong competitive position with opportunities for growth

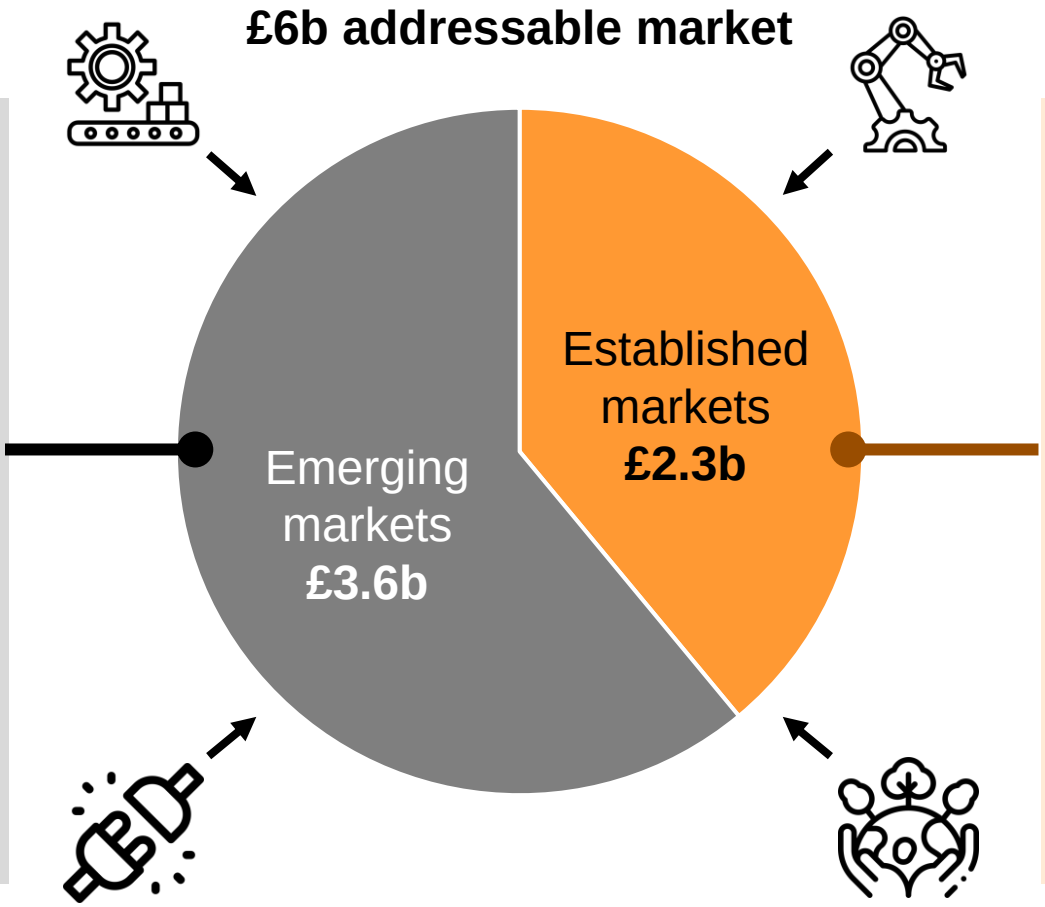
Strong positions in multiple geographic and end-market niches

Emerging markets

- Opportunity to gain market share in fragmented emerging markets
- Many emerging markets also have high growth rates (e.g. additive manufacturing, robotics, shop-floor metrology)

Emerging businesses:

- Metrology systems & software
- Additive manufacturing
- Enclosed encoders
- Industrial automation



Established markets

- Protect and enhance strong market positions (#1 / #2)
- Structural growth drivers, expected to persist in the long term, underpinning ongoing market growth

Established businesses

- Metrology sensors & styli
- Open encoders
- Calibration
- Spectroscopy

Out-performance strategy

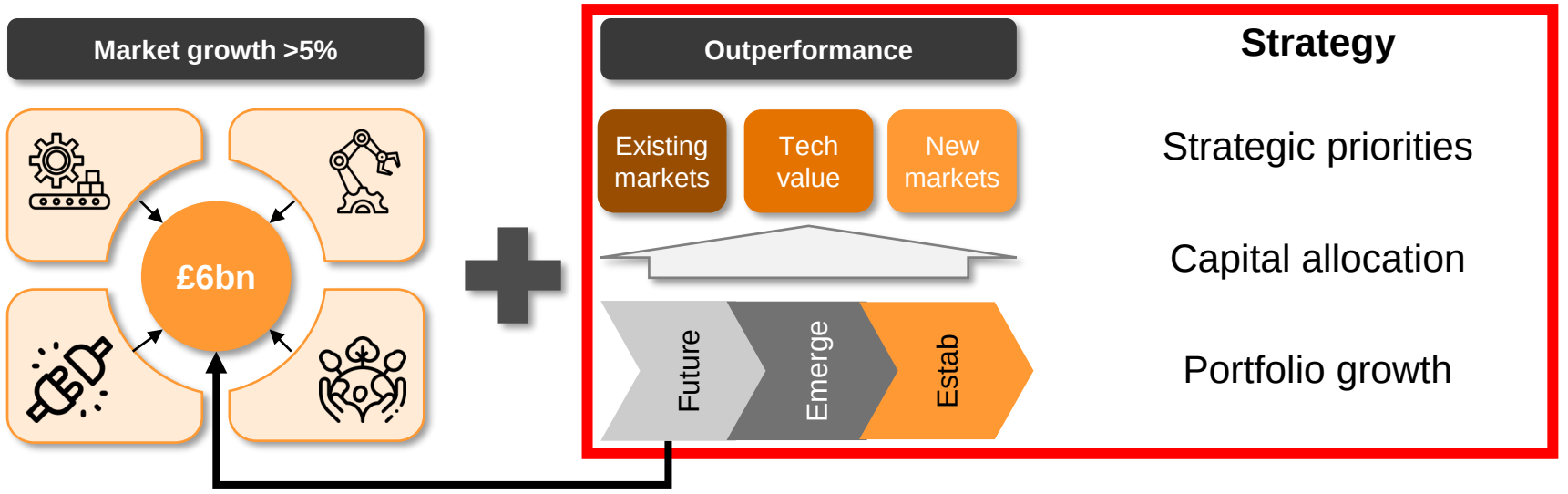
Value creation model

Competitive position

Market segmentation

Market growth

Market share



Strategy to drive consistent outperformance

Existing markets | Tech value | New markets

3 areas of strategic focus to combat competition & grow our market share

Strategy driving consistent outperformance

	Growing in existing markets		Increasing technology value			Extending into new markets
						
Strategic priority	**Increase revenue per machine tool**	**Win new machine builder customers**	**Build systems sales**	**Expand software business**	**Smart factory solutions**	**Diversify into close-adjacent markets**
Businesses	Industrial Metrology Position Measurement	Position Measurement	Industrial Metrology Additive Manufacturing	Industrial Metrology Position Measurement Additive Manufacturing	Industrial Metrology Position Measurement Additive Manufacturing	Industrial Metrology Position Measurement

Notes
Current focus
Future focus

Investment in innovation and productivity

Commercial focus | Innovation | In-house manufacturing

Capital allocation for through-cycle organic growth

Engineering

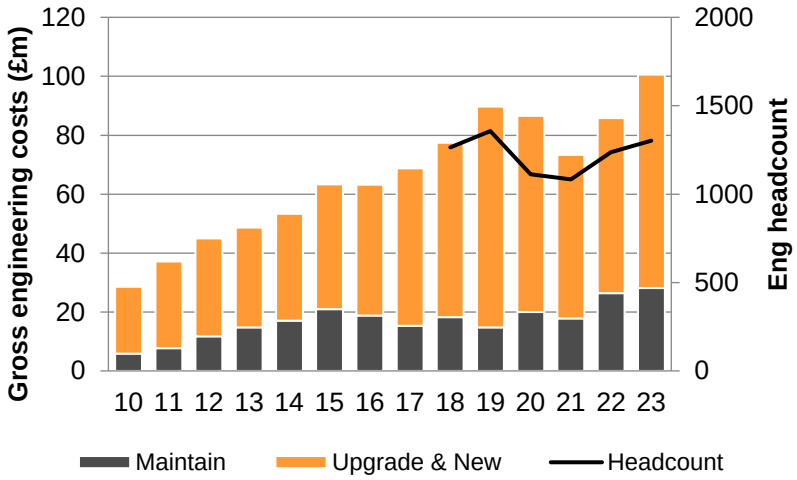
- **Maintain**: current products
- **Upgrade**: substitutional new products to enhance competitive position
- **New**: non-substitutional new products to meet new customer needs

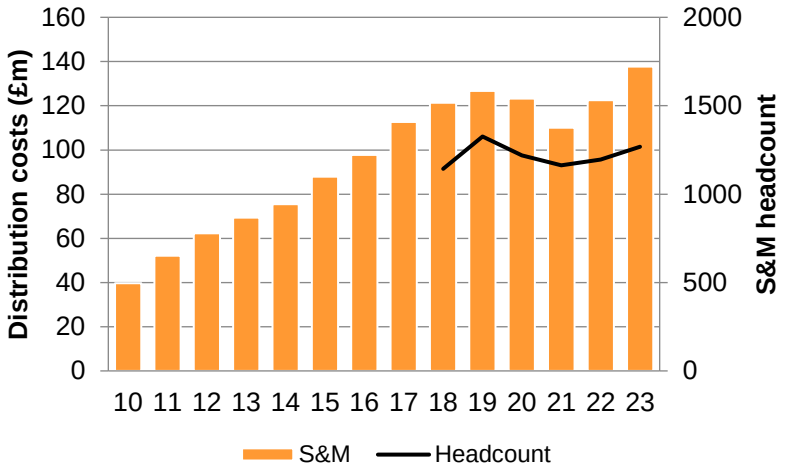
Sales & marketing

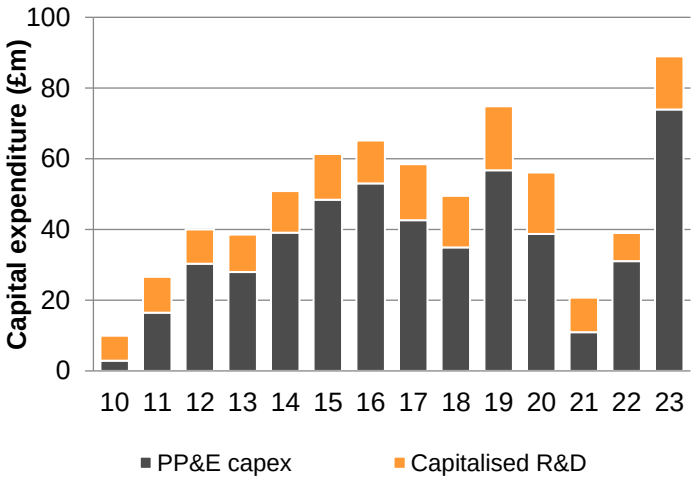
- Expand local teams to support existing & new customers
- Grow office network to support new customer locations
- Pay, travel & marketing expenses

Capital expenditure

- Property, plant & equipment to grow our sales network, R&D facilities, IP assets and manufacturing capacity
- ROIC typically >15% [1]







Notes

1. ROIC = return on invested capital = net operating profit after tax / average of (capital employed – cash & deposits)

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Building our portfolio

An evolving portfolio of businesses providing profits, growth and exposure to new markets

Future
- R&D in close adjacencies to grow market

Emerging
- Rapid market share gain to grow profit %

Established
- #1 / #2
- Profitable
- Growing

Portfolio growth

R&D to develop a pipeline of innovative technologies & new products, enabling **diversification** into high-growth, close-adjacent markets

Rapid commercialisation of novel solutions to build substantial, profitable market positions in high-growth markets to move into Established

Protect and enhance our leading position in growing markets through superior product performance, quality and service

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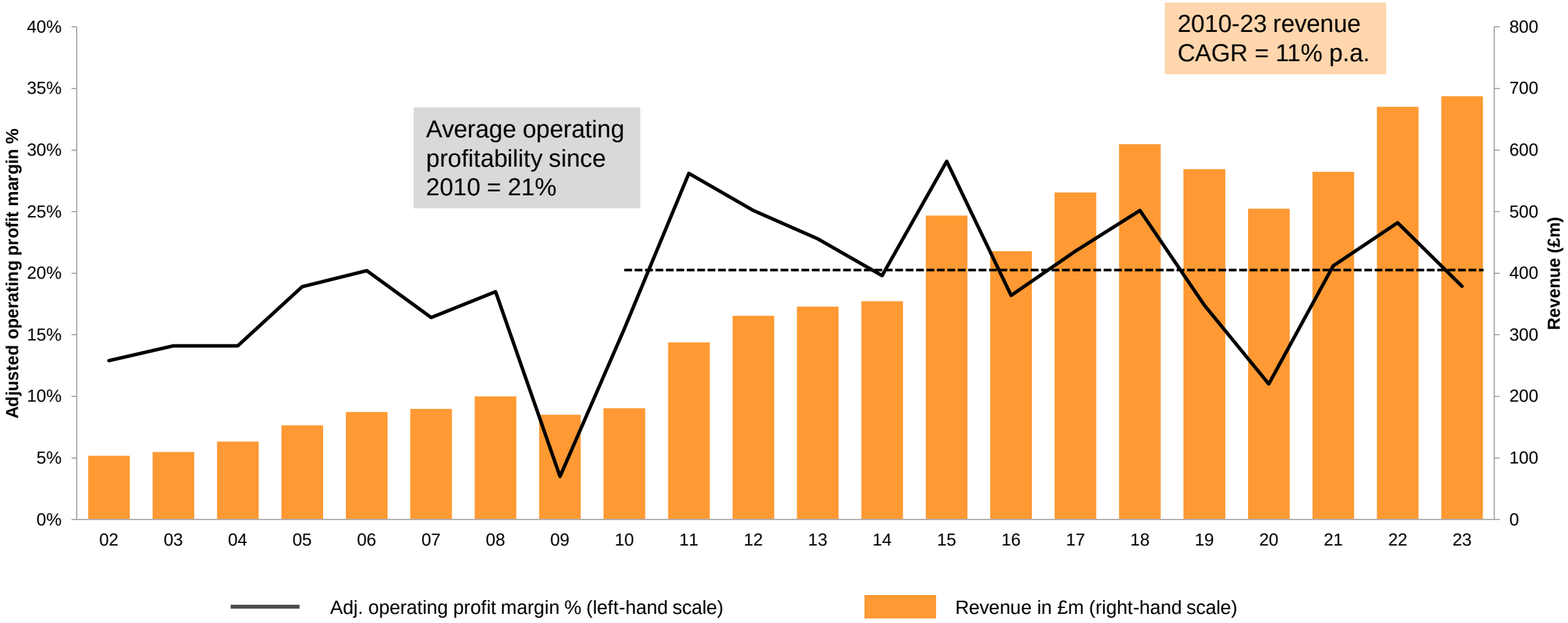
Financial track record

Sustained organic growth and strong operating margins



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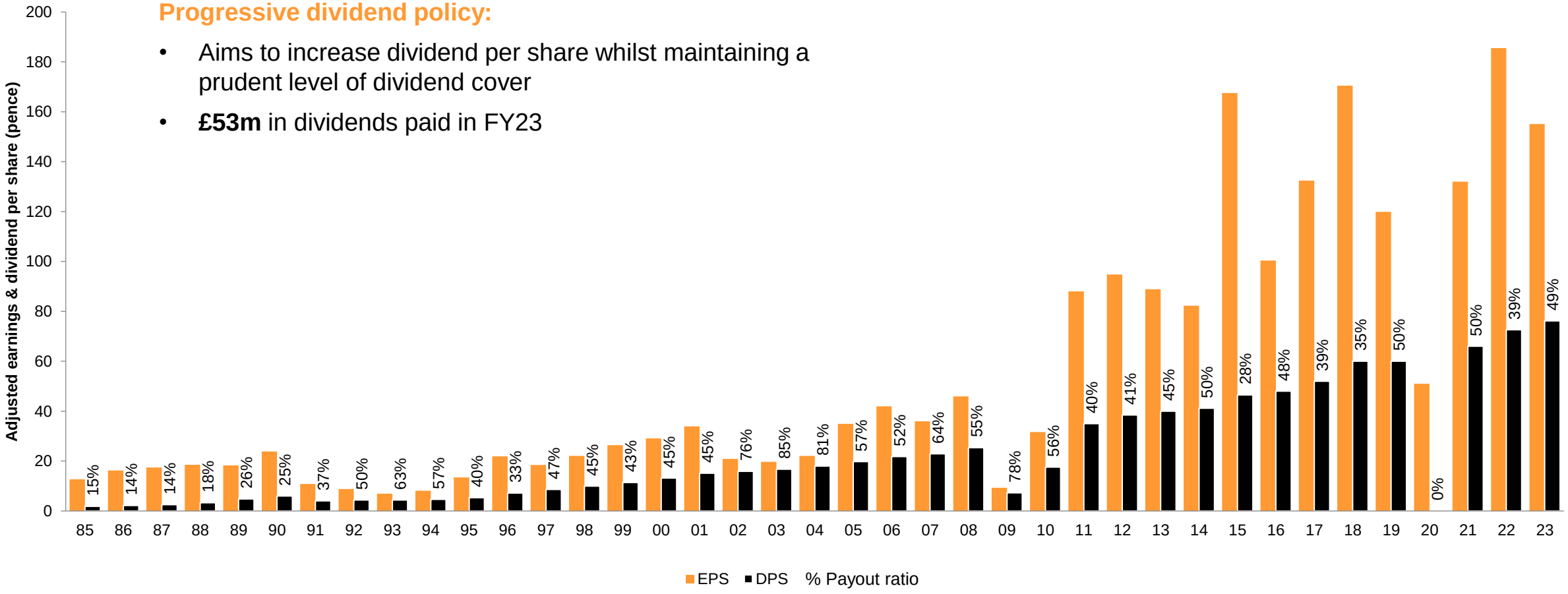
Delivering shareholder value

Long-term track record of dividend growth

Progressive dividend policy:

- Aims to increase dividend per share whilst maintaining a prudent level of dividend cover
- **£53m** in dividends paid in FY23



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Transforming tomorrow together

We make it possible to create the products, materials and therapies that will define our world in the decades to come and touch billions of lives

Ambition

High single digit through-cycle organic growth with >20% EBIT margin

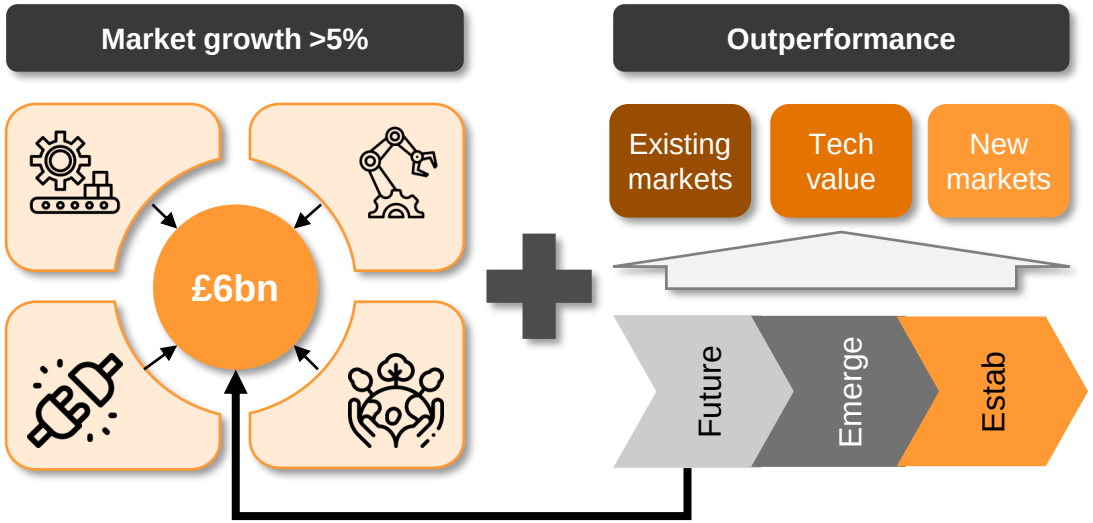
Value creation model

Competitive position

Market segmentation

Market growth

Market share



Strategy

Strategic priorities

Capital allocation

Portfolio growth

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Results and strategy Q&A

Will Lee
Chief Executive

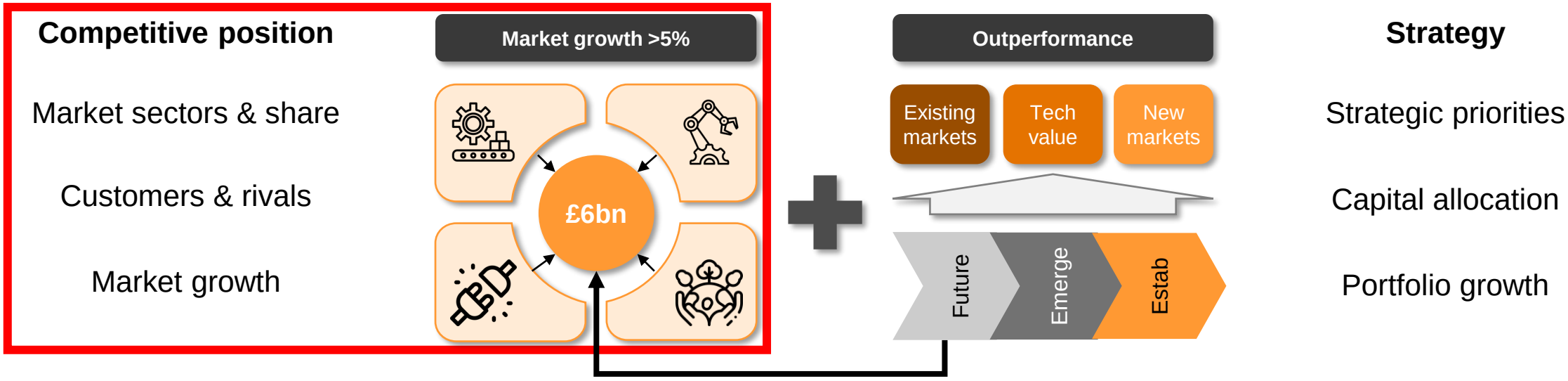
Allen Roberts
Group Finance Director

Markets & competitive position

Marc Saunders
Director of Group Strategic Development

Markets & competitive position

Value creation model



Market segmentation & business maturity

Our Product Groups & product lines

Emerge | Estab

Renishaw plc

PRODUCT GROUPS

Manufacturing technologies

Industrial Metrology

Measurement & control of precision component manufacturing processes

Established product lines:

- CMM sensors
- Machine tool probes
- Styli & fixturing

Emerging product lines:

- CMM & gauging systems
- Metrology software
- Smart manufacturing data platform

Position Measurement

Precision motion control of robotics, machinery and factory automation

Established product lines:

- Open optical encoders
- Laser encoders
- Magnetic encoders
- Calibration

Emerging product lines:

- Enclosed optical encoders
- Industrial automation

Additive Manufacturing

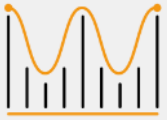
Production of intricate metal components from a digital model

Emerging product lines:

- Industrial metal 3D printers
- Build preparation & process monitoring software

Analytical instruments & medical devices

Spectroscopy



Materials analysis instruments

Established product line:

- Laboratory Raman spectroscopy

Emerging product line:

- Industrial process Raman

Neurological

Central nervous system surgical and drug delivery solutions

Industrial Metrology

Measurement & control of precision component manufacturing processes

Established

Emerging

Applications

Automated process set-up, in-process control and multi-sensor post-process monitoring of precision component manufacturing operations

Benefits

Enables tighter tolerances, eliminates reliance on skilled labour, minimises downtime and automates production

Renishaw's USPs

- Comprehensive range of CMM and machine tool sensors
- REVO® 5-axis multi-sensor measurement
- AGILITY® high-throughput CMMs
- EQUATOR™ flexible shop-floor gauge with Intelligent Process Control

Market-leading sensors

CMM sensors **#1**

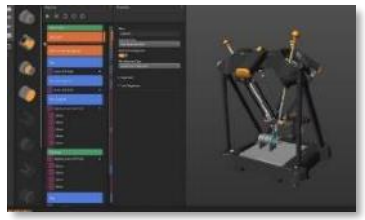
Machine tool probes **#1**

Styli & fixturing **#1**

Innovative metrology systems & software

CMM & gauging systems **Rising**

Metrology software **Rising**



Renishaw Central **NEW**

Notes

#1 etc = Renishaw's assessment of its market position in each segment

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Position Measurement

Precision motion control of machinery, robotics & factory automation

Established

Emerging

Applications

Precision motion control for semiconductor manufacturing equipment, machine tools, metrology equipment, robotics and factory automation

Benefits

Enables automated industrial equipment to move with greater speed and precision, supporting the evolving needs of advanced manufacturing

Renishaw USPs

- Comprehensive range of price-performance
- Practicality: easy installation and lowest cost of ownership
- Picometer fibre laser encoders ideal for wafer inspection
- Leading provider of magnetic encoders for cobots
- Innovators in robot metrology

Contactless encoders for precision motion control

Open optical encoders **#2**

Fibre laser encoders **#1**

Magnetic encoders **#2**

Motion control & calibration for machine tools & robots

Calibration systems **#1**

Enclosed encoders **NEW**

Industrial Automation **NEW**

Notes

#1 etc = Renishaw's assessment of its market position in each segment

Additive Manufacturing

Industrial metal 3D printing for volume production applications

Emerging

Applications

Volume production of intricate metal components in a wide range of sectors, including medical, aerospace, and consumer electronics

Benefits

AM provides new design possibilities, including opportunities to combine multiple components in production, minimise material use and reduce tooling costs

Renishaw USPs

- The most productive mid-sized laser power-bed fusion machine on the market
- High material properties enabling high-strength parts
- Compact machine footprint
- Lowest cost per part

RenAM 500Q multi-laser AM machine and QuantAM build preparation software

Mass produced medical implants, image courtesy of Permedica SpA

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Spectroscopy

Analytical instruments

Established

Applications

Raman spectroscopy for materials research in academia, life sciences, pharma, and high-tech manufacturing

Benefits

Non-destructive, highly specific chemical information

Renishaw USPs

- Market-leading inVia research-grade microscope
- Best data in the shortest time
- Complements other laboratory techniques

New InLux™ system enables combined Raman and scanning electronic microscope (SEM) analysis ►

Neurological

Medical devices

Emerging

Applications

Neurosurgical and drug delivery systems to treat neuro-degenerative diseases, cancers, and debilitating conditions

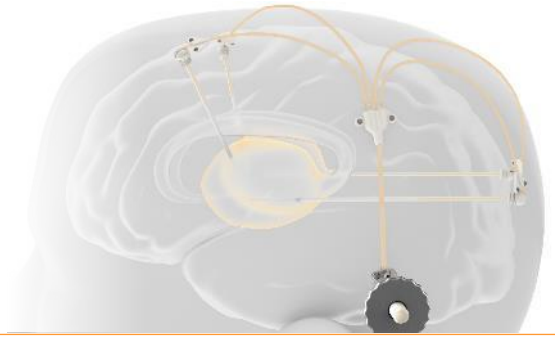
Benefits

Improving patient outcomes through accurate implantable devices

Renishaw USPs

- Proven robot for precision-guided neurosurgery
- Unique drug delivery system supports both acute and chronic infusions

neuroinfuse™ drug delivery system enables treatment of acute and chronic neurological conditions ►

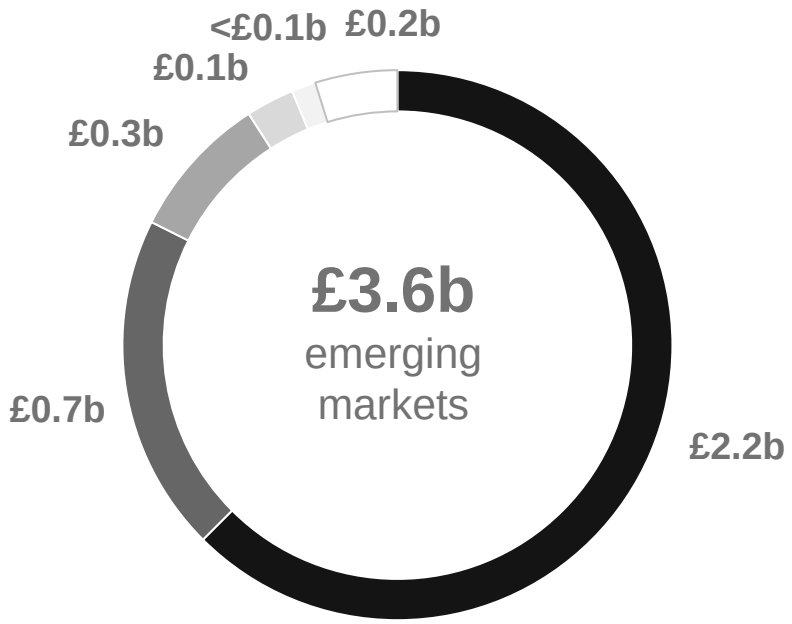


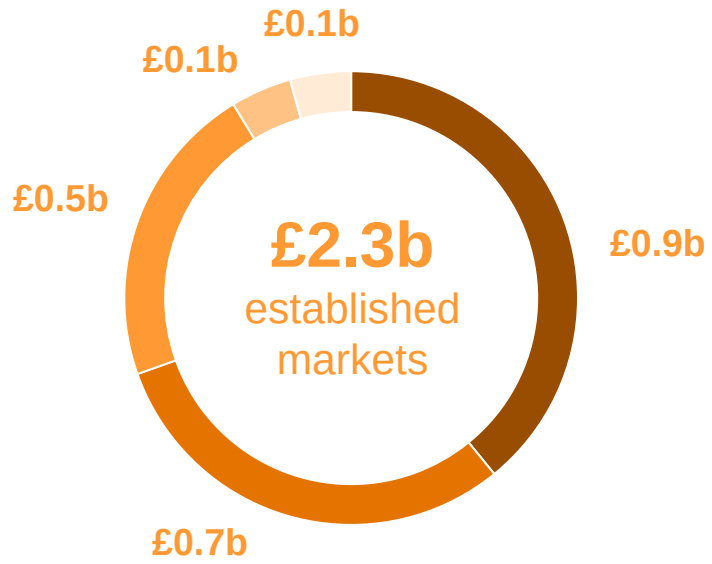
Market segmentation

Emerge Estab

Opportunities for market share gains in substantial markets

£6b
addressable market [1]





- Metrology systems – shop-floor CMMs, gauging, software
- Metal powder-bed fusion AM machines
- Machine tool precision – enclosed encoders
- Robot precision – calibration
- Smart factory data platforms
- Neurological

- Metrology sensors – CMM, machine tool, styli
- Precision position encoders – open optical & laser
- Robot precision – magnetic encoders
- Machine tool precision – calibration
- Spectroscopy

Notes
1. Unaudited management estimates from a combination of external market research and company market knowledge

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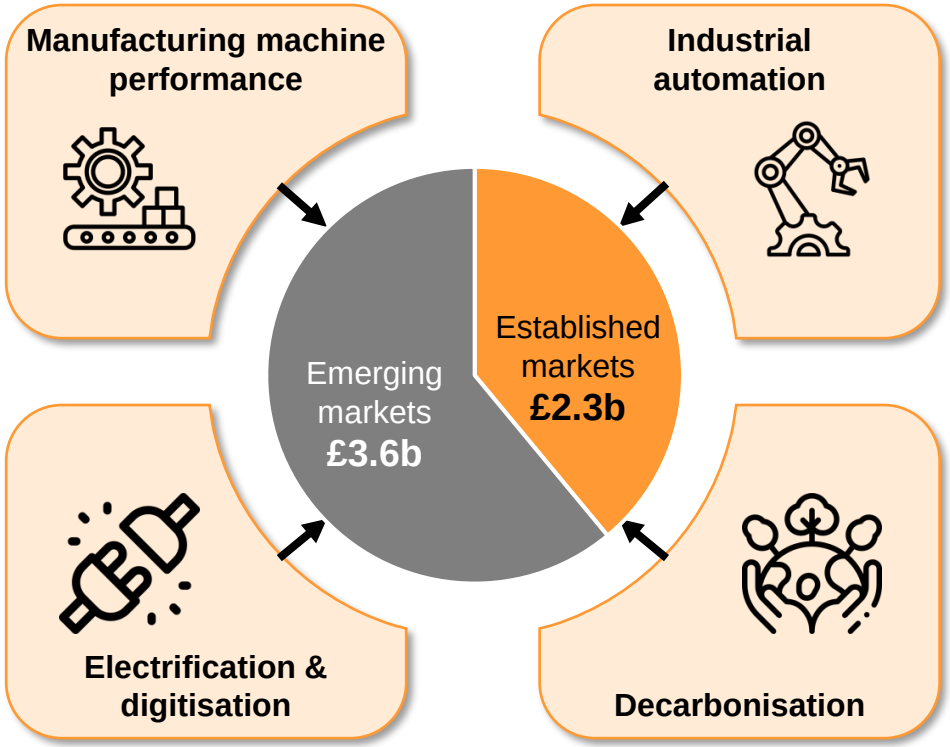
Market segmentation & market share

Strong positions and opportunities for market share gains in growing markets

Well positioned in markets growing at >5% p.a.



	Emerging	Established
Products	• IM systems & software • AM machines • Enclosed encoders • Industrial automation	• IM sensors • Open encoders • Calibration • Spectroscopy
Market size	£3.6b	£2.3b
FY24 revenue	<20%	>80%
Market share	<10%	>20%

- Structural growth drivers, expected to persist in the long term, underpin growth in our addressable markets
- Strong positions in established markets (#1 / #2)
- Opportunity to gain market share in fragmented emerging markets, many of which are expected to exhibit high growth rates

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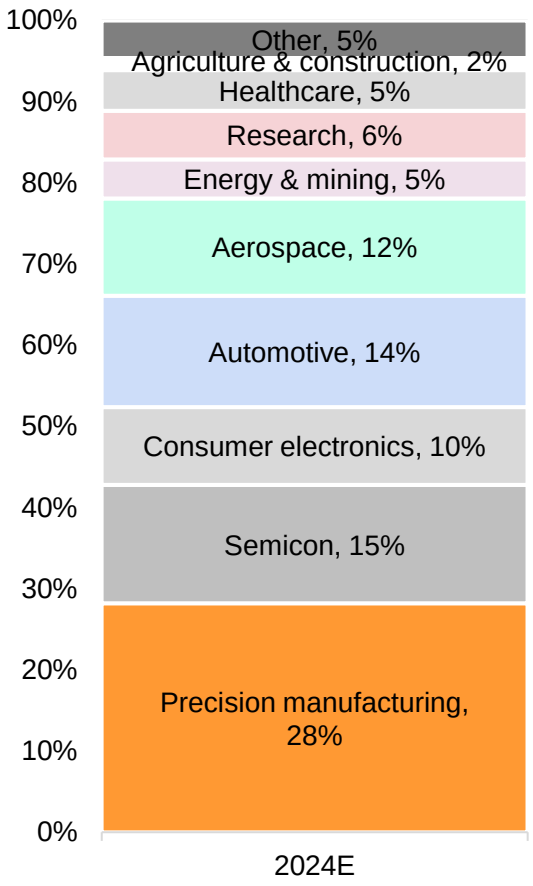
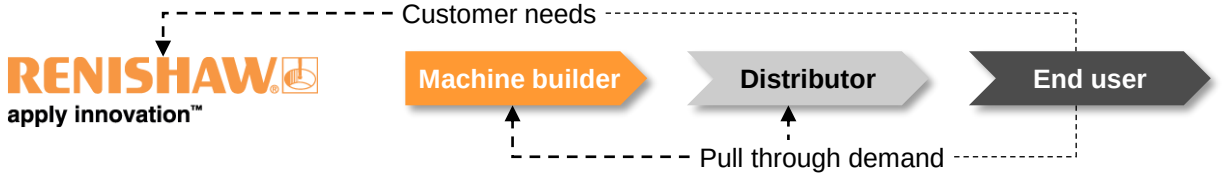
Customers & competitors

Industries served & routes to market

Broad range of ultimate end user industries



Complementary routes to market

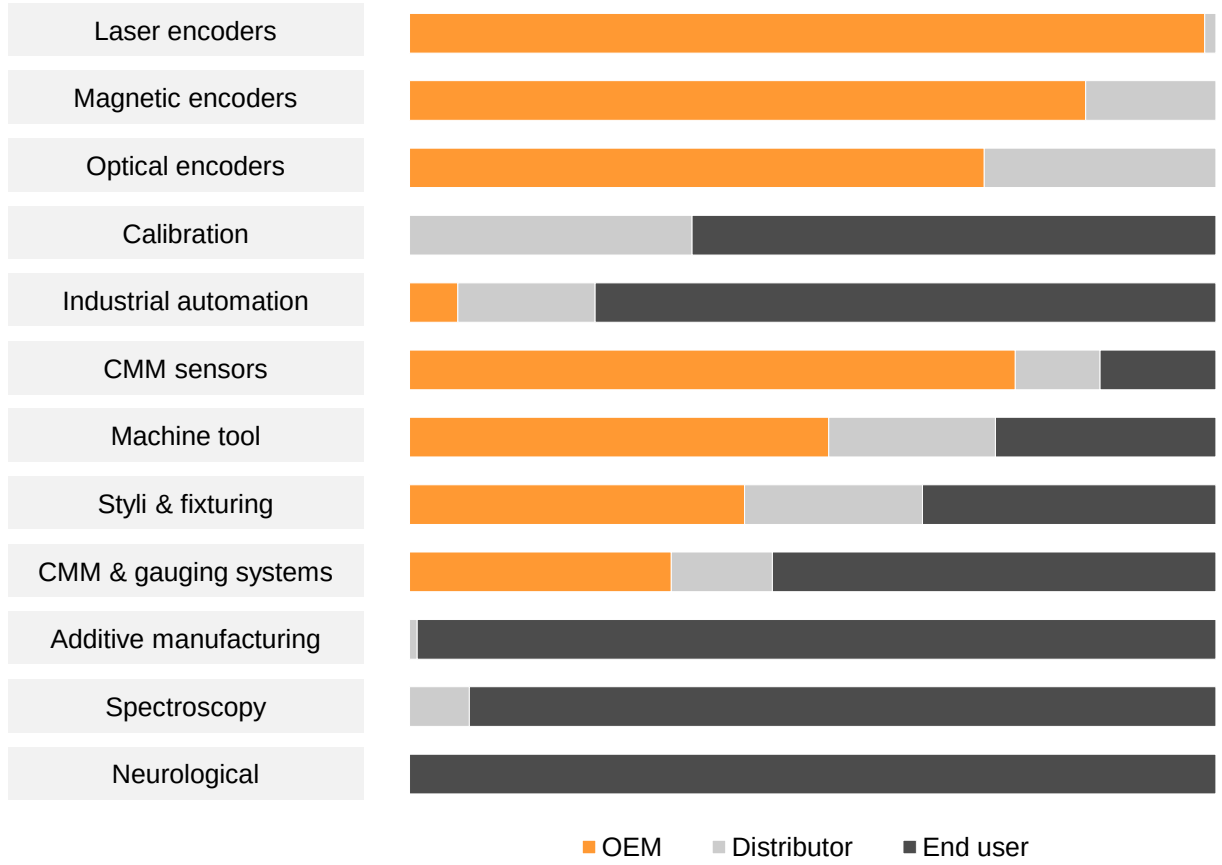


Sales strategies:

Position Measurement
Encoder sales are dominated by machine builders who integrate encoders into their equipment. By contrast, calibration & industrial automation are end-user driven business

Industrial Metrology
Mostly machine builder & distributor sales, plus end-user consumables. Exceptions can be found in CMM & gauging systems (capex sales) and machine tool probing (projects)

Other
Product lines comprise capital goods sales, mostly direct to end-users



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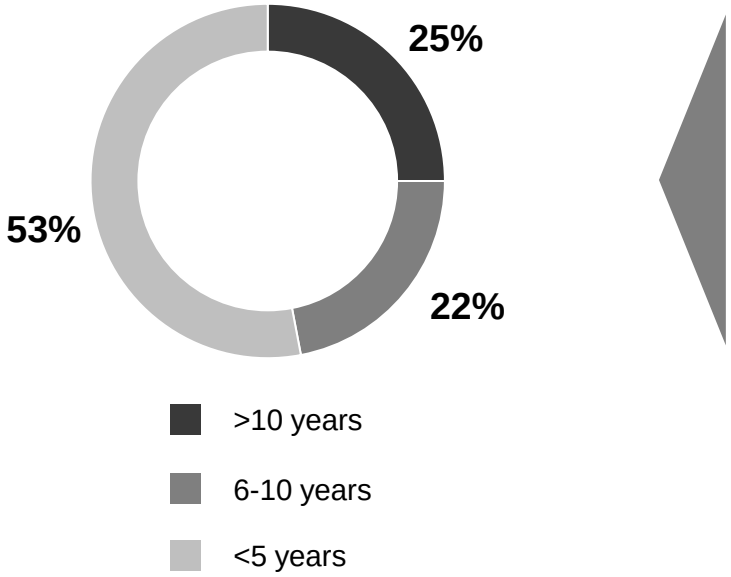
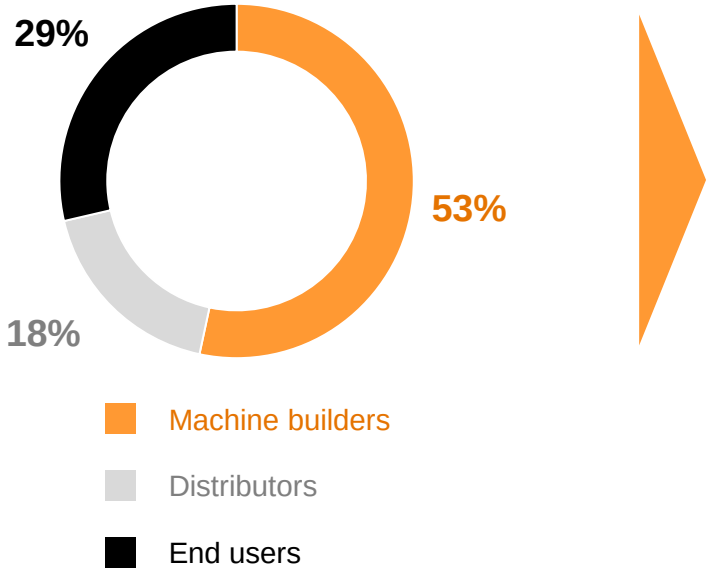
Customer age profile

Reoccurring revenues from machine builders and key end-users

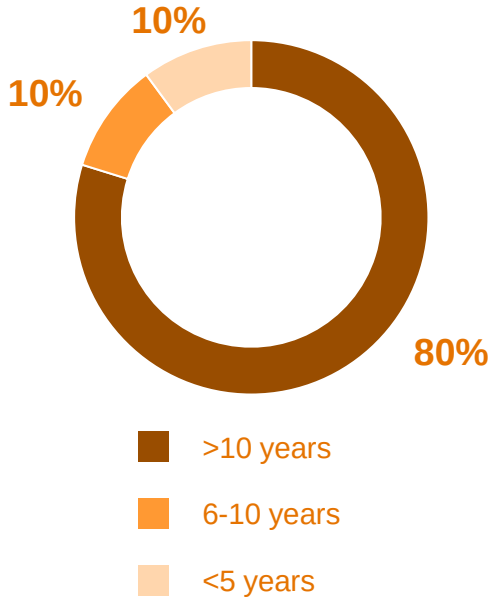
End users [1]



Route to market



Machine builders [2]



- New customers targeted by emerging businesses
- Key account strategy to develop larger end-user customers

- 80% of machine builder revenue from long-standing customers
- Steadily growing customer base contributes to outperformance

Notes

1. Analysis applies to FY23 sales to end-user customers in Manufacturing Technology product lines
2. FY23 sales to machine builder customers for Industrial Metrology and Position Measurement products

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Competitive landscape

Range of rivals, opportunities in fragmented markets & growth territories, rising China threat

Industrial Metrology

Established rivals

- Hexagon
- Carl Zeiss
- Blum-Novotest
- Heidenhain

Market dynamics

- Stable key brand rivalry
- Rising focus on software
- Growth opportunities in emerging geographies
- China becoming more competitive & price-sensitive

Position Measurement

Established rivals

- Heidenhain
- Sensata
- Celera Motion
- Baumer
- Keysight
- Zygo

Market dynamics

- Heidenhain #1 position
- Renishaw steadily gaining share
- Emergence of low-price rivals in China

Additive Manufacturing

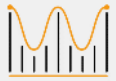
Established rivals

- EOS
- SLM Solutions (Nikon)
- Concept Laser (GE)
- Trumpf
- VELO 3D
- 3D Systems

Market dynamics

- Fragmented market
- Low profitability
- Consolidation
- Emergence of low-price Chinese machine builders

Spectroscopy



Established rivals

- Horiba
- Kaiser (Endress & Hauser)
- Witec (Oxford Instruments)
- Bruker
- Thermo Fisher

Neurological

- ClearPoint
- Zimmer Biomet

Market growth

Trends in the manufacturing technology ecosystem

Size and growth rates of our underlying markets

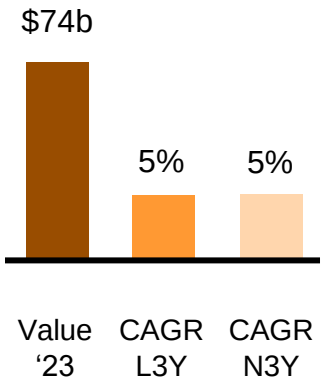
Well-positioned in markets growing at >5% p.a.

Key capex market indicators that underpin demand for Renishaw technologies

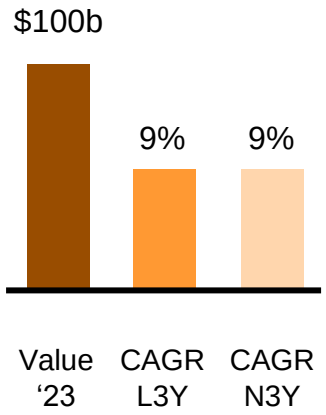
Charts key:

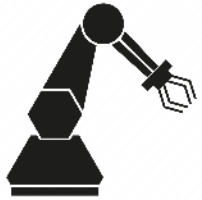
- **Value '23** = estimated global investment in 2023
- **CAGR L3Y** = average growth over last 3 years
- **CAGR N3Y** = forecast average growth over next 3 years

Machine tool consumption [1]

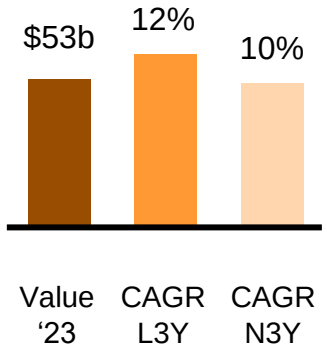


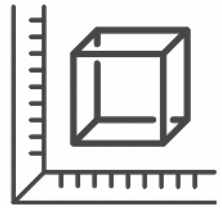
Semiconductor equipment [2]



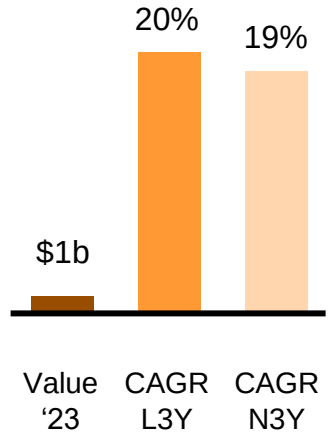


Industrial robotics [3]

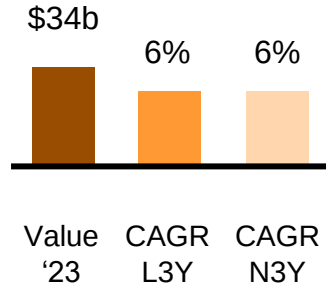




Metal AM equipment [4]



Laboratory equipment [5]



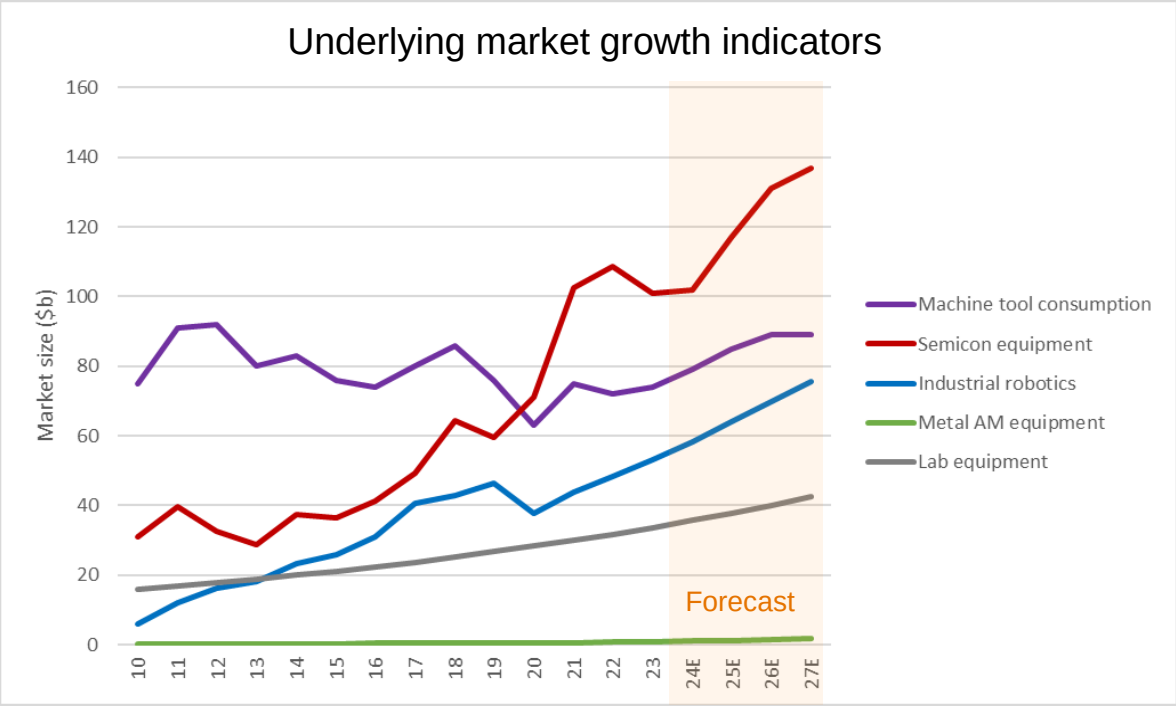
Sources

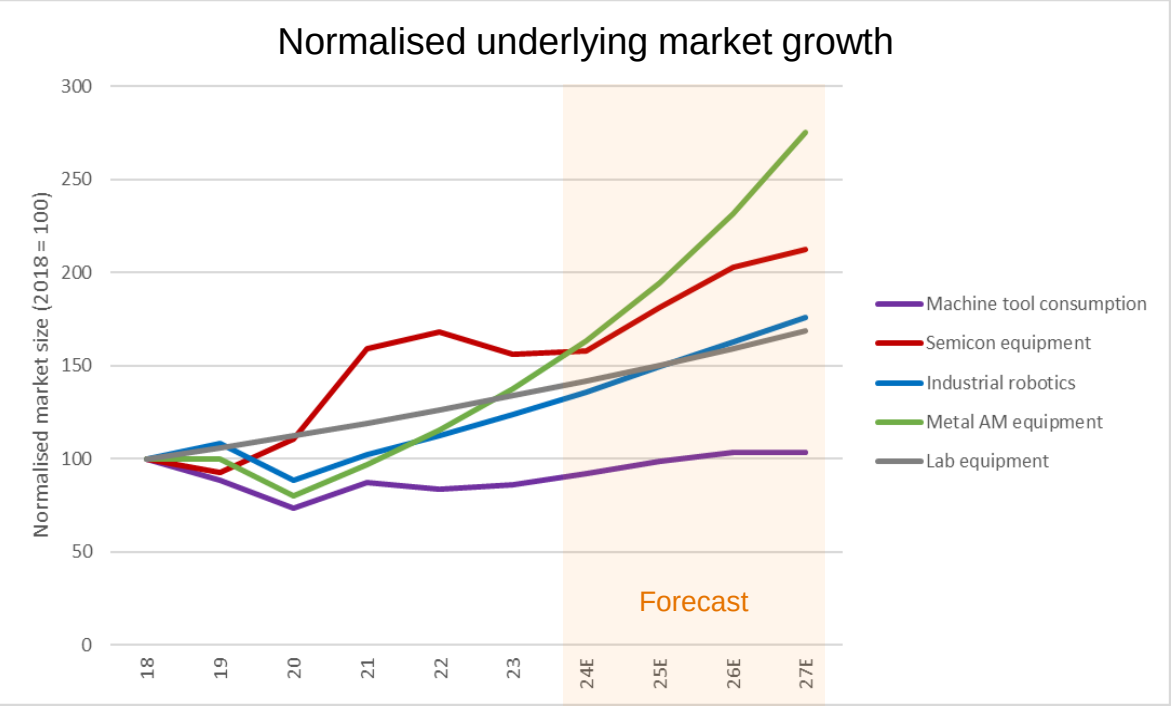
1. Oxford Economics Global Machine Tool Survey 2022
2. SEMI / Statista
3. Global Industrial Robotics Market Report (2022 to 2030) - (globenewswire.com)
4. Context Research
5. Laboratory Equipment Market Report | Global Forecast From 2023 To 2031 (dataintelo.com)

RENISHAW apply innovation™

Trends in the manufacturing technology ecosystem

Historic capex trends and medium-term forecasts





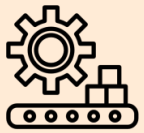
- Machine tool demand has been roughly stable since 2010 – Renishaw MT probing growth achieved through rising fitment levels
- Semiconductor manufacturing equipment now the largest asset class, expected to grow 24% over next 2 years, but likely to remain cyclical
- Robot investment continues to grow strongly and may overtake machine tool investment in the years ahead
- Additive manufacturing is a much smaller asset class today, but has the highest recent and projected growth rates
- Lab equipment grows at a steady 6%, with minimal cyclicality

Attractive markets growing at >5% p.a.

Structural growth drivers underpinning sustained market growth

MANUFACTURING TECHNOLOGY

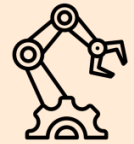
Manufacturing machine performance



Relentless drive to improve the **precision, speed and capability** of manufacturing equipment to make the advanced products of the future

Industrial processes are becoming more **automated** as manufacturers grapple with skilled labour shortages and aim to become more productive

Industrial automation



CHANGES IN WIDER SOCIETY

Electrification & digitisation

As the world becomes more **electrified** and **connected**, we are seeing sweeping changes in the transportation, electronics and semiconductor industries

The drive to **decarbonise** is forcing every manufacturer to rethink how we design, make and support our future products to minimise our environmental impact

Decarbonisation

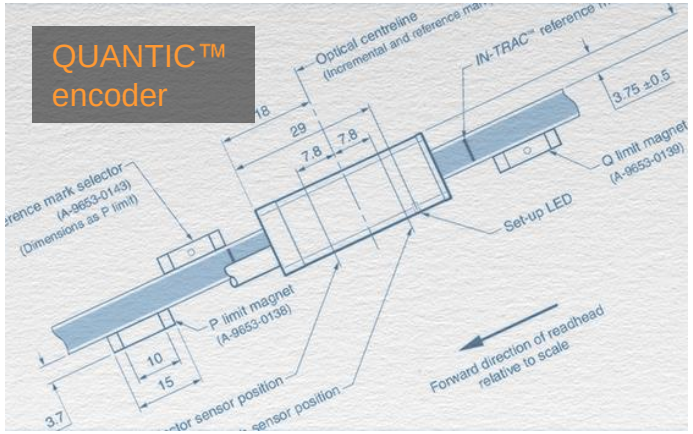
Structural market drivers – machine performance

Improve the precision, speed and capability of manufacturing equipment

CASE STUDY: KOVERY linear motors

- Linear motors are widely used in electronics & semiconductor manufacturing & machine tools
- KOVERY specialises in high-speed and ultra-high-precision linear motors, with minimal velocity ripple & bearing wear
- Renishaw QUANTiC™ encoders meet these demanding performance requirements, as well as providing:
  - Excellent cost performance & delivery
  - Fast & easy installation
  - Expert technical support


KOVERY linear motor



QUANTIC™ encoder


KOVERY President, Kim Houng-joong

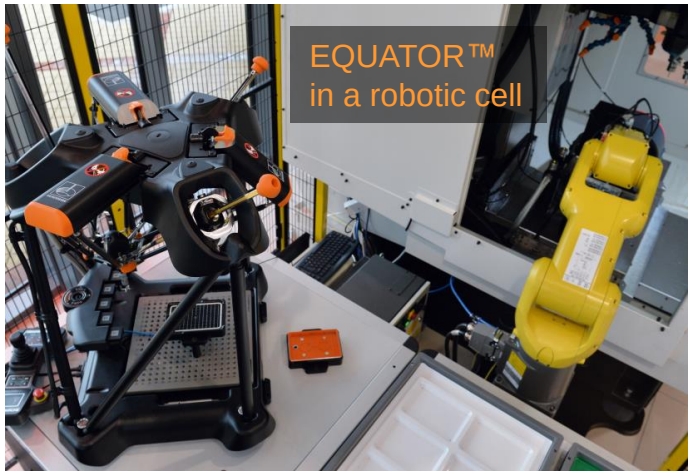
RENISHAW apply innovation™

Structural market drivers – industrial automation

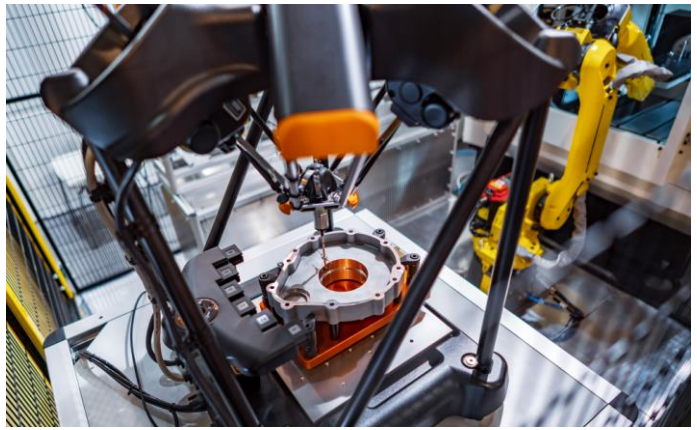
Intelligent process control to automate machining & boost productivity

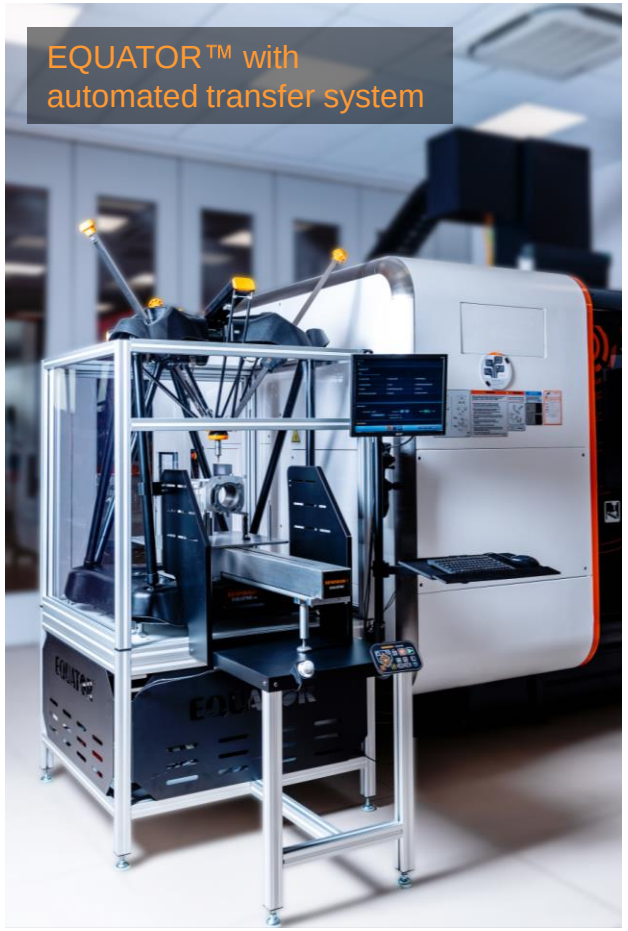
CASE STUDY: automated gauging

- High-volume component machining is increasingly automated due to labour shortages and cost pressures
- Automation requires metrology to detect and compensate for process variation and drift
- EQUATOR™ is the leading shop-floor flexible gauge, widely used in automotive, aerospace and consumer electronics production
- EQUATOR is often integrated into robot-loaded machining cells and can provide fully automated feedback to keep processes under control



EQUATOR™ in a robotic cell





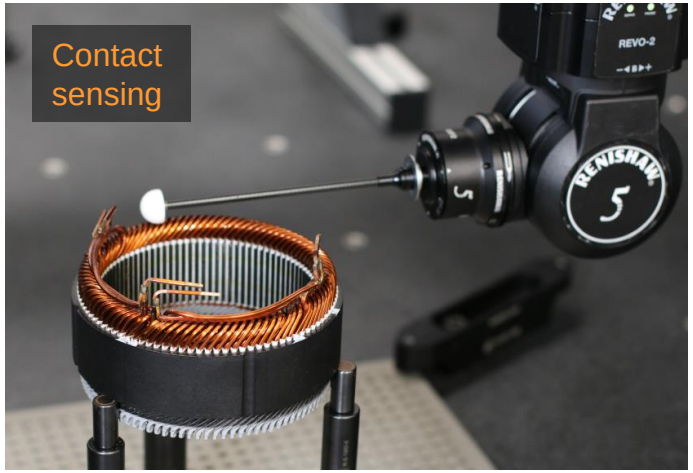
EQUATOR™ with automated transfer system

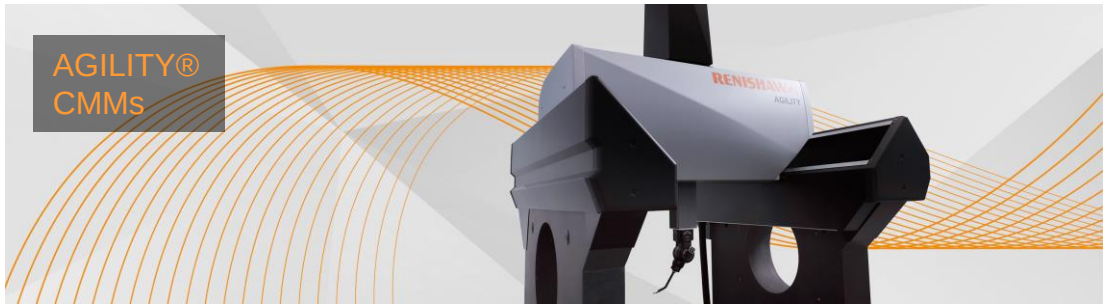
Structural market drivers – electrification

EV production creates new measurement challenges

CASE STUDY: multi-sensing

- Complex products require comprehensive inspection using multiple techniques
- REVO® 5-axis multi-sensor inspection system combines contact sensing, video, fringe, surface, temperature and thickness sensors
- High-throughput inspection in a single automated process





Structural market drivers – decarbonisation

Designing innovative products with a low carbon footprint

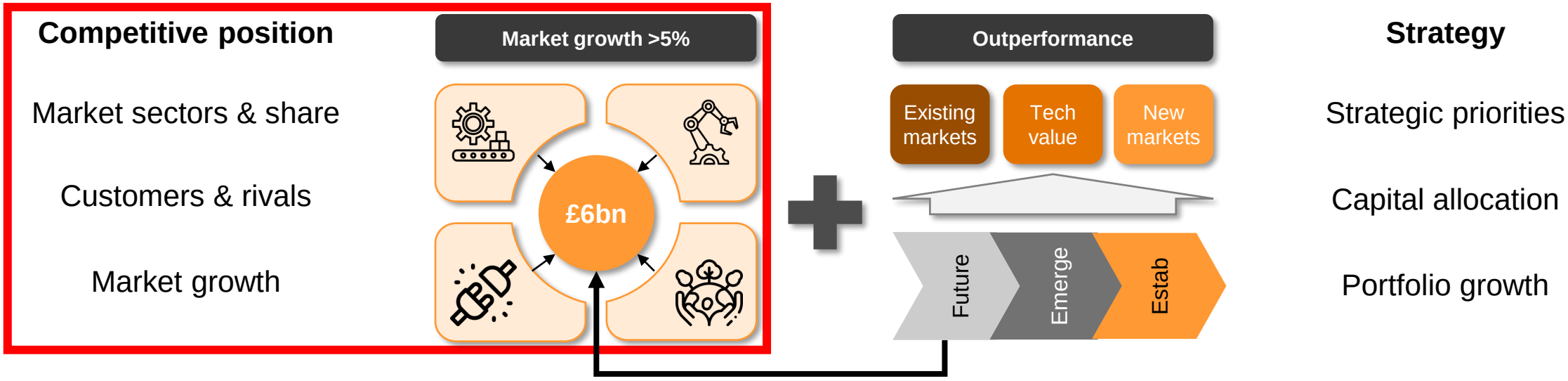
CASE STUDY: additive servo valves

- Hydraulics produce twice as much CO_2e emissions as the aerospace industry – valves are typically only 23% efficient
- DOMIN Fluid Power is disrupting the hydraulics industry by redesigning servo valves using additive manufacturing
- Better performing and more sustainable
- Additive manufacturing enables lower material consumption & embodied carbon
- Over its lifetime, each valve could save multiple tonnes of CO_2e

DOMIN Fluid Power's direct drive valves

Markets & competitive position

Value creation model



Q&A

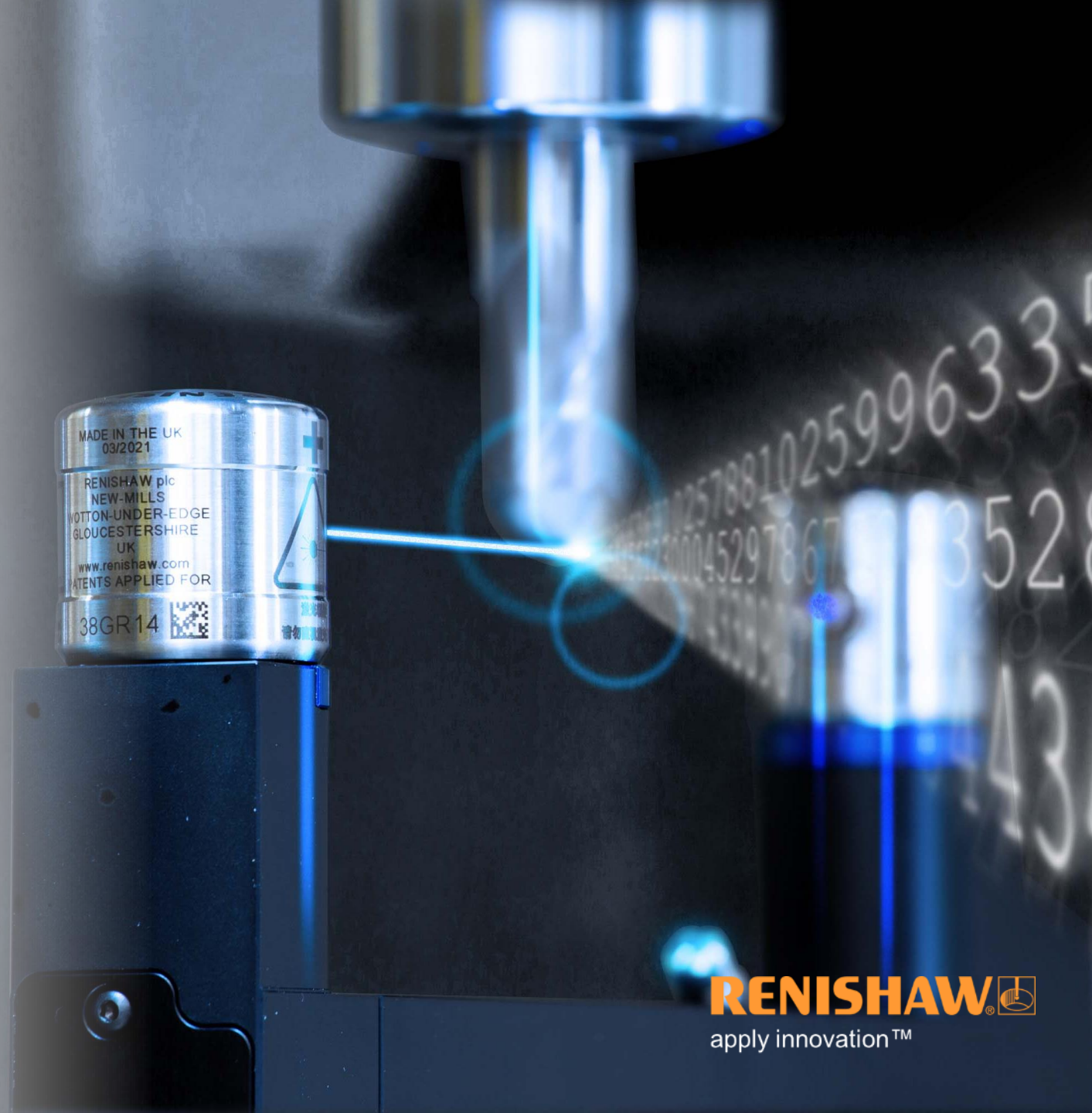
Marc Saunders

Director of Group Strategic Development

Growing in existing markets

Steve Oakes
Director of Position Measurement

Jamie Buckingham
Director & General Manager
Machine Tool Products Division



RENISHAW
apply innovation™

Strategy to drive consistent outperformance

3 areas of strategic focus to combat competition & grow our market share

Strategy driving consistent outperformance

	Growing in existing markets		Increasing technology value			Extending into new markets
						
Strategic priority	**Increase revenue per machine tool**	**Win new machine builder customers**	**Build systems sales**	**Expand software business**	**Smart factory solutions**	**Diversify into close-adjacent markets**

Sensors for manufacturing & measurement equipment

Established

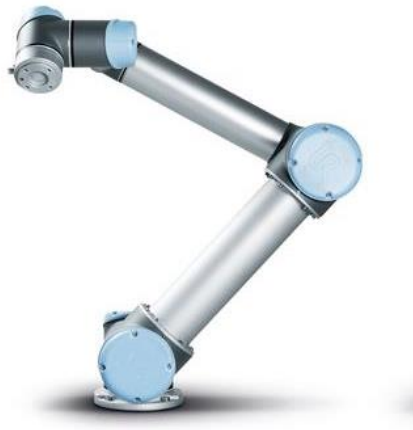
Emerging

Products for machine builders in a range of manufacturing sectors

Component manufacturing

Semicon manufacturing

Robots & automation



CMM sensors

Machine tool probes

Enclosed encoders

Calibration

Open optical encoders

Fibre laser encoders

Magnetic encoders

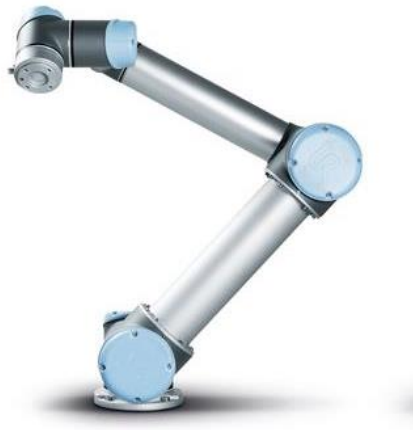
RENISHAW apply innovation™

Goals

Component manufacturing

Semicon manufacturing

Robots & automation



Increase revenue per machine tool

Grow sensor revenues by driving up fitment levels and increasing ‘share of wallet’

Grow machine builder customer base

Secure ‘design wins’ at new and existing customers with superior products and service to drive reoccurring revenue streams

Machine tool growth opportunities

Opportunities to increase revenue per machine tool

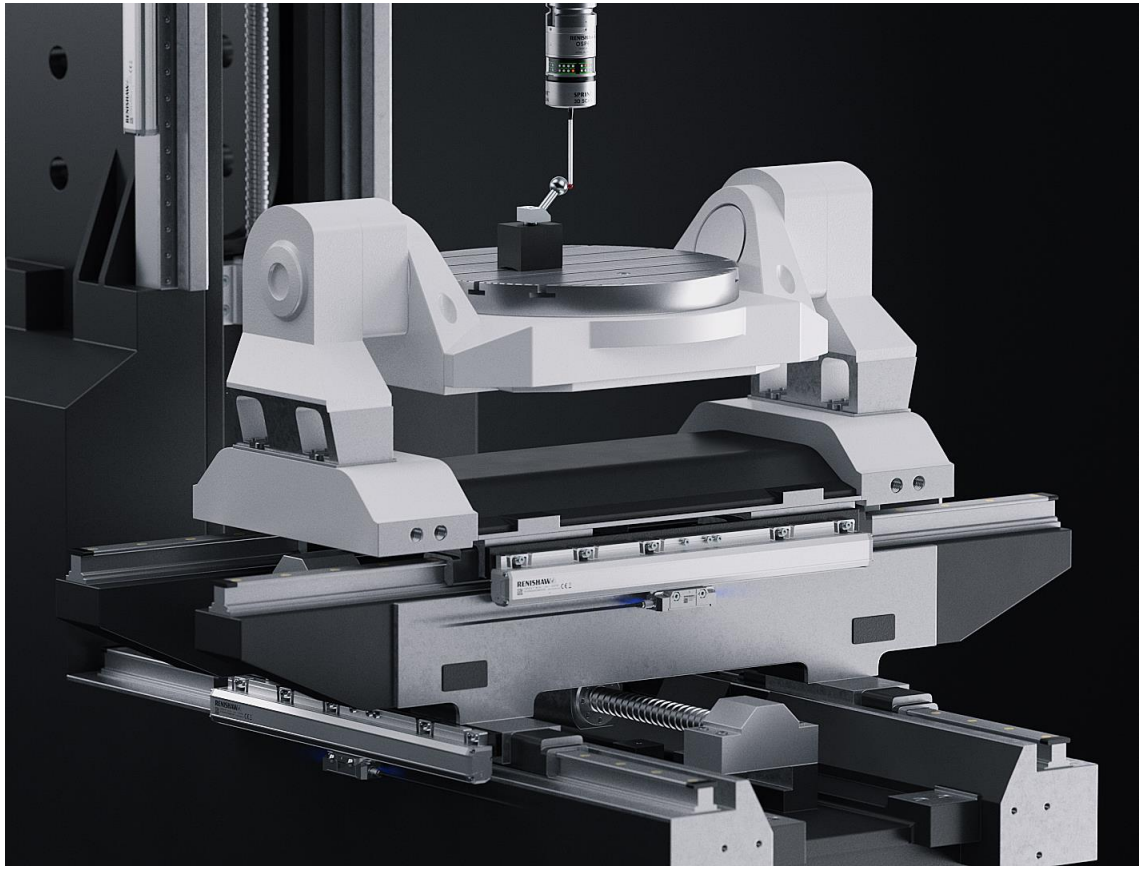
Established

Emerging

CNC process automation

Machine tool probes

- £0.4b market [1]
- Leading position in machine tool probes
- **Grow the market** through increased probe fitment, higher value probes & software



Machine tool accuracy

Enclosed encoders

Calibration

- £0.4b market [2]
- Leader in calibration, recent entrant in encoders
- **Gain share** in enclosed encoders, grow the complementary calibration market

Notes

1. Management estimate for total size of machine tool probing market, including related accessories & operational software
2. Management estimate for total size of enclosed encoder & machine tool calibration markets

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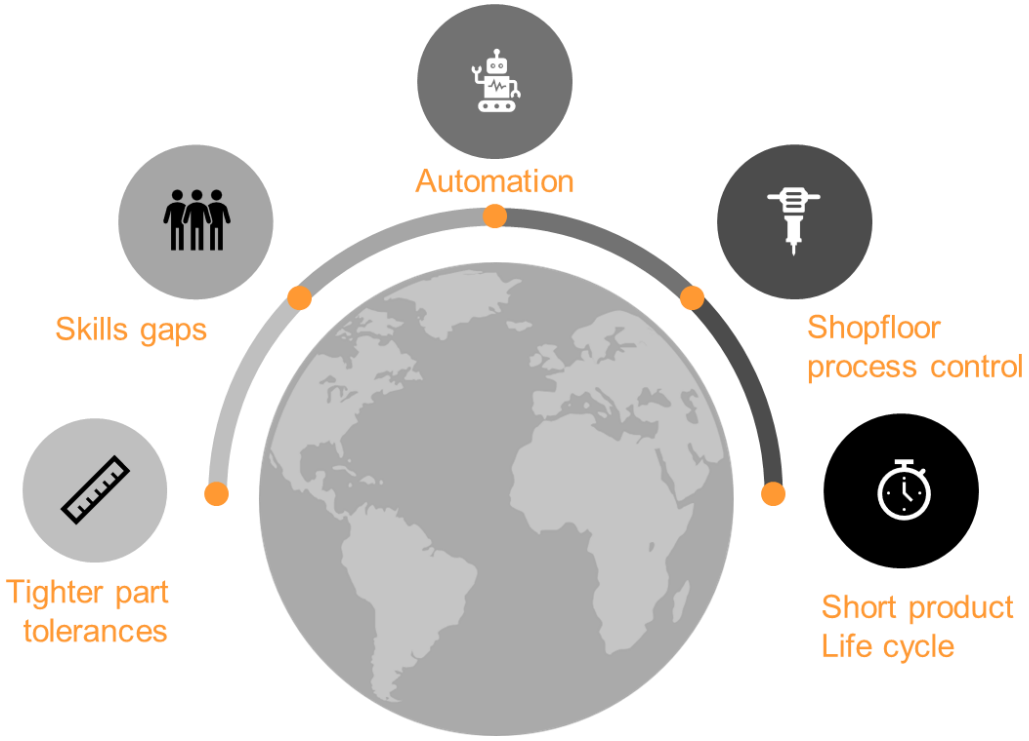
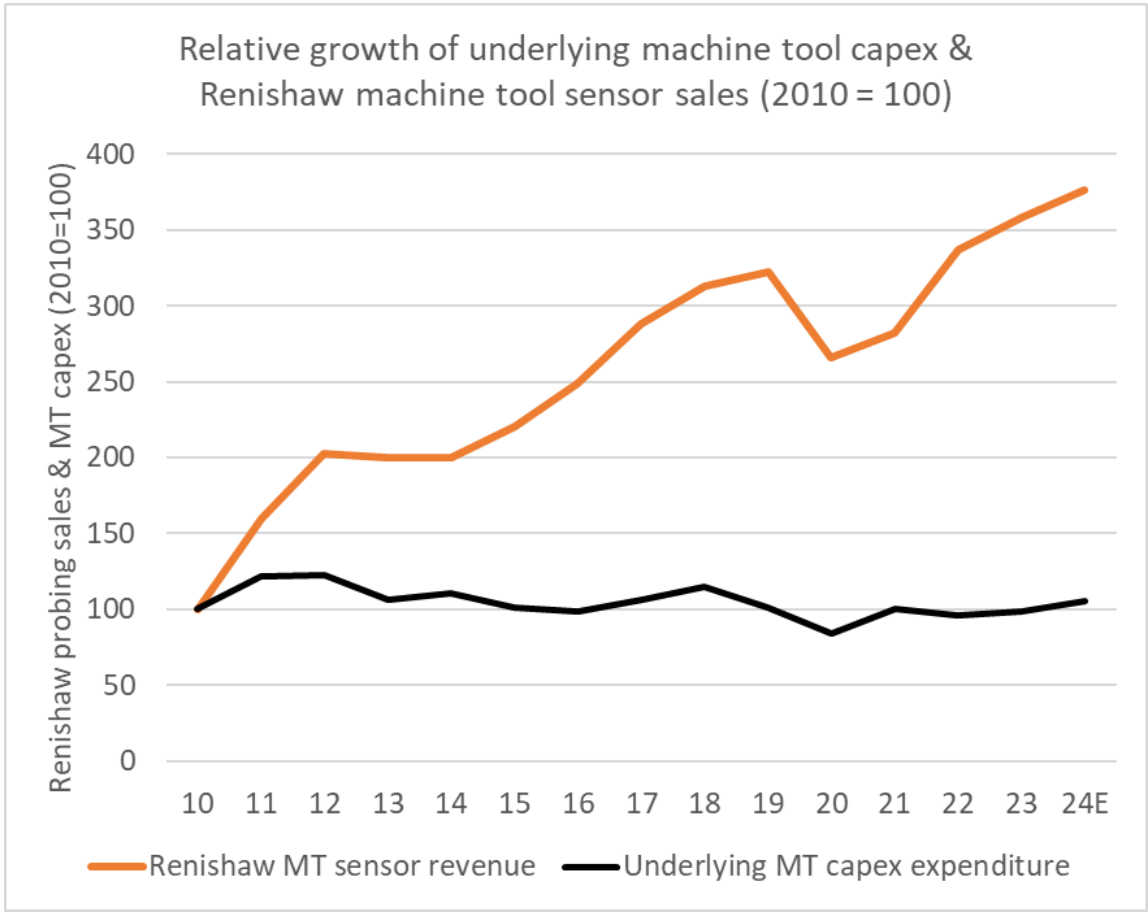
Rising demand for CNC process automation

Our track record of increasing ‘share of wallet’





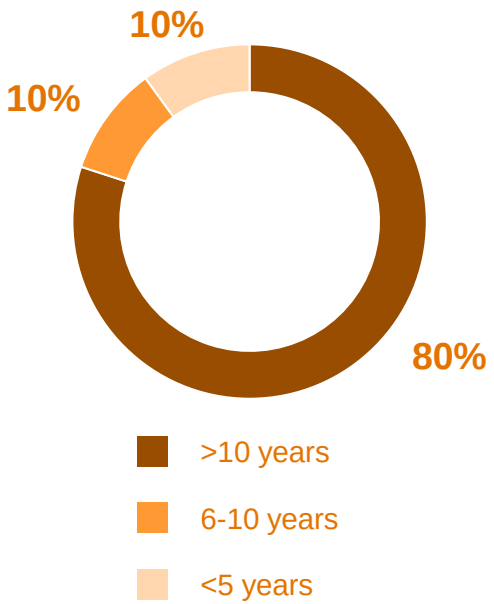
Notes

1. Renishaw MT sensor revenue includes machine tool probes and enclosed encoders, excludes large projects during 2010s
2. Underlying MT capex from: Machine tool apparent consumption from Oxford Economics Global Machine Tool Survey (autumn 2022 forecast)

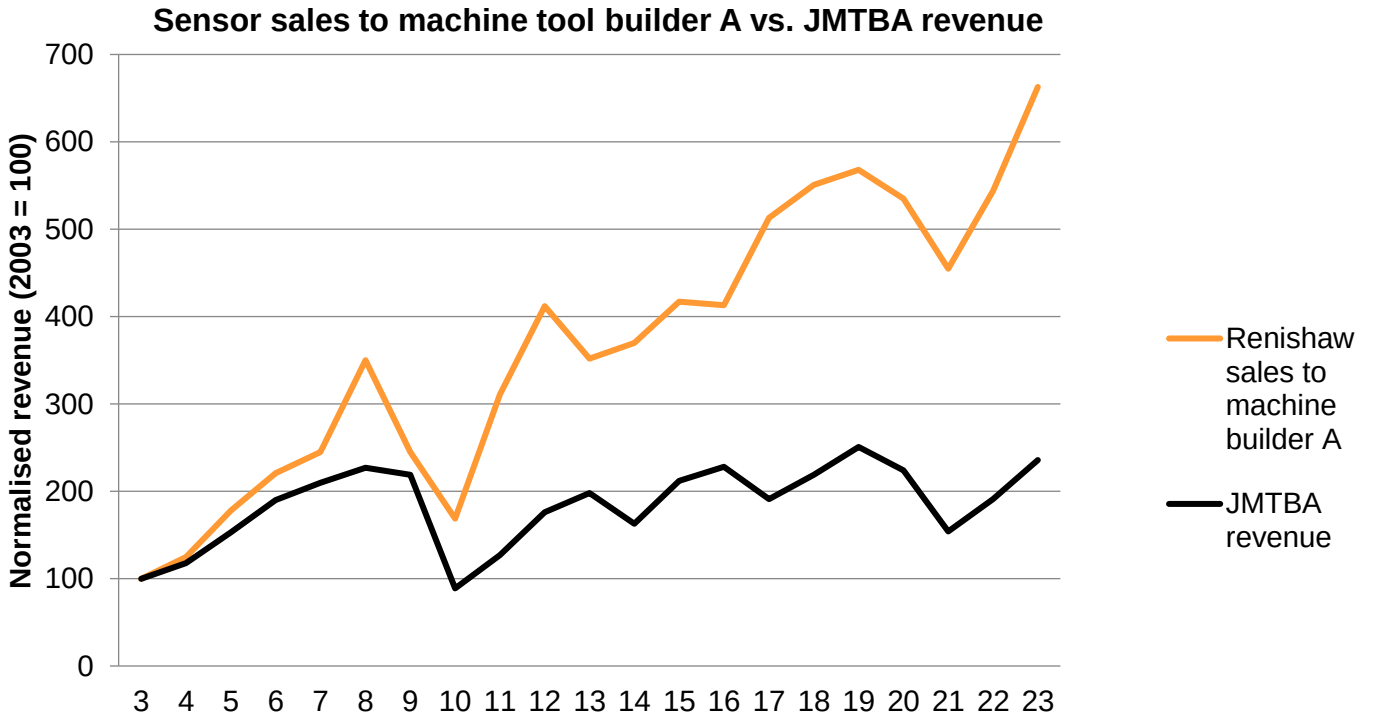
Building reoccurring machine tool revenues

Long-term customer relationships are critical

80% of machine tool builder revenue from long-standing customers



A significant proportion of our growth comes from working closely with machine tool builders to increase probe fitment

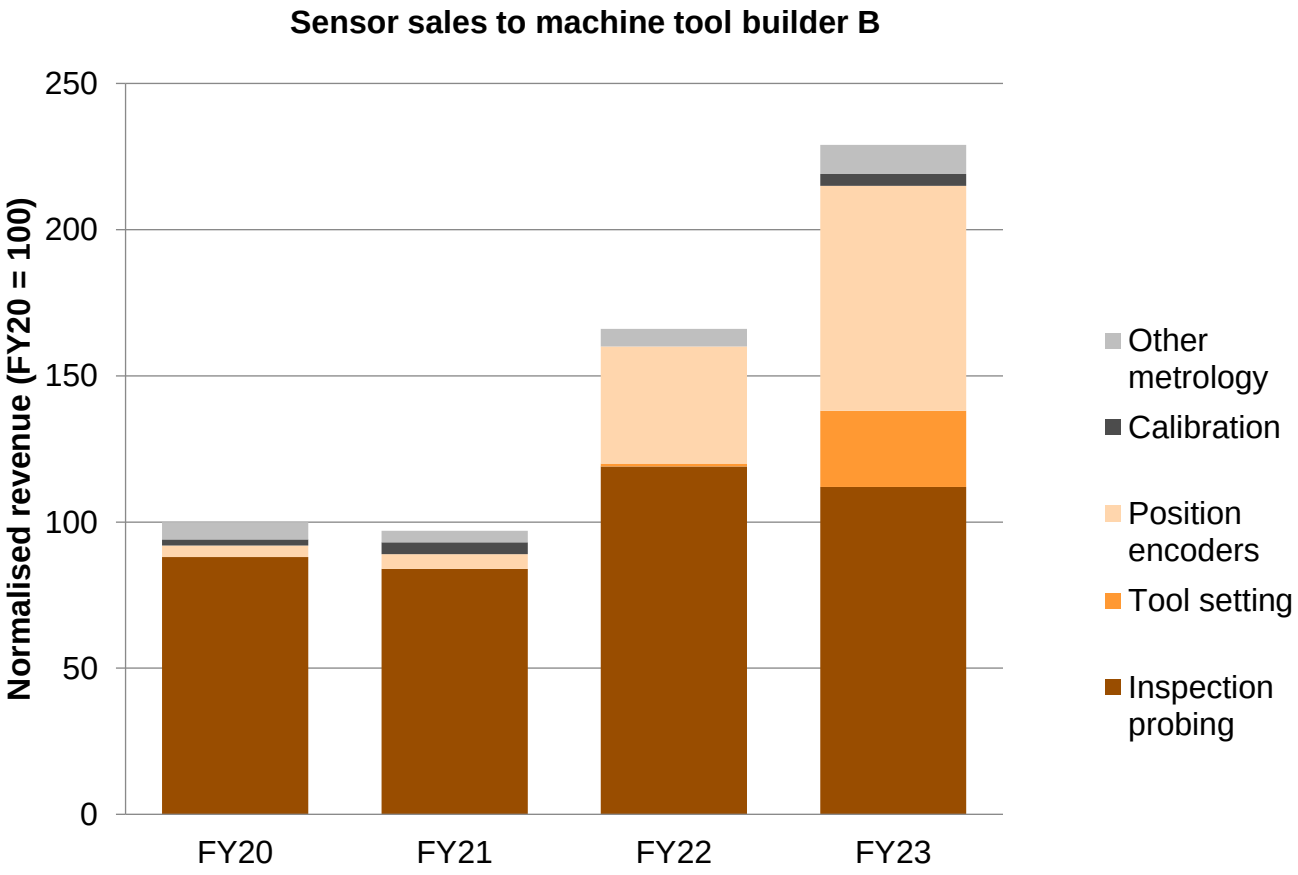


Notes

1. Machine builder A is a large global machine tool supplier with a significant presence in Japan (2003 sales = 100)
2. Japanese Machine Tool Builders Association (JMTBA) publishes detailed records of total sales for its membership, including exports

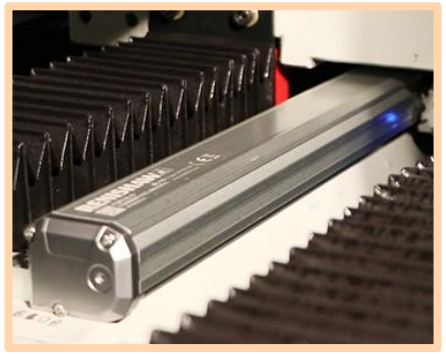
Building reoccurring machine tool revenues

Augmenting established revenues with new products

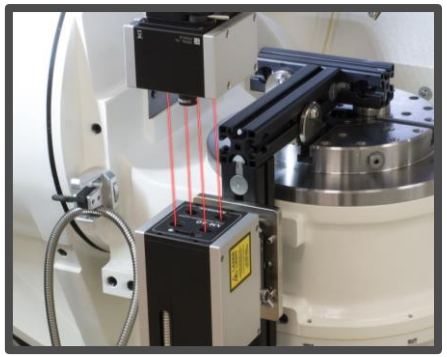


Machine tool precision

Position encoders



Calibration



CNC process automation

Inspection probing

Tool setting

Notes

1. Machine builder B is a specialist supplier of tool grinding machines (FY20 sales = 100)

RENISHAW apply innovation™

Machine tool sensor innovations

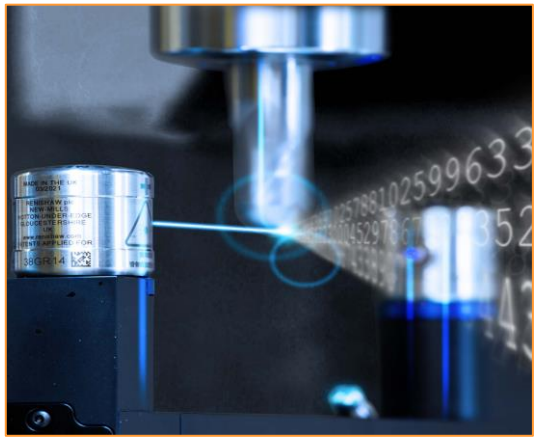
Increase ‘share of wallet’ with metrology and position sensors

Recent enhancements to our machine tool probes

- QE series radio transmission multi-probe installations and extended probe battery life
- RMP24-micro miniature wireless machine tool probe
- NC4+ Blue high accuracy laser tool setter
- Set & Inspect – accessible shop-floor metrology

Gaining market share in enclosed optical encoders for machine tools

- FORTiS™ enclosed encoders for linear axis control now in series production at c. 100 machine tool builders
  - no mechanical wear and greater longevity
  - superior dynamic response & vibration resistance
  - 90% reduction in air consumption



NC4+ Blue laser tool setter

RMP24-micro miniature probe

Set and Inspect probing cycles

FORTiS encoder

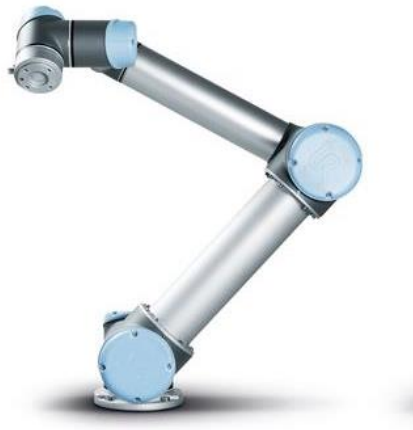
RENISHAW
apply innovation™

Goals

Component manufacturing

Semicon manufacturing

Robots & automation



Increase revenue per machine tool

Grow sensor revenues by driving up fitment levels and increasing ‘share of wallet’

Grow machine builder customer base

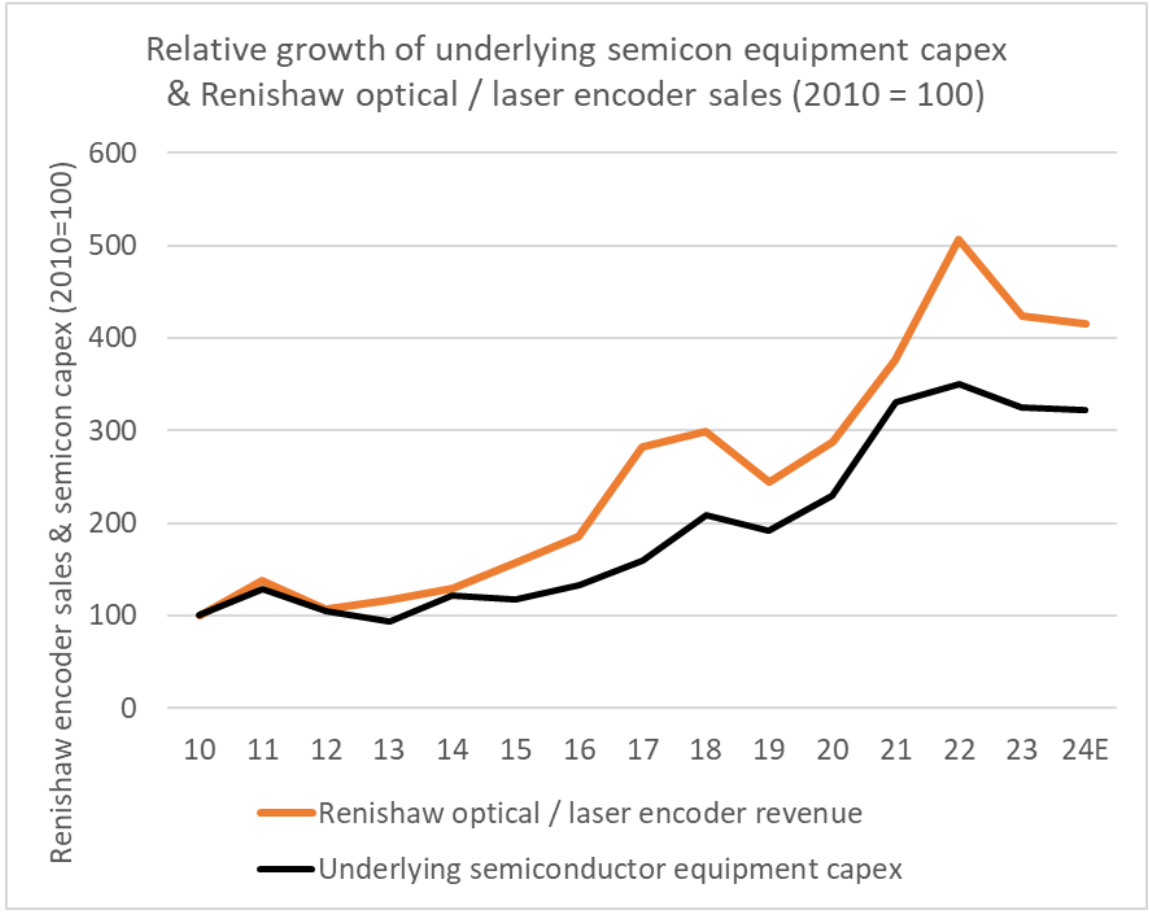
Secure ‘design wins’ at new and existing customers with superior products and service to drive reoccurring revenue streams

Win new machine builder customers

Enhance our strong position in encoders for motion control

Track record of winning new customers to out-grow the underlying market

- Semicon capital equipment 9% CAGR [1] since 2010, but with significant demand cyclicality
- Driven by technology advances, consumer demand, geo-politics
- Renishaw optical & laser encoder growth 11% CAGR [2] since 2010, created by growing our machine builder customer base
- How we win:
  - Product performance and practicality
  - Technical and commercial support, stable pricing
  - Responsive to maintain lead-times in peak demand



Notes

1. Compound annual growth rate of Semiconductor capital equipment expenditure between 2010 and 2024, source: Statistica / Semi.org
2. Compound annual growth rate of Renishaw optical and laser position encoder revenue from FY2010 to FY2024

Semiconductor & electronics manufacturing

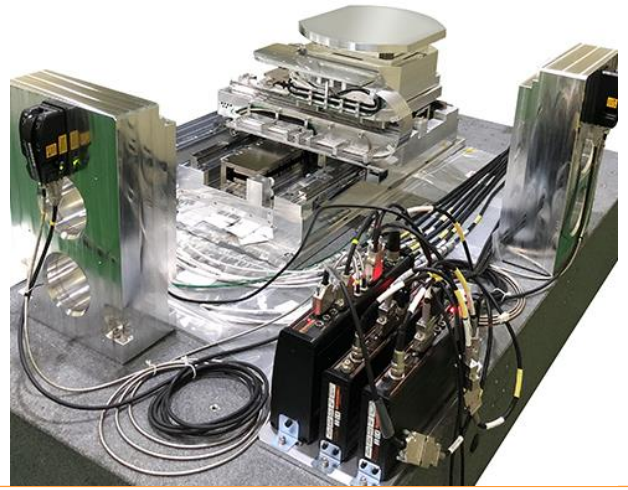
Hotspots where Renishaw position encoders are widely deployed

Deposition | Lithography | Etch
Ion implantation | Wafer
dicing | Packaging
Test | PCB drill
Pick & place | Test

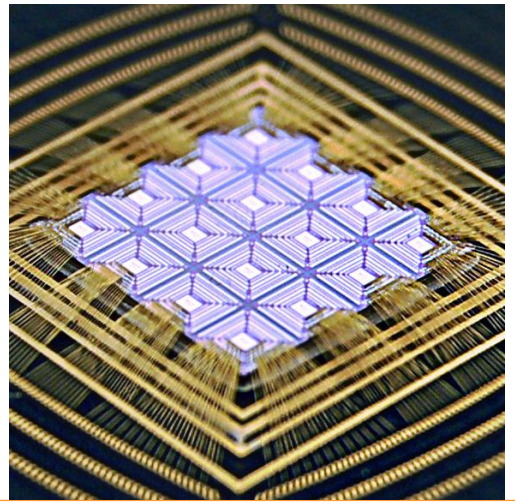
Front end | Back end | Electronics

Wafer movement

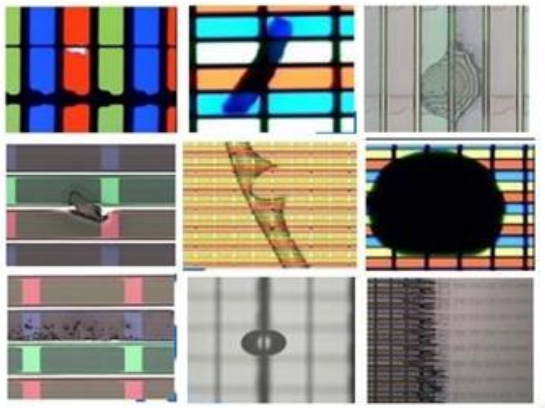
Wafer inspection



Wire and die bonding



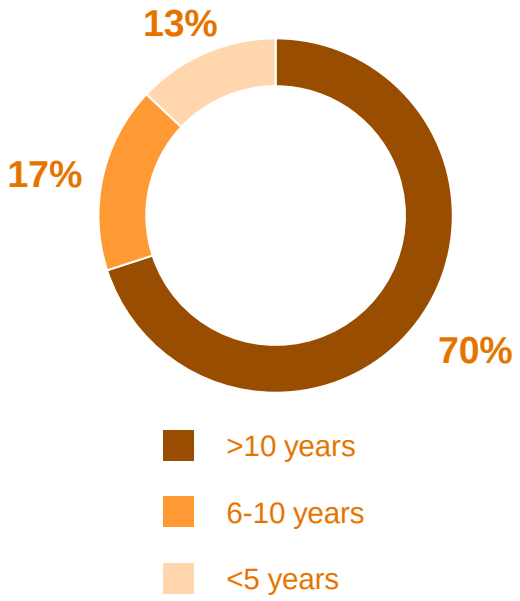
Flat panel display



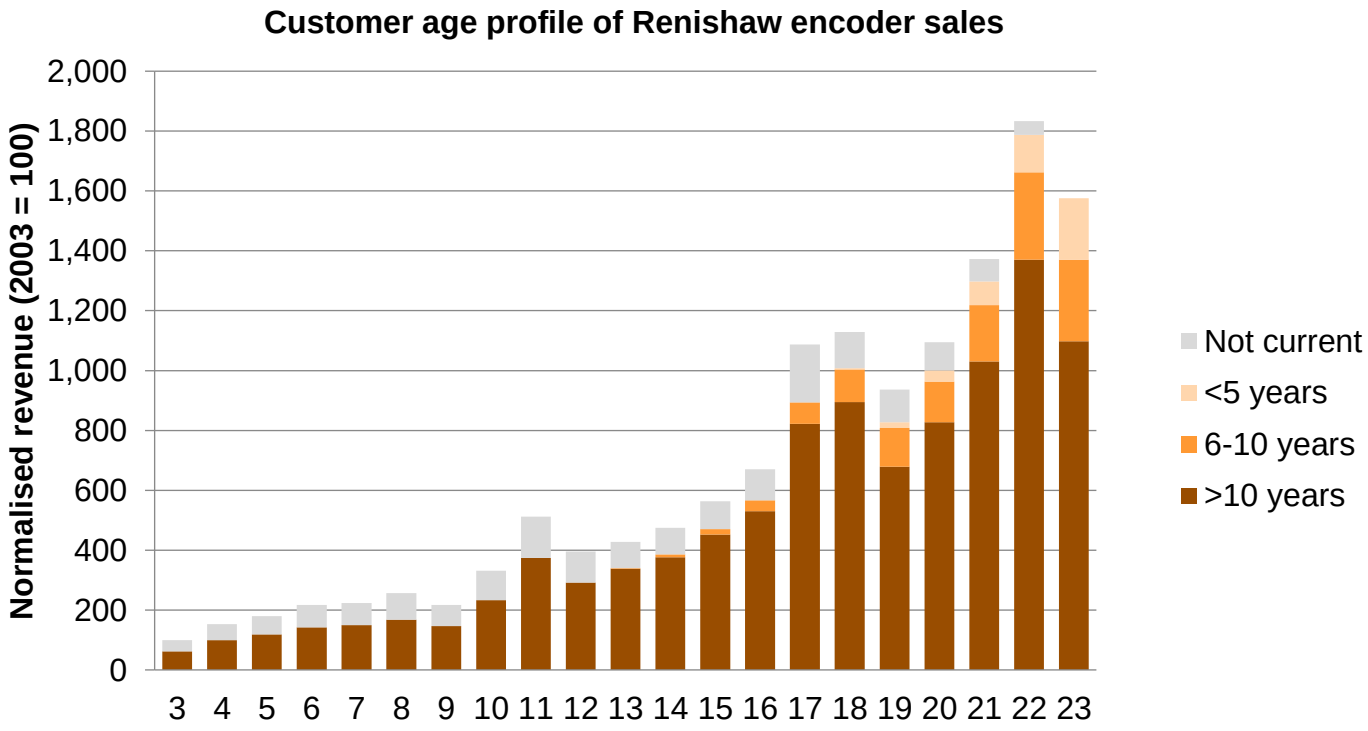
Building reoccurring encoder revenues

New machine builder customers contribute 150-200 bps to annual growth

New customers are a critical contributor to encoder revenue growth



20 years of encoder sales growth[1] at 15% CAGR, driven by reoccurring sales to a growing customer base



Notes

1. Total encoder revenue (optical + laser + magnetic), grouped by duration since first sale to each customer

RENISHAW apply innovation™

Win new machine builder customers

Enhance our strong position in encoders for motion control

INNOVATORS in position measurement

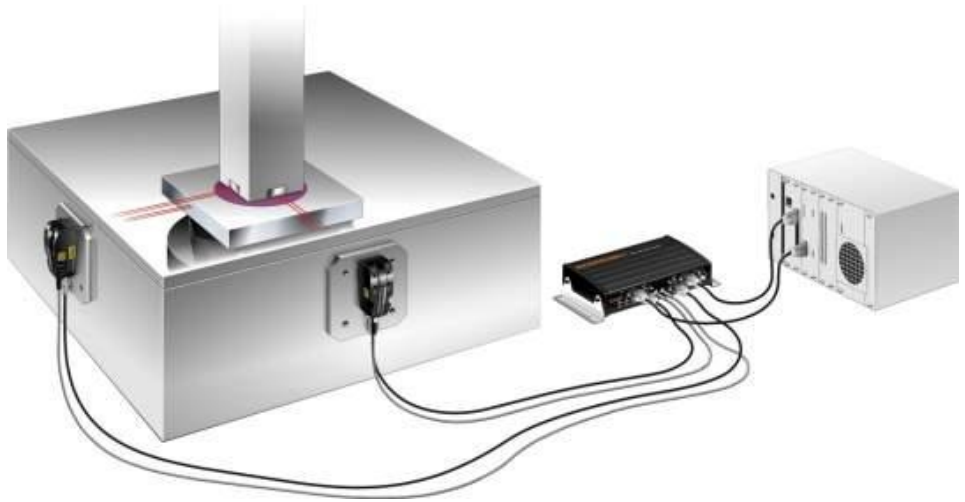
Magnetic encoders

AkSiM-4™ Big Rings for industrial & medical products including robots and rotary tables (launched FY2023)

Optical encoders

CENTRUM™ self-centring disc is easy to fit, de-skilling and reducing installation time by up to 90 % (launched FY2023)

Laser encoders



RLE fibre laser encoder with picometer resolution is regularly upgraded to meet the demanding needs of precision semiconductor manufacturing equipment

Robotics | Precision machinery | Semiconductor manufacturing | Metrology

RENISHAW apply innovation™

Q&A

Steve Oakes

Director of Position Measurement

Jamie Buckingham

Director & General Manager

Machine Tool Products Division

Increasing technology value

Derek Marshall
Director of Industrial Metrology

Strategy to drive consistent outperformance

3 areas of strategic focus to combat competition & grow our market share

Strategy driving consistent outperformance

	Growing in existing markets		Increasing technology value			Extending into new markets
						
Strategic priority	**Increase revenue per machine tool**	**Win new machine builder customers**	**Build systems sales**	**Expand software business**	**Smart factory solutions**	**Diversify into close-adjacent markets**

Increasing technology value in Industrial Metrology

BUSINESS PROFILE

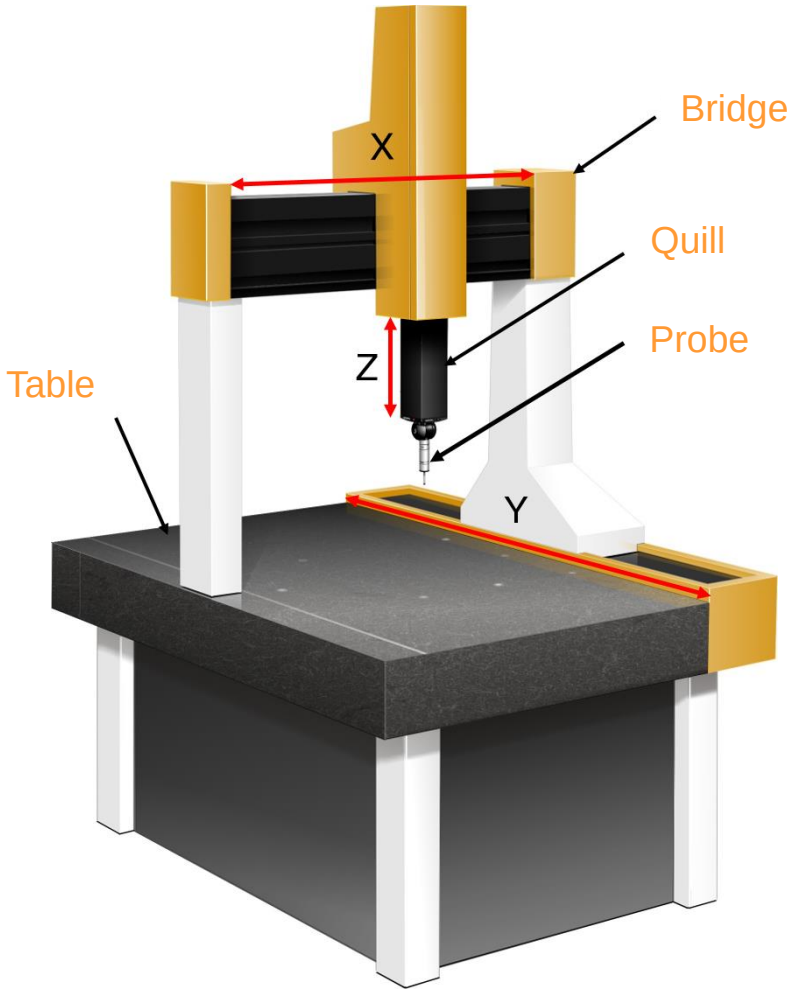
Emerging business with high growth potential within the £2.2b metrology systems market

STRATEGIC FOCUS

Gaining market share in focused niches:

- AGILITY® high-throughput CMMs for at-line and end-of-line inspection
- EQUATOR™ flexible shop floor gauges for intelligent process control
- Enabled by MODUS™ metrology software
- Customers in automotive, aerospace & consumer electronics industries

An introduction to coordinate measuring machines (CMMs)



A CMM is a precision measurement platform used to measure component dimensions.

Manufacturers use CMMs to:

- Check goods coming in, before use
- Check the components they are making

CMMs are increasingly being deployed on the shop floor to provide immediate feedback to improve the consistency of manufacturing processes

50 years of CMM sensor innovation

Contact sensors | Motorised probe heads | 5-axis technologies | Multi-sensor systems

Kinematic

Strain gauge

Scanning

REVO® multi-sensor

PH20 touch-trigger

Ultrasonic

Video

+ Fringe
+ Temperature

Surface finish

- ✓ Precision surface data
- ✓ Automated inspection
- ✓ Faster inspection throughput
- ✓ Fewer stylus set-ups (faster calibration)
- ✓ Complete inspection in a single automated process

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REVO® 5-axis multi-sensor metrology

- High measurement throughput
- Flexible feature access
- Scanning, optical & surface sensing

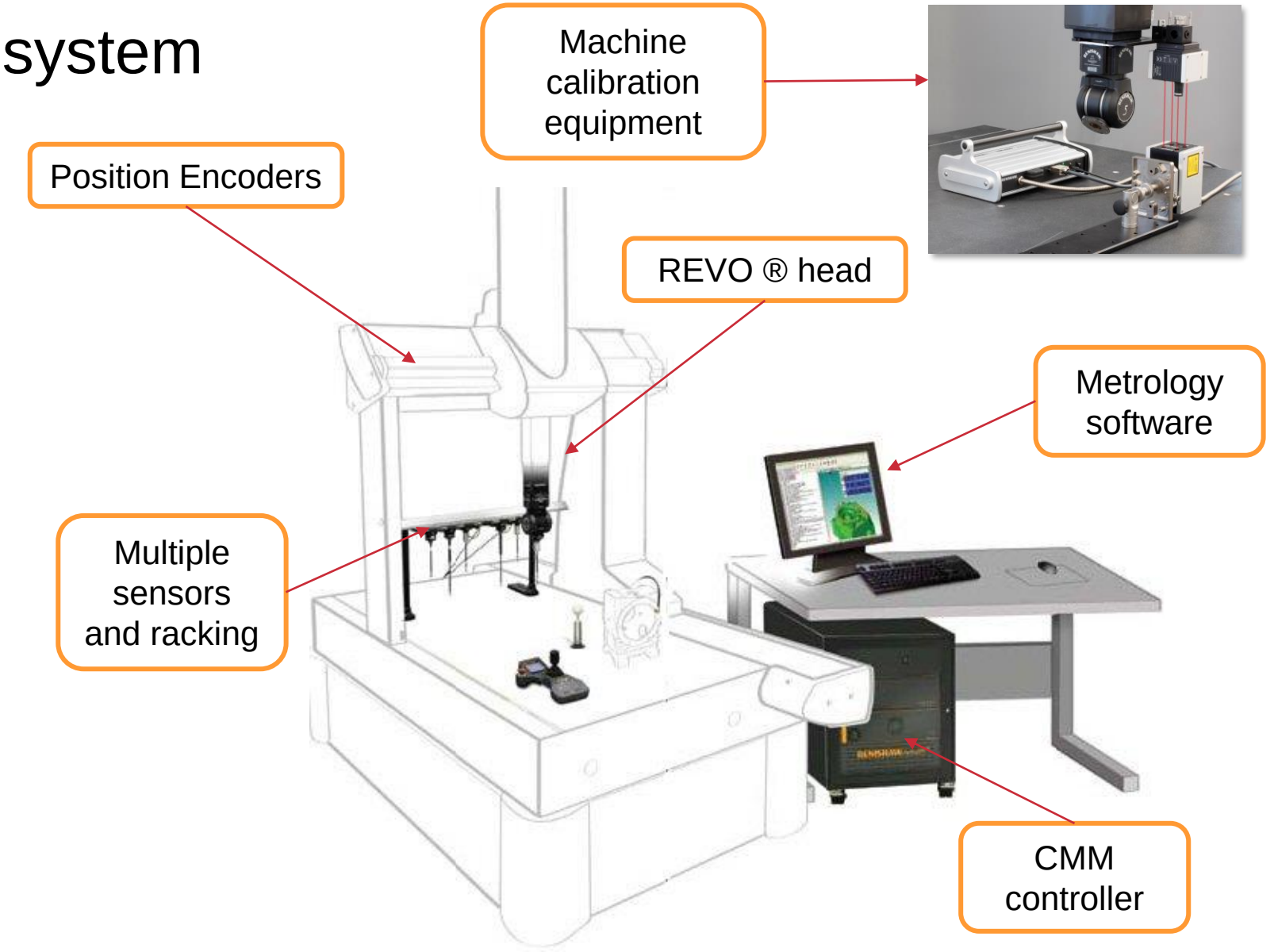
REVO® – an integrated system

5-axis measurement requires more system integration than a traditional CMM head, so to introduce REVO, Renishaw had to develop more CMM component parts:

- CMM controller supporting ability to control 5 axes simultaneously and high data rates
- Ability to work with multiple sensor types (contact, surface finish, vision, ultrasonic thickness)
- Metrology software which is capable of using those technologies to deliver throughput and accuracy

Renishaw also offers other products for CMM builders:

- Position Encoders
- Calibration / machine set-up equipment



Responding to end-user demand for a complete 5-axis solution

AGILITY® timeline

2005
REVO® available through CMM manufacturers
We continue to strongly support this market today

2010
Renishaw Retrofit
Because of end-user demand, we started to offer retrofits to existing machines (and new machines sold with no sensors or control systems)

2018
Introduction & development of AGILITY®
We introduced our own machine range for shop floor and laboratory use, developing each model in the range for specific customer requirements

2024
Global AGILITY® promotion
We started actively promoting the AGILITY® machine range in key markets globally

Products available

REVO® 5-axis head & contact sensors
UCC CMM controller

MODUS™ software
Additional REVO sensors

AGILITY® CMMs

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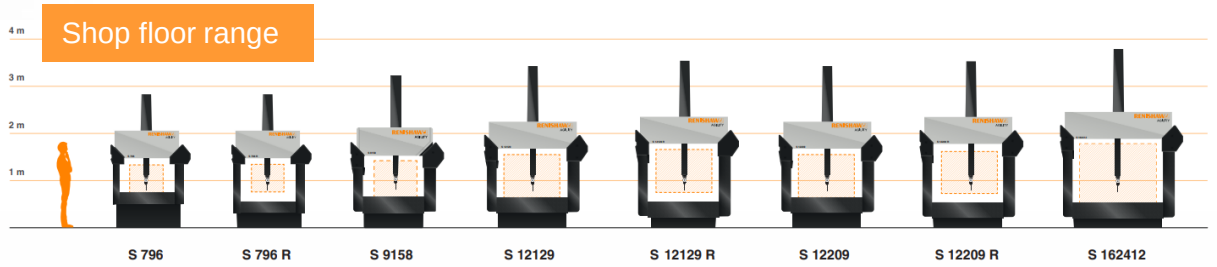
AGILITY® – optimised for REVO®

Performance highlights

- ✓ Shop-floor series designed for shop-floor environments
- ✓ Delivers rapid results at the point of manufacture
- ✓ Combines multiple operations, using REVO®

Designed for REVO®

- ○ Lightning Drive™ linear motors
- ○ 5-axis measurement extends machine life
- ○ Controlled using Renishaw's UCC
- ○ Elevated drive system for shop-floor protection
- ○ Perfect positioning using Renishaw's VIONiC™ encoders



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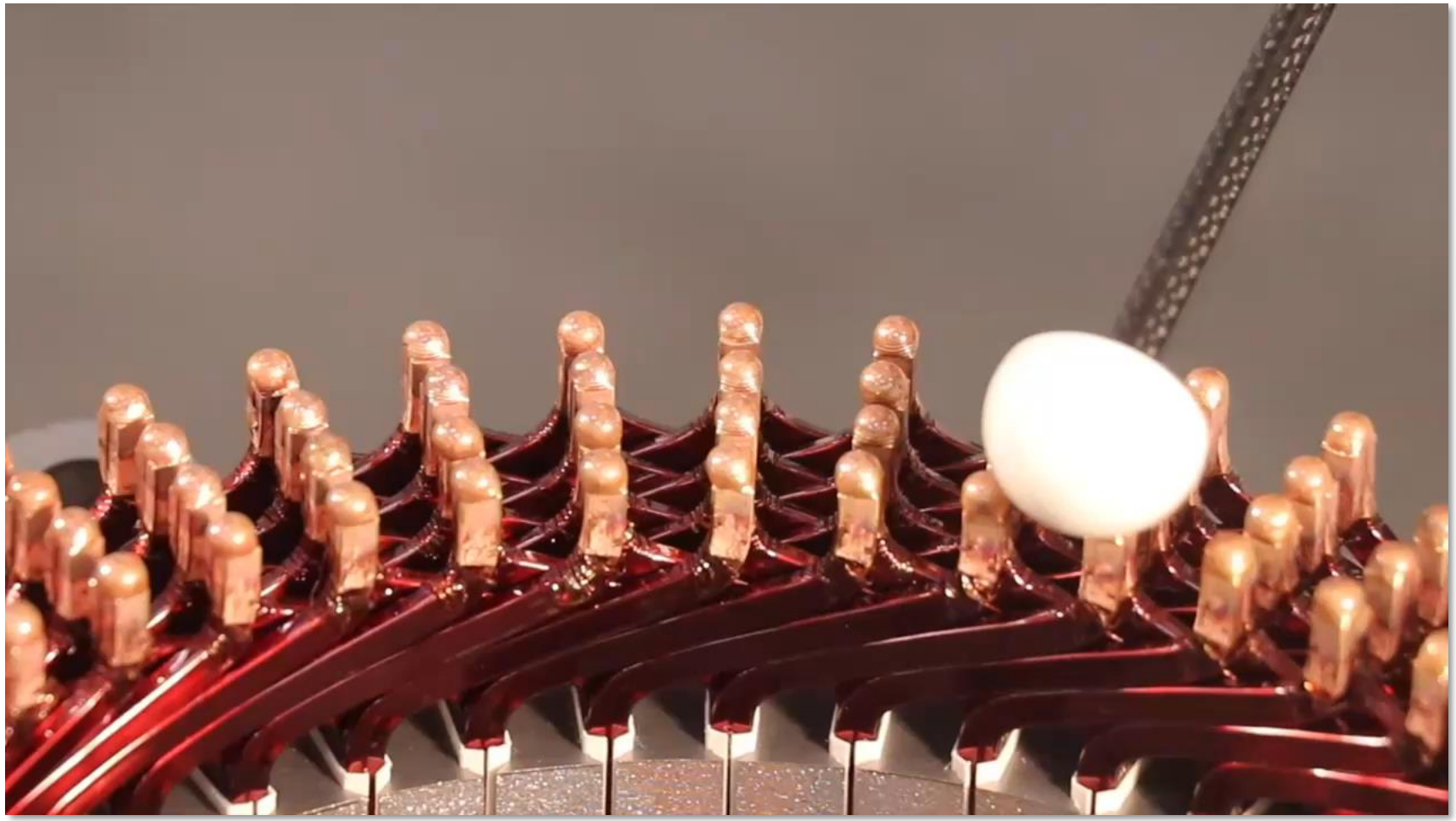
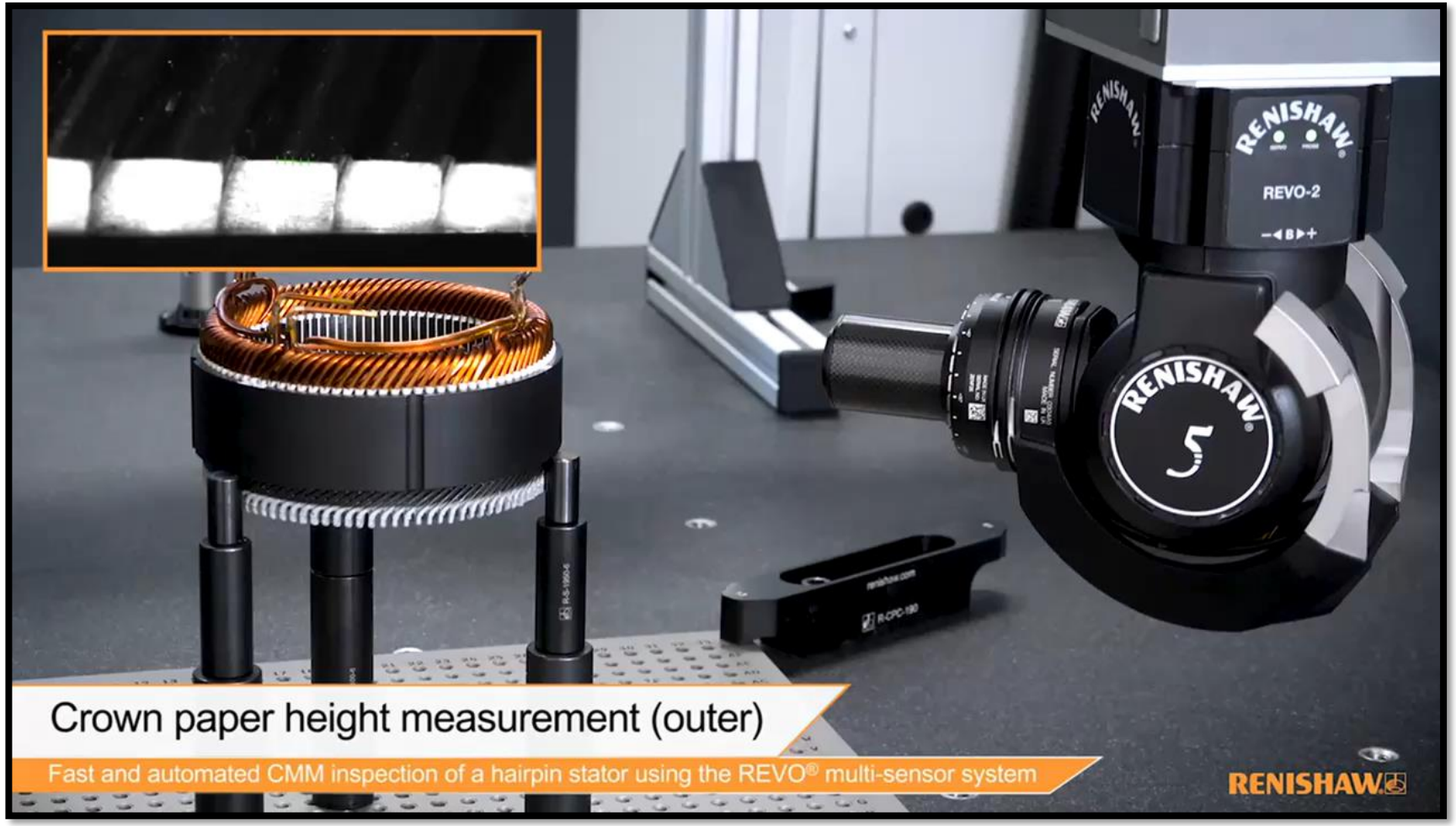
REVO® applications – EV motors



EV motor hairpin inspection

- Scanning weld heights
- Rapid identification of maximum height
- 5-axis contact scanning provides rapid inspection on the same platform as other geometric checks

REVO® applications – EV stators



EV stator inspection

- Measure paper heights & condition
- Check top and bottom on inside and outside of part
- Angle Change Mirror (ACM) allows checking inside of part

AGILITY applications – ICE powertrain

In-line fully automated robot-loaded inspection of gearbox case

- Multi-machine installation with automation, integration and application programming

Robot loading (video)

Inspection process (video)

Increasing technology value in Industrial Metrology

BUSINESS PROFILE

Emerging business with high growth potential within the £2.2b metrology systems market

STRATEGIC FOCUS

Gaining market share in focused niches:

- AGILITY® high-throughput CMMs for at-line and end-of-line inspection
- EQUATOR™ flexible shop floor gauges for intelligent process control
- Enabled by MODUS™ metrology software
- Customers in automotive, aerospace & consumer electronics industries

Q&A

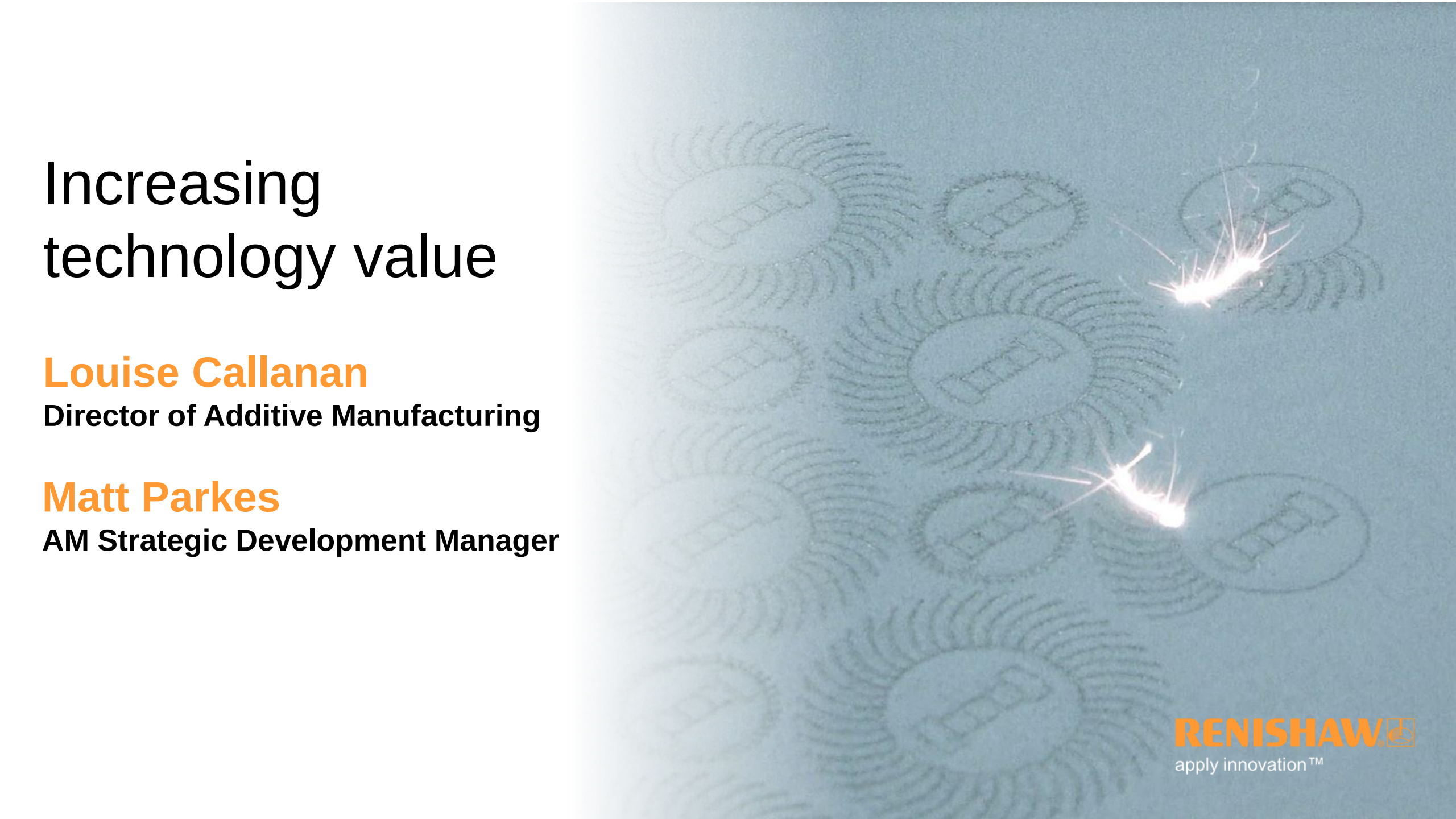
Derek Marshall

Director of Industrial Metrology

Increasing technology value

Louise Callanan
Director of Additive Manufacturing

Matt Parkes
AM Strategic Development Manager



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Strategy to drive consistent outperformance

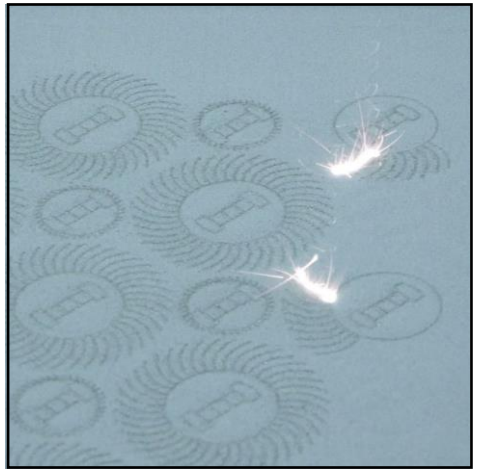
3 areas of strategic focus to combat competition & grow our market share

Strategy driving consistent outperformance

	Growing in existing markets		Increasing technology value			Extending into new markets
						
Strategic priority	**Increase revenue per machine tool**	**Win new machine builder customers**	**Build systems sales**	**Expand software business**	**Smart factory solutions**	**Diversify into close-adjacent markets**

Additive manufacturing topics

Market opportunity



- Market segmentation and size
- Growth drivers

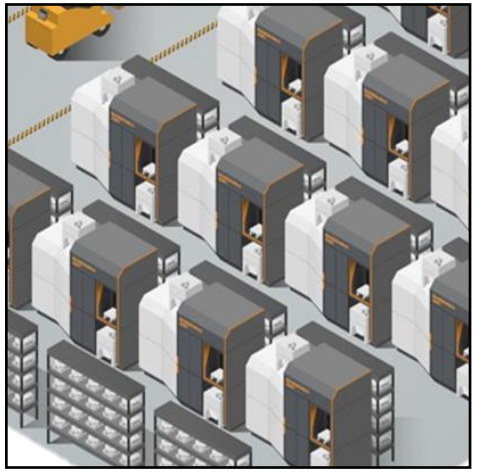
Our strategy

- Volume AM production
- Key accounts
- Lowest cost-per-part

AM adoption

- Innovative solutions to overcome growth constraints

Future platform



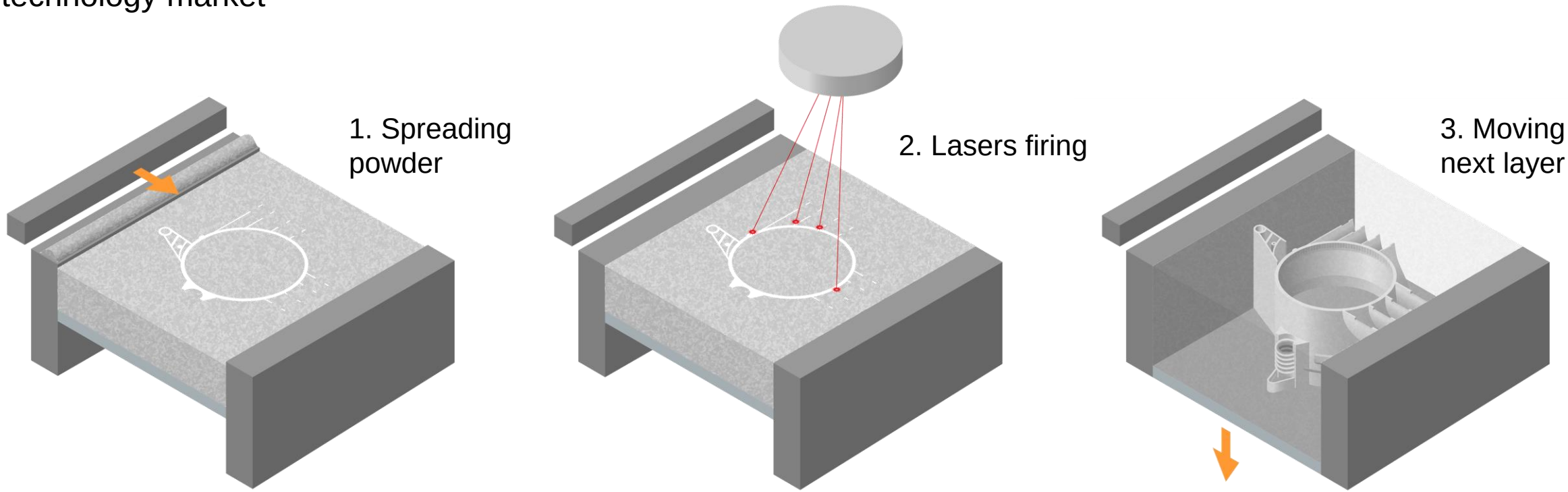
- Next step towards even lower part costs

Laser Powder Bed Fusion

Largest metal AM market

AM is an **£14bn** industry, forecasted to grow at **~20%** CAGR to 2030[1]

Our focus is the **£0.7bn** metal powder-bed fusion segment, plus associated services – the largest metal AM technology market



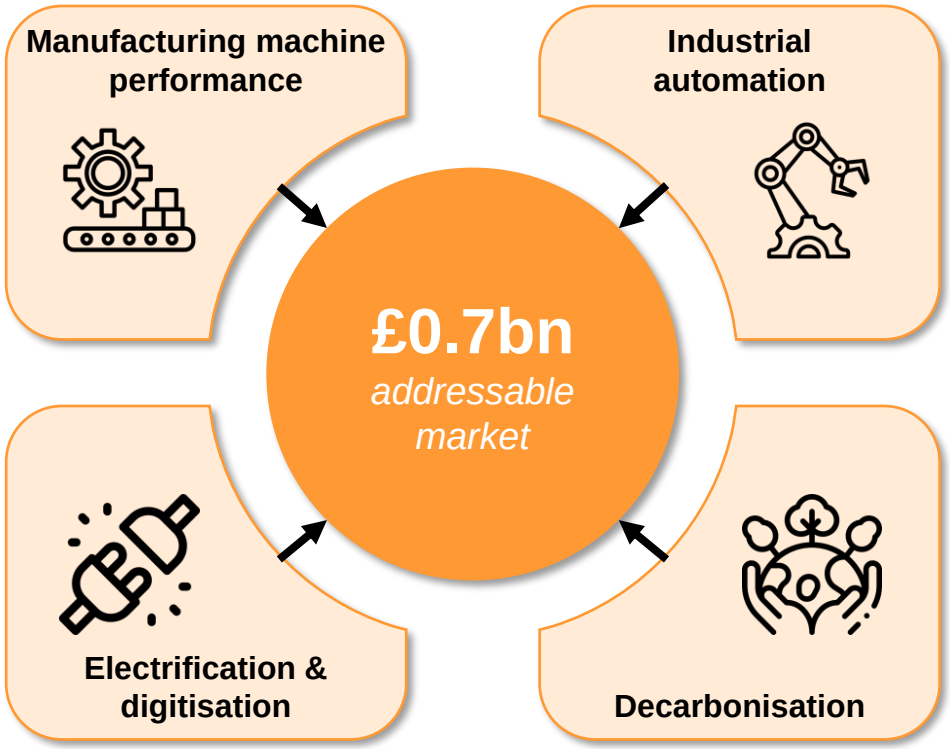
1. Wohlers Associates

AM structural market drivers

Megatrends that underpin sustained demand growth

Limited influence | Significant influence | Major influence

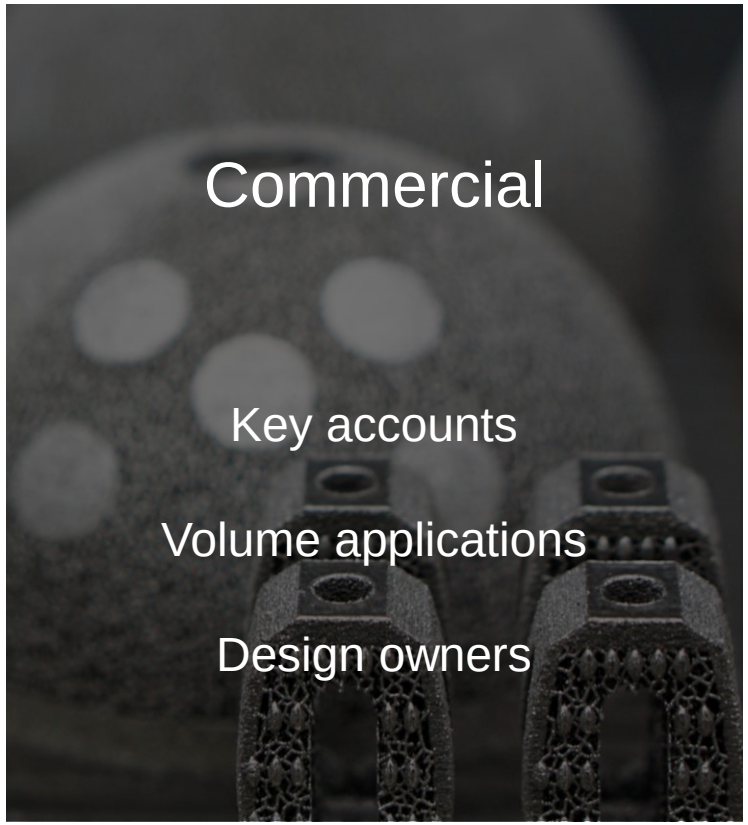
Well positioned in market growing at c. 20% p.a.

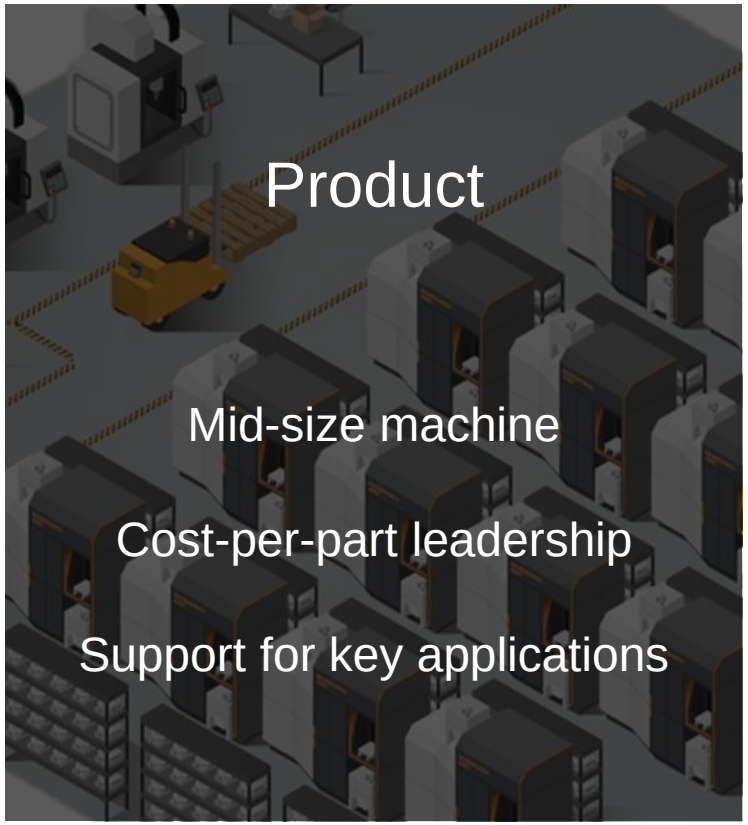


Driver	Influence	AM benefits
	●	• Product detail & complexity • Material properties
	●	• AM process automation • Simplified production routing
	●	• Rapid design realisation • Real-time process monitoring
	●	• Low material & energy use • Low carbon footprint products

Our mission

Accelerate the adoption of metal additive manufacturing as a viable high volume production process





Growth constraints

What factors are limiting wider AM adoption?

Cost-effectiveness	Relatively high cost-per-part remains the biggest barrier to widespread AM adoption.
Consistency	As our key accounts look to qualify and scale their products into volume manufacture, consistency is critical, both in terms of machine-machine and performance over time.
Connectivity	Realising the full value of AM requires making the most of software, from CAD to QA. Therefore, it's vital we integrate into that digital process.
Culture	AM is a relatively immature manufacturing process, know-how and adapting to this capability is a significant obstacle to adoption.

Cost-effectiveness

RenAM 500 Ultra – a new level of AM productivity

RenAM 500 series, including Flex (L) and Ultra (R) variants

- Integration of TEMPUS technology boosts productivity by up to 100%
- All the benefit of RenAM 500's class-leading part quality, footprint and recirculation system.
- Empowers expert AM users with meltpool process monitoring

"Completing more builds in a day without compromising on quality means we can service our customers more efficiently and effectively, and creates capacity for growth."
MADIT, Spain

Aluminium alloy fluid transfer component of car refrigeration system
Credit: MADIT

	Typical single-laser system	RenAM 500Q Ultra
Build time (hh:mm)	**30:40**	**7:04**

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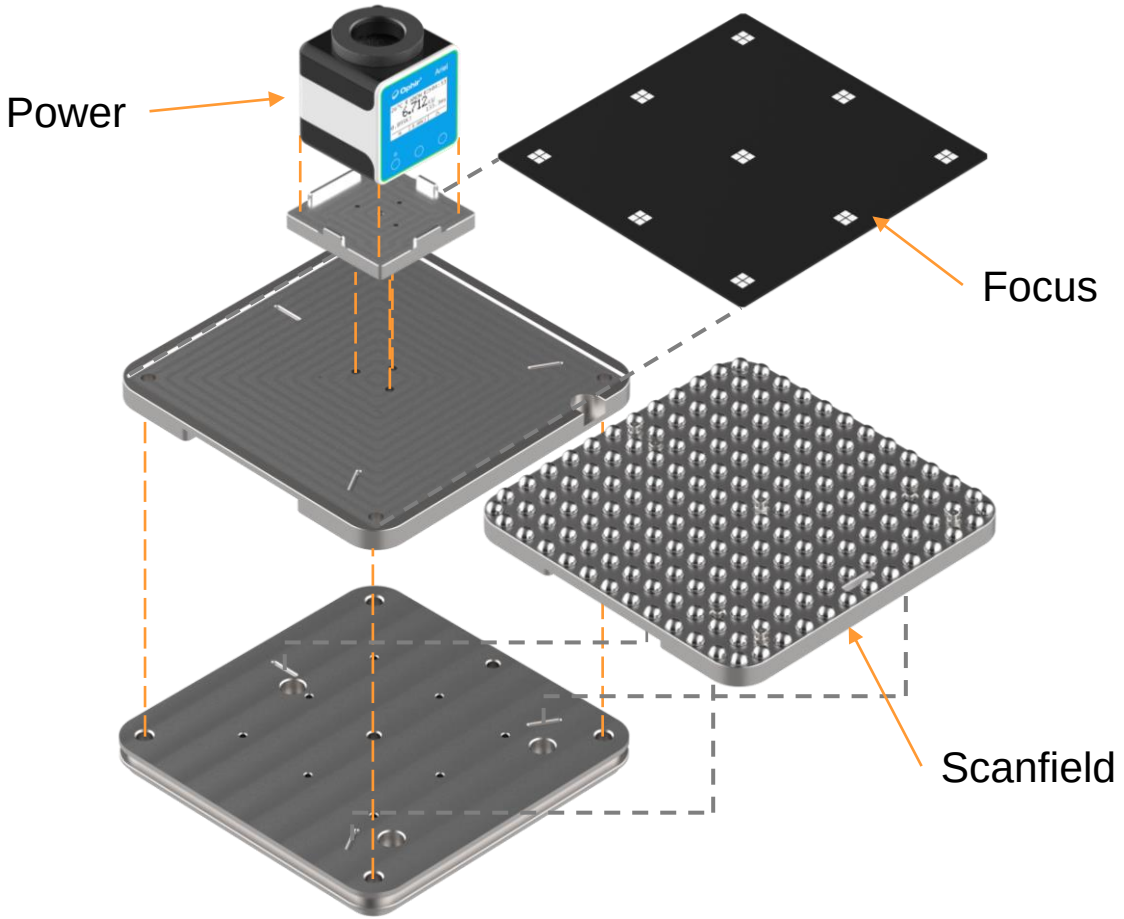
Consistency

Optical System Verification – process foundation for AM



- Ensuring process stability is vital for scale adoption of AM
- Accessory for customers to verify the performance of all four lasers and optical control system to suit their process controls and part criticality.
- Traceable artefacts to international standards and calibrated measurement devices.

Inspection of the scanfield artefact to international standard

Connectivity

Software to optimise AM process performance

Maximising AM value requires leveraging the fully digital workflow from end-to-end.

In-house software integrates closely with hardware innovations while providing application interfaces (APIs) to connect to third party software tools.

QuantAM:
Build file generation API and application. Range of integration partners including end-users. Focus on explicit build activity definition.

Renishaw Central:
Production monitoring across Renishaw product lines – includes data API

InfiniAM suite:
Informative process control – meltpool visualisation and plugin (API) data access

Culture

Overcoming cultural inertia is critical to unlock AM benefits

Processes	Company-wide systems favour existing manufacturing techniques; typical stock sizes, material types, software and finishing methods are suboptimal for AM.
Portfolio	Product ranges have been designed for conventional manufacturing, identifying AM suitable components requires investment and know-how.
Personnel	Decades of embedded knowledge of design for traditional manufacturing offers a challenging baseline for DfAM.

Our AM4All internal program continues to address these challenges and identify the opportunities for AM across Renishaw.

Tooling for Renishaw machine tool product line

Current generation platform

Supporting customers on their journey to volume AM production

LAB:
Material prove out

PRE-PRODUCTION:
Part prove out

FACTORY:
Volume production

Next generation platform

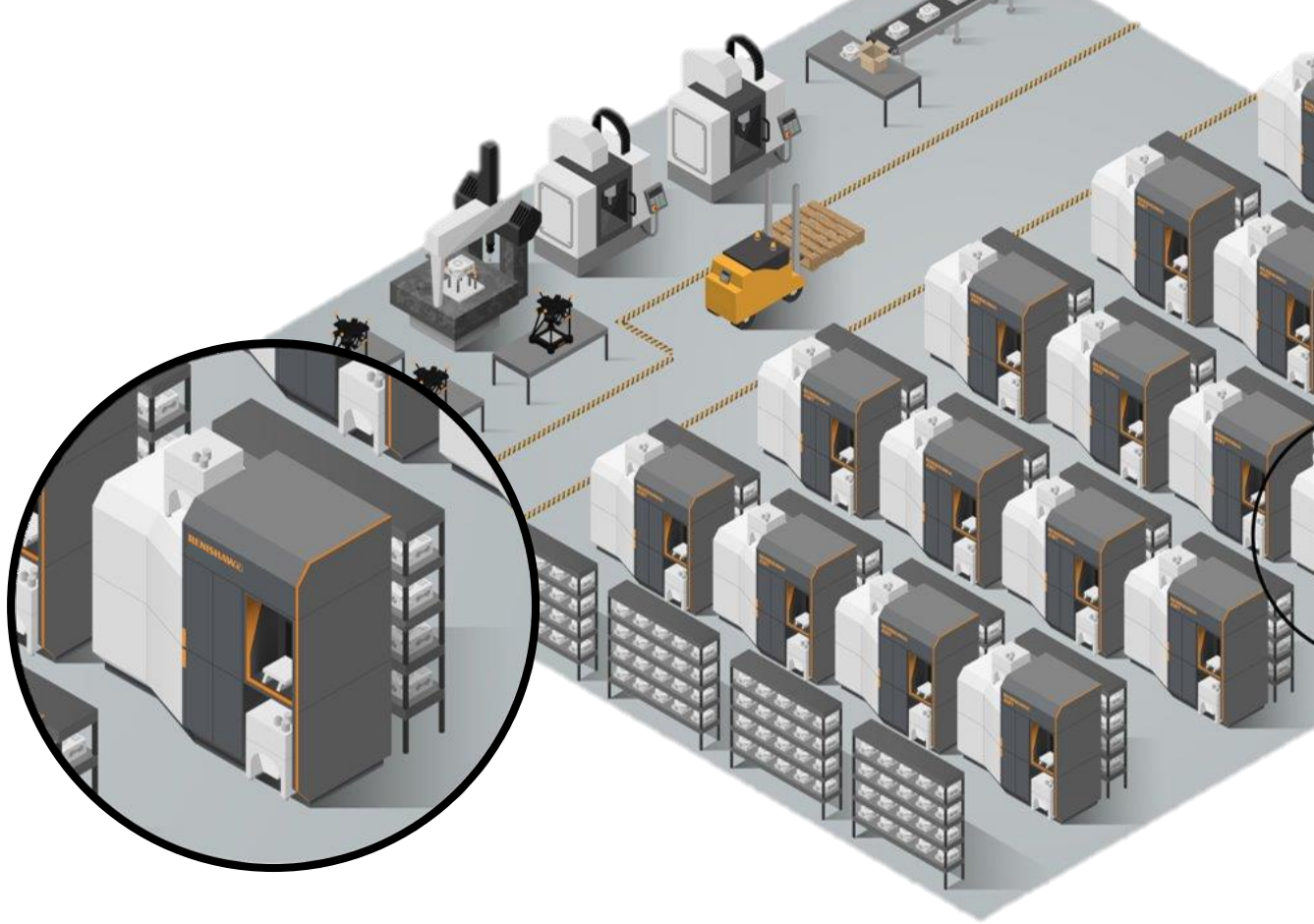
Step change in AM part costs

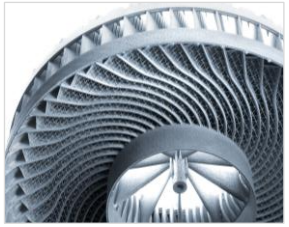
Productivity

The AM process remains the biggest contributor to total part costs, and the biggest barrier to widespread AM adoption.

Leverages a multiplier effect for reducing cost per part:

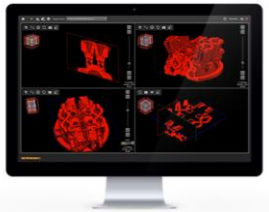
managed system cost, increased laser productivity and reduced turnaround through automation





Precision

Retaining industry leading part properties enable lighter weight, lower material cost components with fully inert processing



Practicality

Support for scale deployment with enhanced connectivity and serviceability, with modular architecture

Q&A

Louise Callanan

Director of Additive Manufacturing

Matt Parkes

AM Strategic Development Manager

Extending into new markets

Blake Kendrick
Industrial Automation
Global Sales & Marketing Manager

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Strategy to drive consistent outperformance

Three areas of strategic focus to combat competition & grow our market share

Strategy driving consistent outperformance

	Growing in existing markets		Increasing technology value			Extending into new markets
						
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Automation – a system-wide view

Process automation

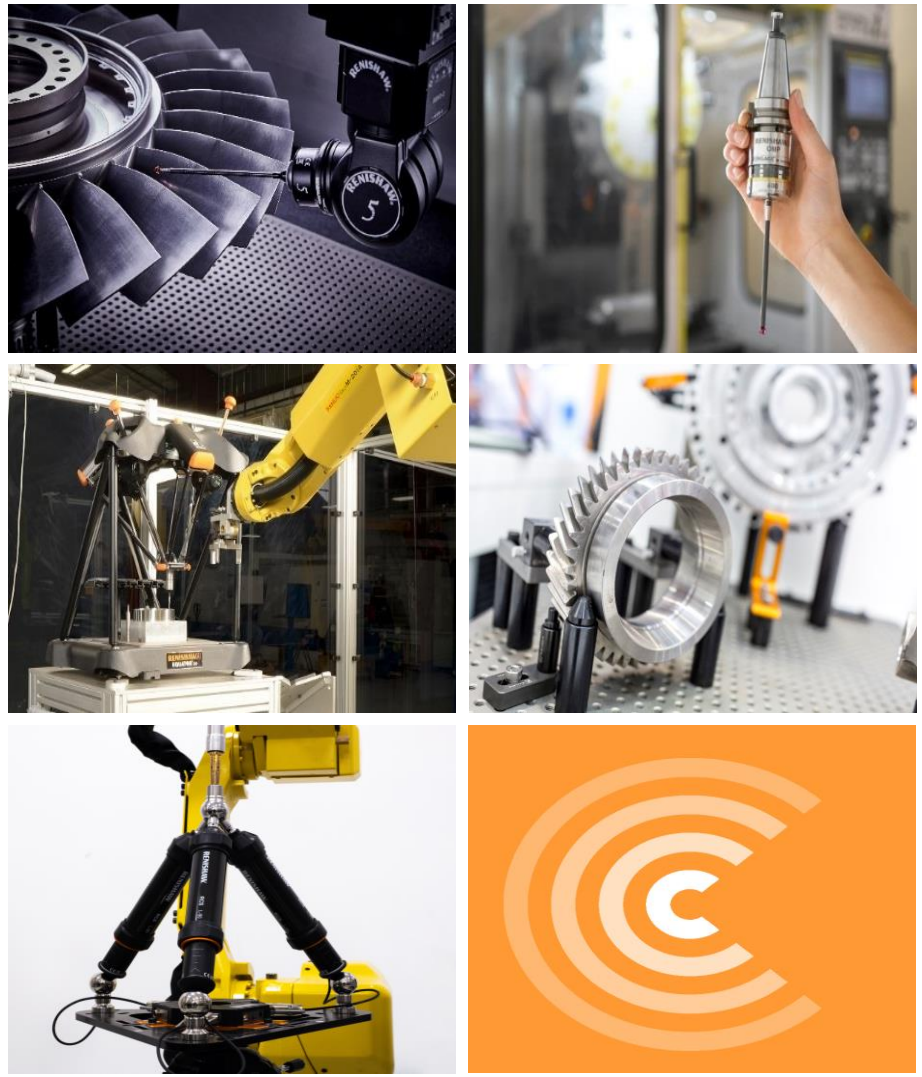
- Replacing manual activities with technology to set up, control and validate processes consistently
- Introduce intelligence and decision making into unmanned factories

Digitalisation

- Automatic collection of data for real time processing, analysis and process adjustment
- Real-life data feeding into digital twins, AI and machine learning tools

Factory automation

- Devices for work handling, moving material and transportation
- Space efficient, dextrous motion platforms for processing operations
- Easier integration and application for wider adoption



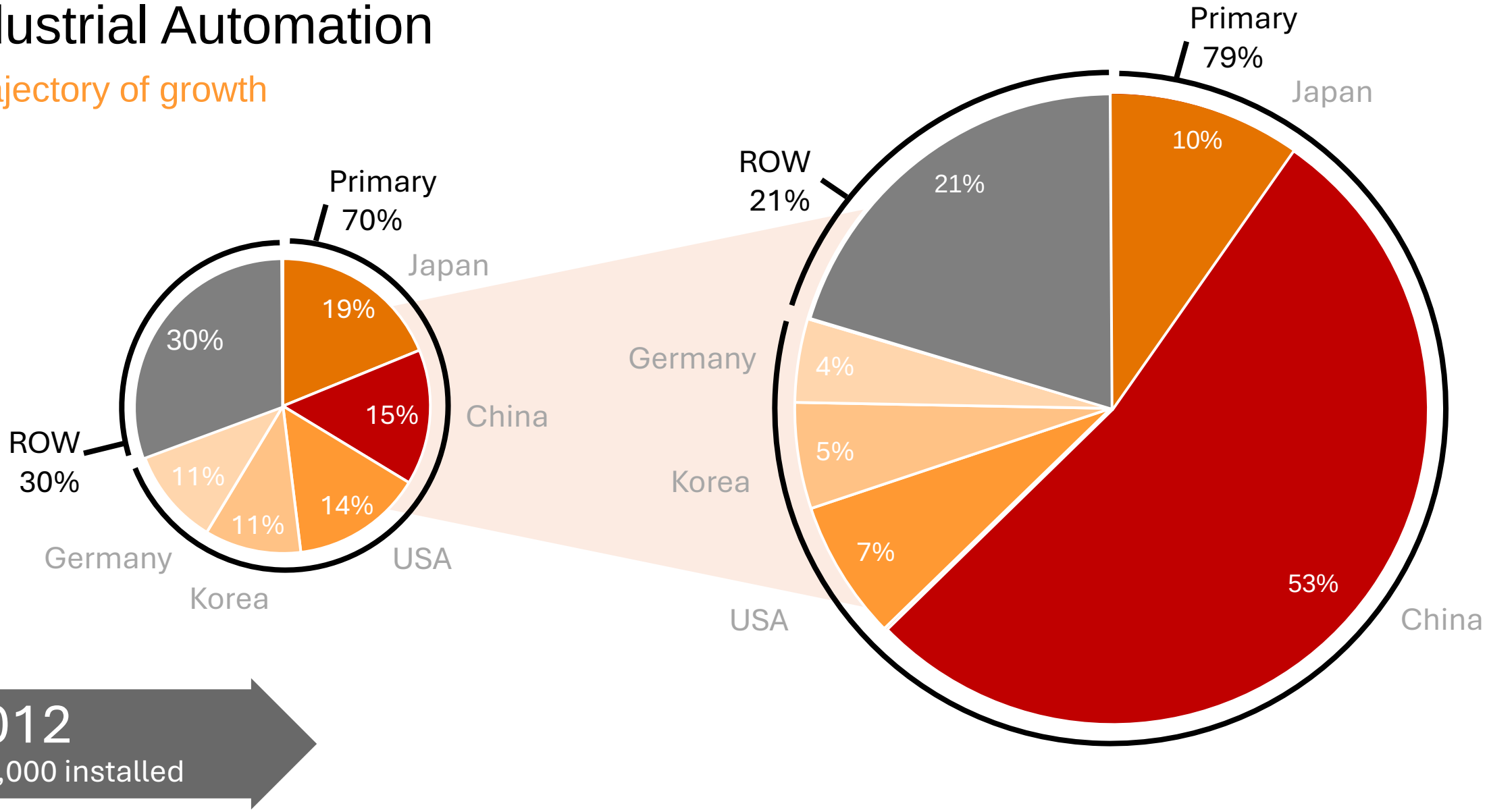
Why target Industrial Automation?

An exciting, untapped, neighbouring market

1. A **large**, **established**, **quickly growing** market
2. **Closely adjacent** to our core business
3. Setup of industrial automation is **very manual** and **time consuming**, and **difficult to maintain**
4. **Analogous to CNC machine tool** market 20-30 years ago
5. Able to bring Renishaw's **proven technology** and **metrology expertise** to a large **untapped marketplace**

Industrial Automation

A trajectory of growth



2012
159,000 installed

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Typical automation setups

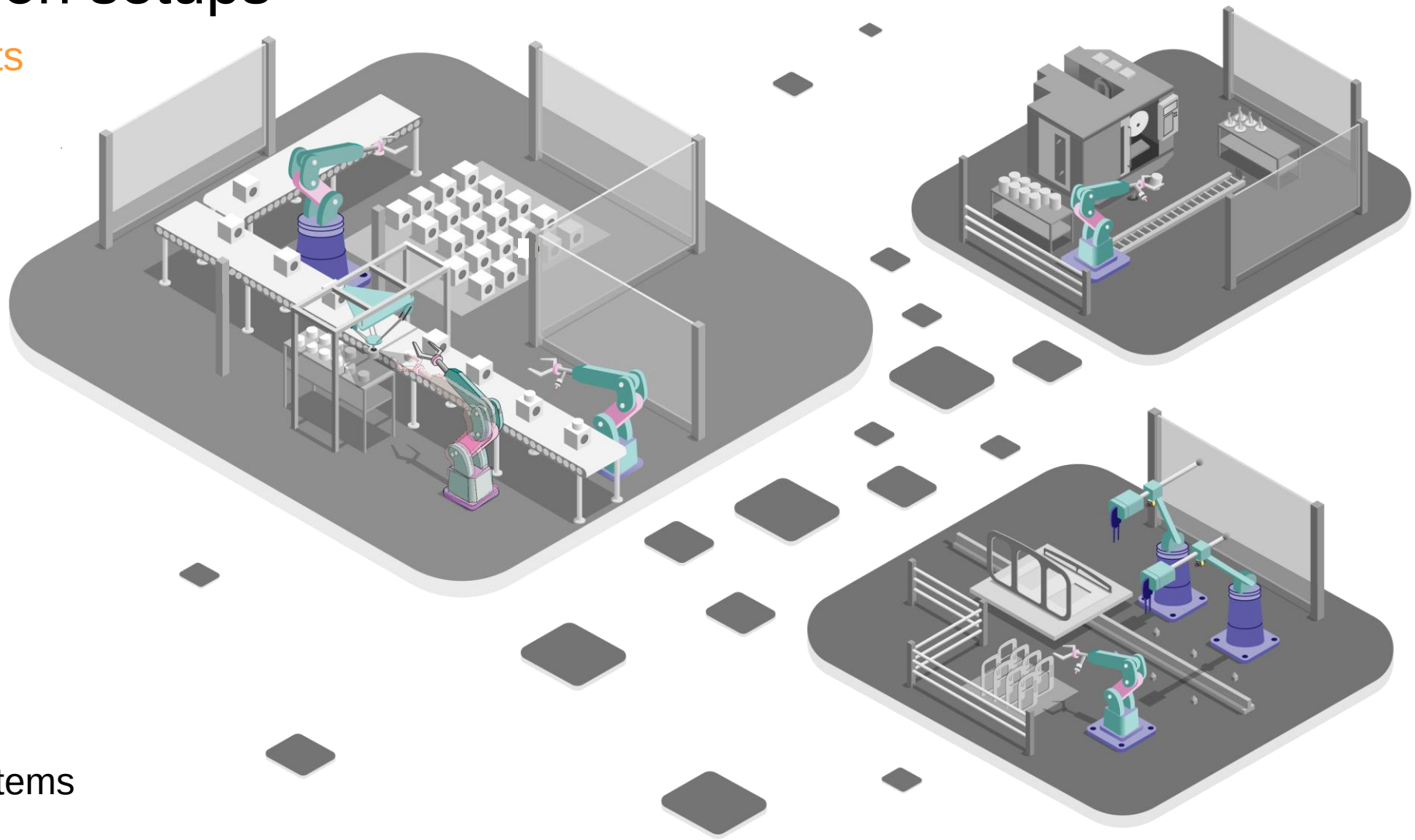
Industrial cells and robots

Automation Cell

- Industrial 6-axis robot
- Delta robot
- SCARA robot
- Gantry robot

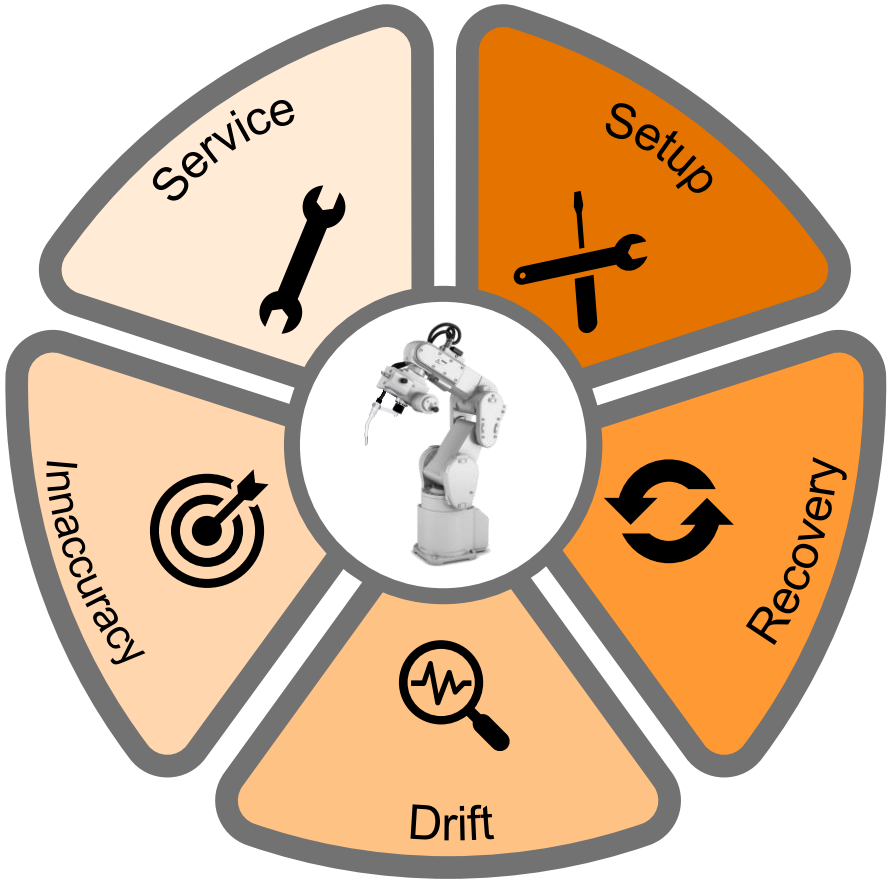
- Robot controllers

- Part handling
- Rails and rotary tables
- Guarding and safety systems



Major challenges

Issues slowing industrial automation adoption



Current challenges

Setup Manual commissioning and verification reliant on user's skill

Recovery Excessive time wasted on getting a cell working again after it has failed

Drift No means of recording the change in performance of a cell over time

Inaccuracy Highly repeatable, but inaccurate devices, which have the potential to become more accurate

Service Manual, inconsistent and subjective approach (visual, audible, smell-based, resistance-based)

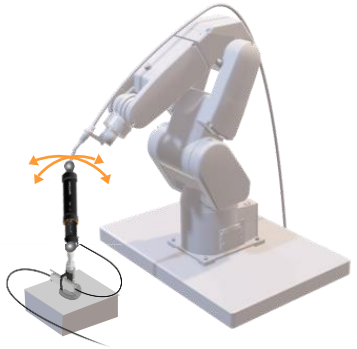
Renishaw RCS products

Directly addressing the challenges of Industrial Automation

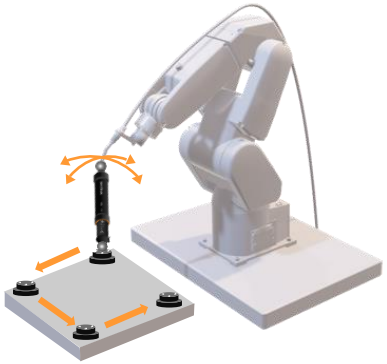
RCS product process flow

Practical solutions for major challenges in robotics

Setup

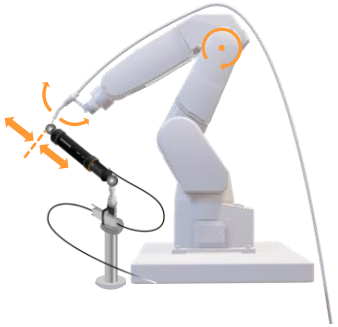


Robot setup

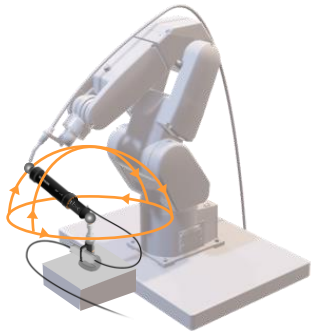


Part setup

Diagnostics

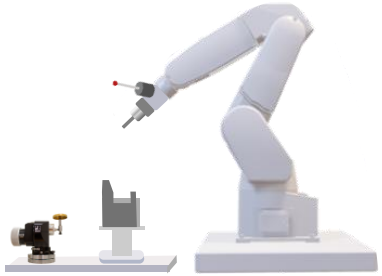


Ongoing checks



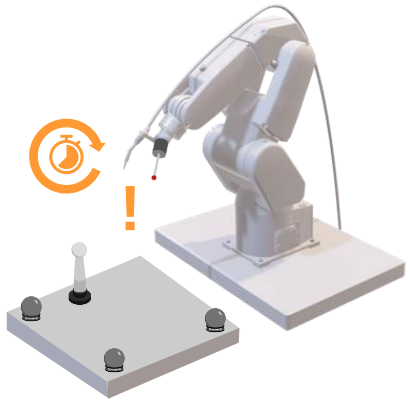
Performance verification

Process Improvement



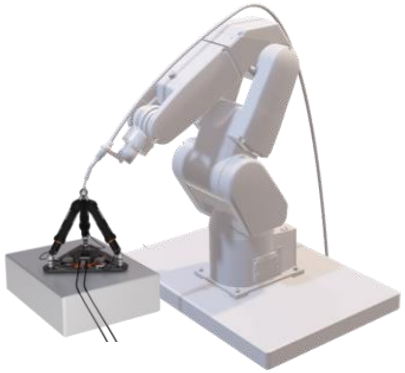
Probing datuming

Recovery

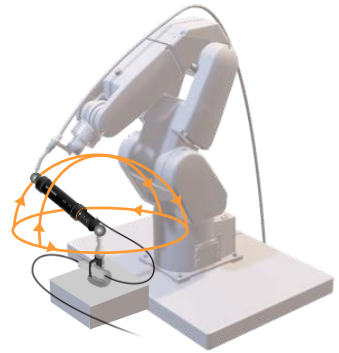


Crash recovery

Service



Robot mastering



Verification checks

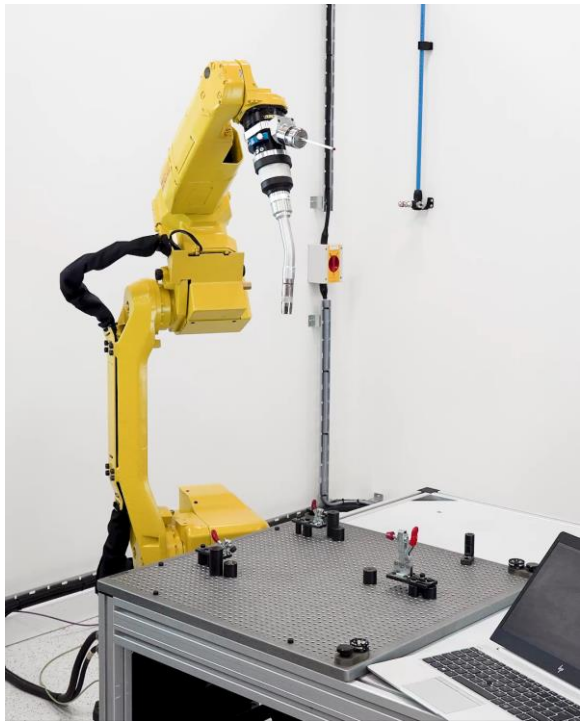
RCS T-90, RCS L-90 and RCS P-series

Automating automation setup

Eliminating the manual bottlenecks in commissioning and diagnostics

Legacy pin-to-pin robot commissioning

Renishaw automated approach



Case: US-based Integrator

Need:

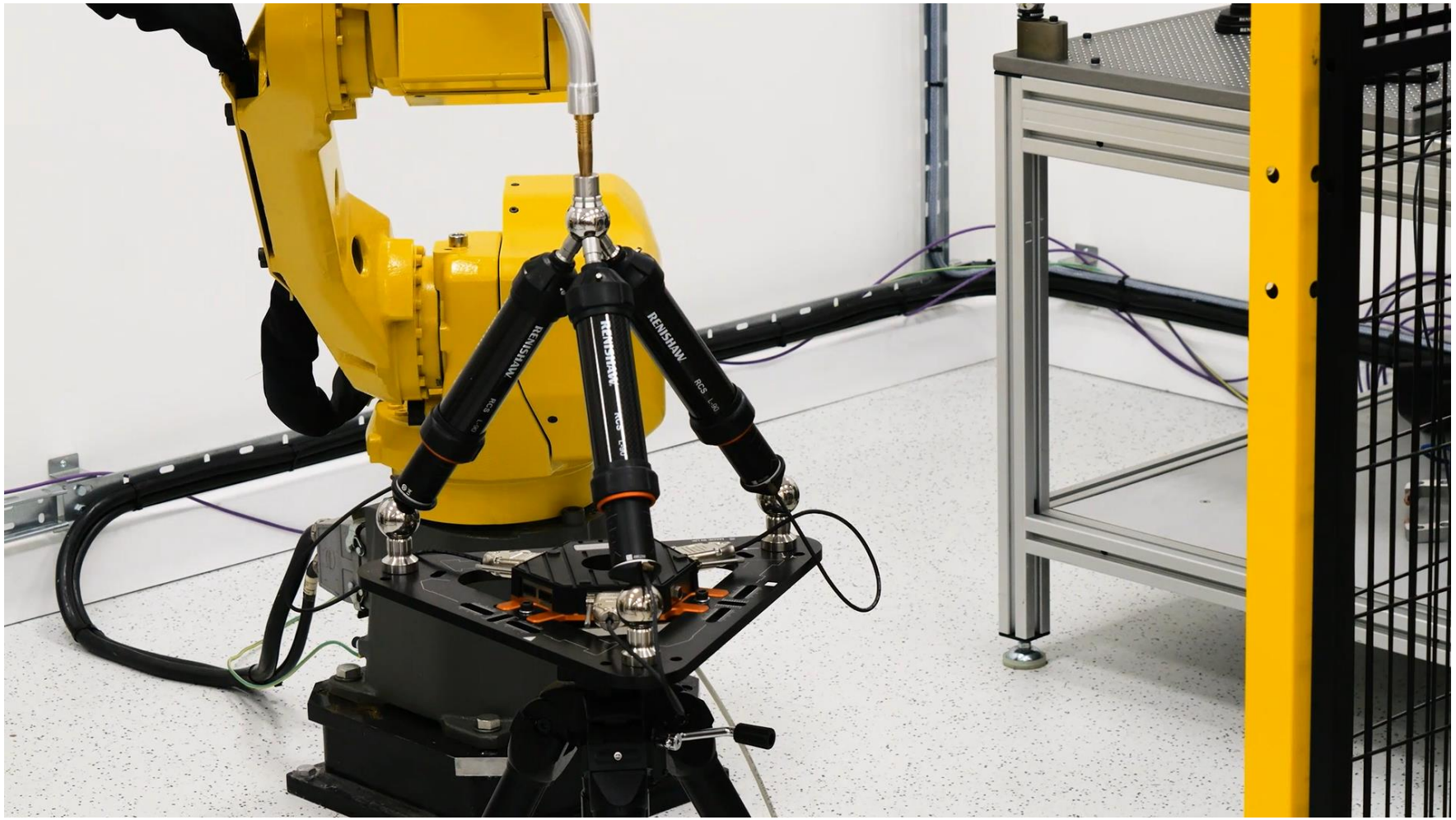
- Running Robot Diagnostics
- Easily setting Tool Centre Point (TCP)

“At One Off Robotics, precise calibration is crucial to our business, which is why we were delighted to use this Renishaw technology with our robot setup ”

RENISHAW apply innovation™

Improving robot performance

Mastering robot axes and providing robot consistency



Case: Major Aerospace Company A

Need:

- Mastering of robot axes
- Consistency of worldwide cell deployment

Outcome:

- Global adoption of approach
- 12 worldwide facilities purchasing full kits, with more in coming months

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Improving robot performance

Real world example

Region:
China

Customer:
System Refurbisher

Rationale:
Verification of nearly-new robot by a Refurbisher before being supplied to an end-user

Overall Results

New Tool Frame

Index: 1 **Name:** Tool_1

X: -36.621 mm **Y:** -39.953 mm **Z:** 390.612 mm

Rx: -0.0000° **Ry:** -0.0000° **Rz:** -0.0000°

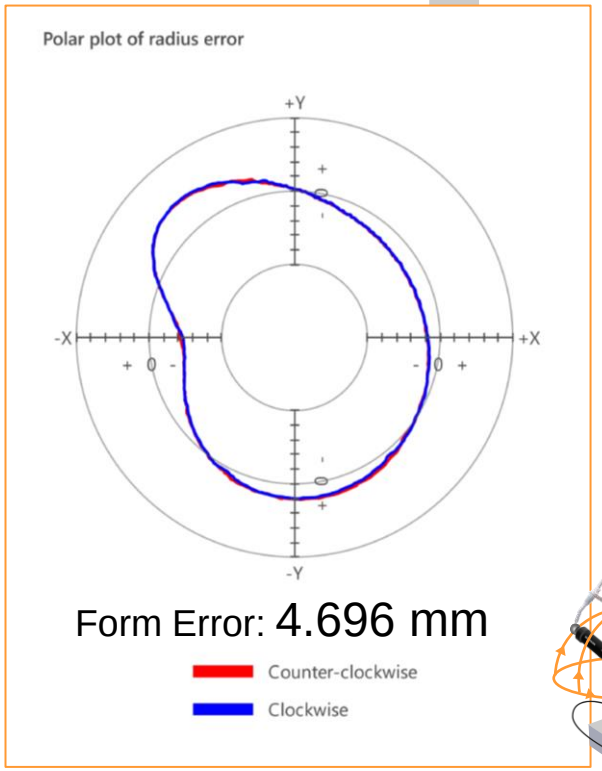
Absolute Calibration Error: 0.527 mm

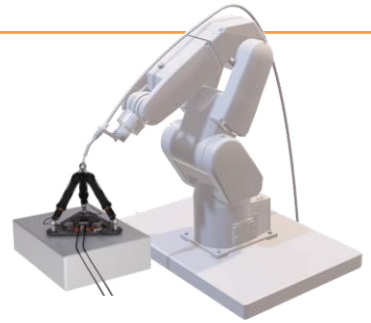
Joint Offset Correction Pose

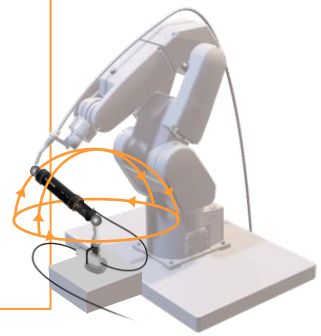
Joint 1: 0.0000° **Joint 2:** 0.2618° **Joint 3:** 0.0068°

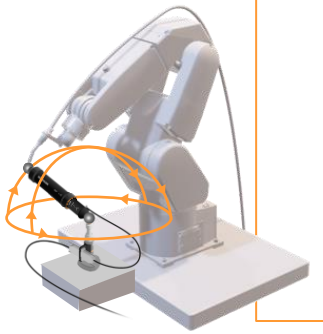
Joint 4: 0.7713° **Joint 5:** 0.0187° **Joint 6:** 0.0000°

Before

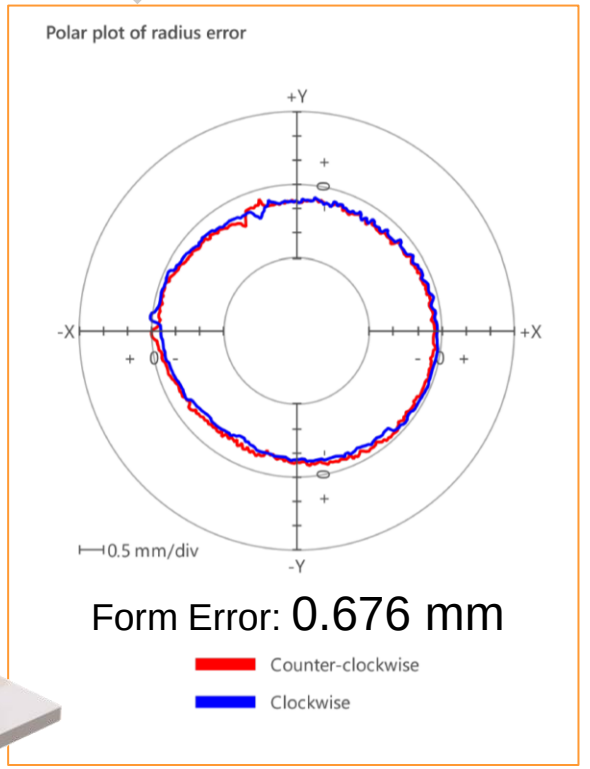






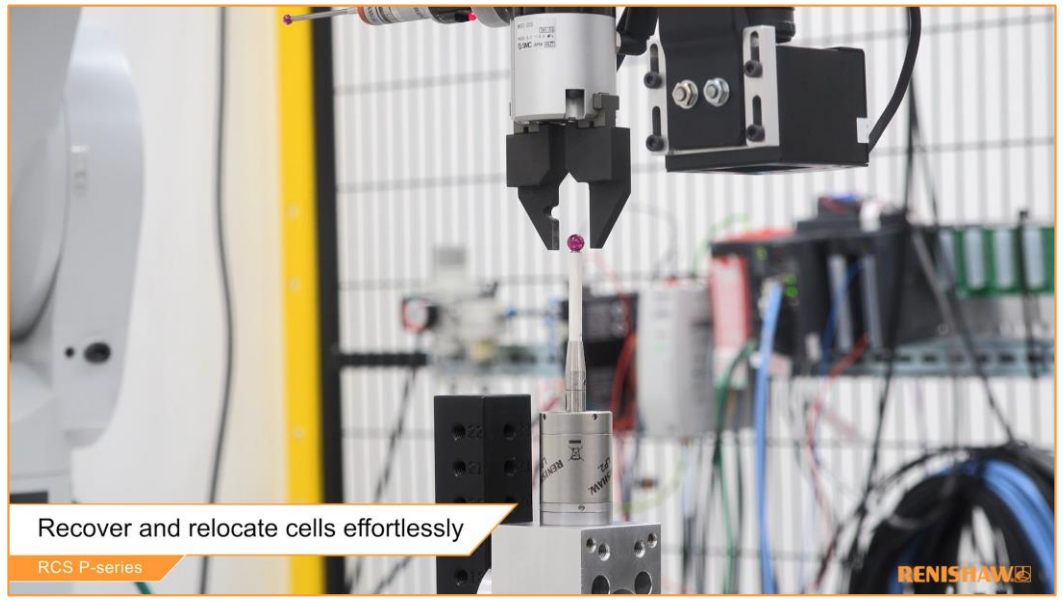


After

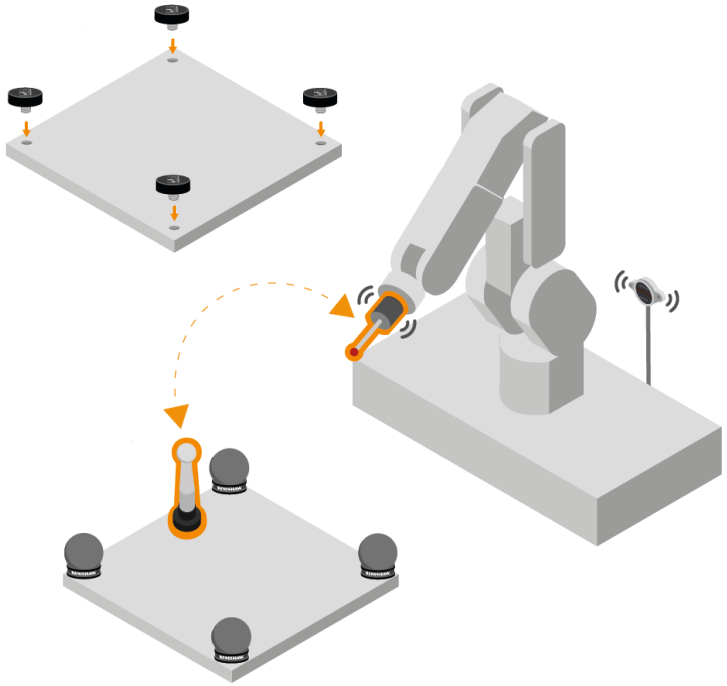


Automating cell recovery

Getting production up and running quickly with minimal intervention



Cell recovery



Case: Renishaw MSD

Need:

- Scaling existing automation cells
- Recovering quickly from issues without extensive engineering support

> "Internal use of RCS P-series probing has enabled rapid expansion and confidence in our automation plans"

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Increasing robot potential

Additional accuracy opening new applications

Case: Major Robot OEM

Need:

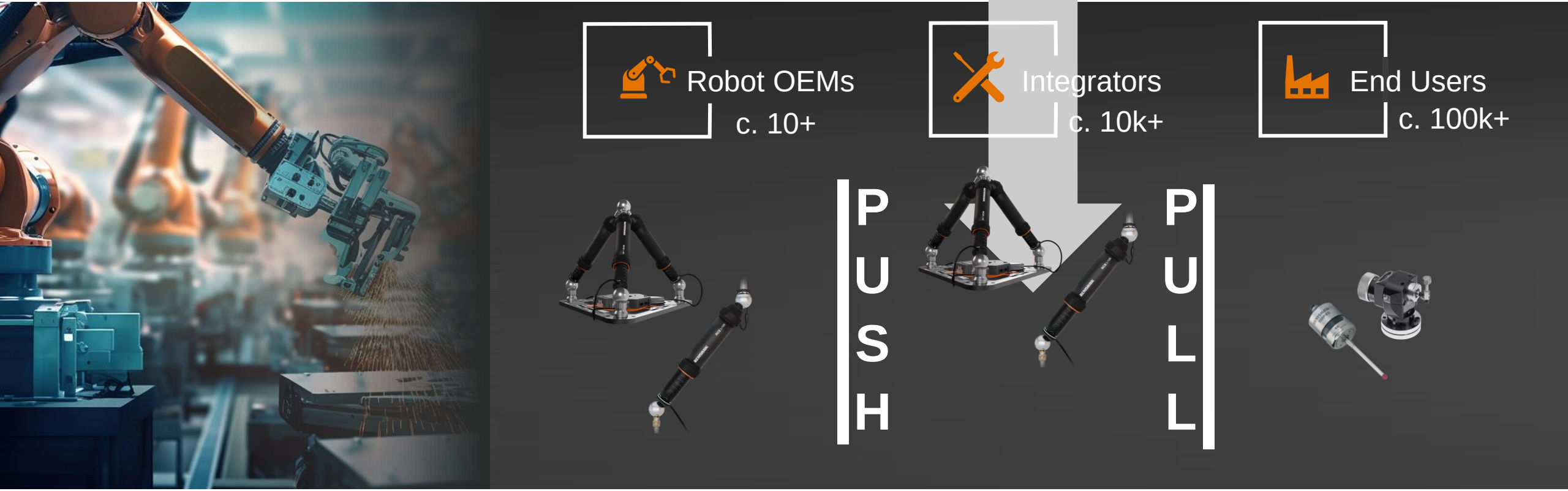
- Consistent method to set position and cutting angle of robot-based machining tools
- Quick check of tool lengths
- Locating different parts

Outcome:

- Showcase of Renishaw solution on the Fanuc Stand at Automatica 2024, Munich, Germany

The route to the market

Channel partner programme



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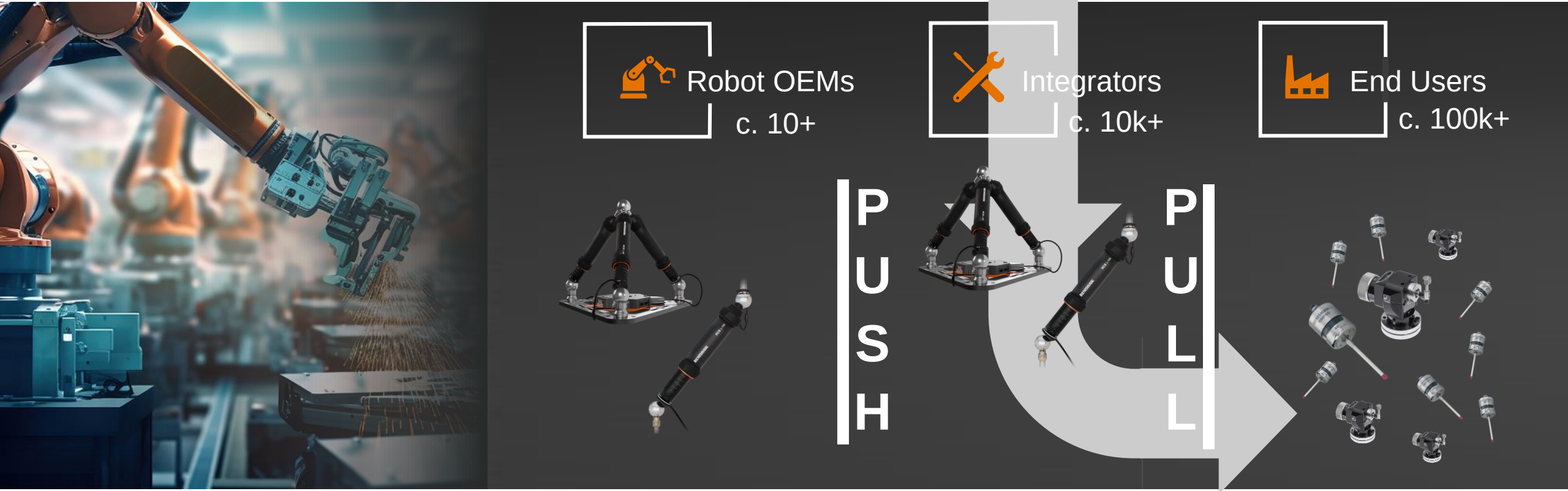
The route to the market

Channel partner programme



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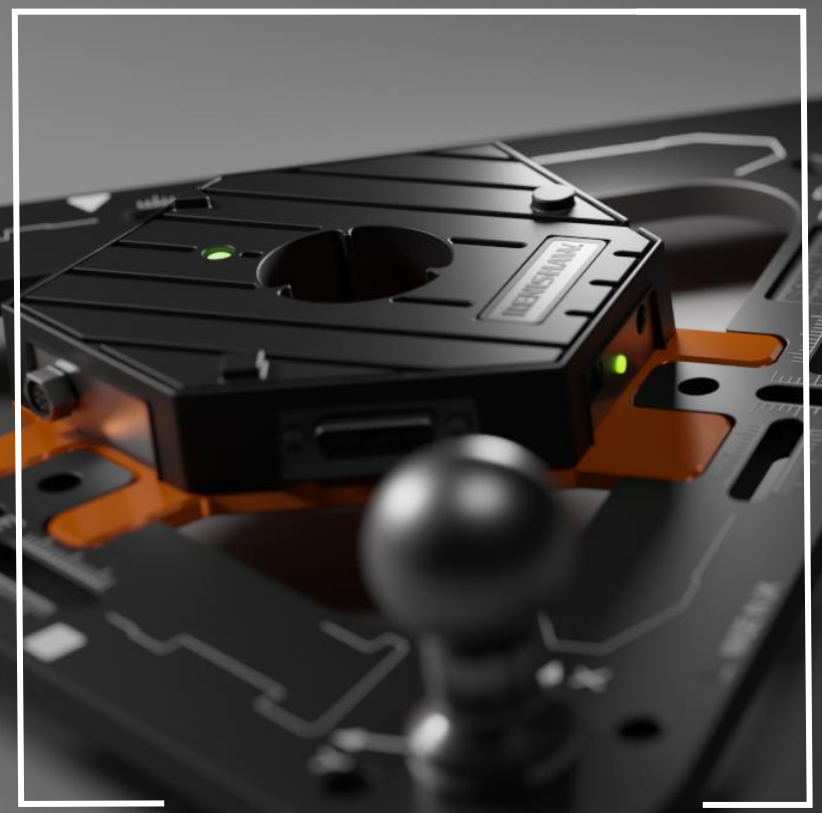

Any questions….

Extending into new markets

Spotlight on Industrial Automation

Blake Kendrick
IA Global Sales &
Marketing Manager

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Manufacturing strategy

Gareth Hankins
Group Manufacturing Director

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Manufacturing – a key element of our outperformance strategy

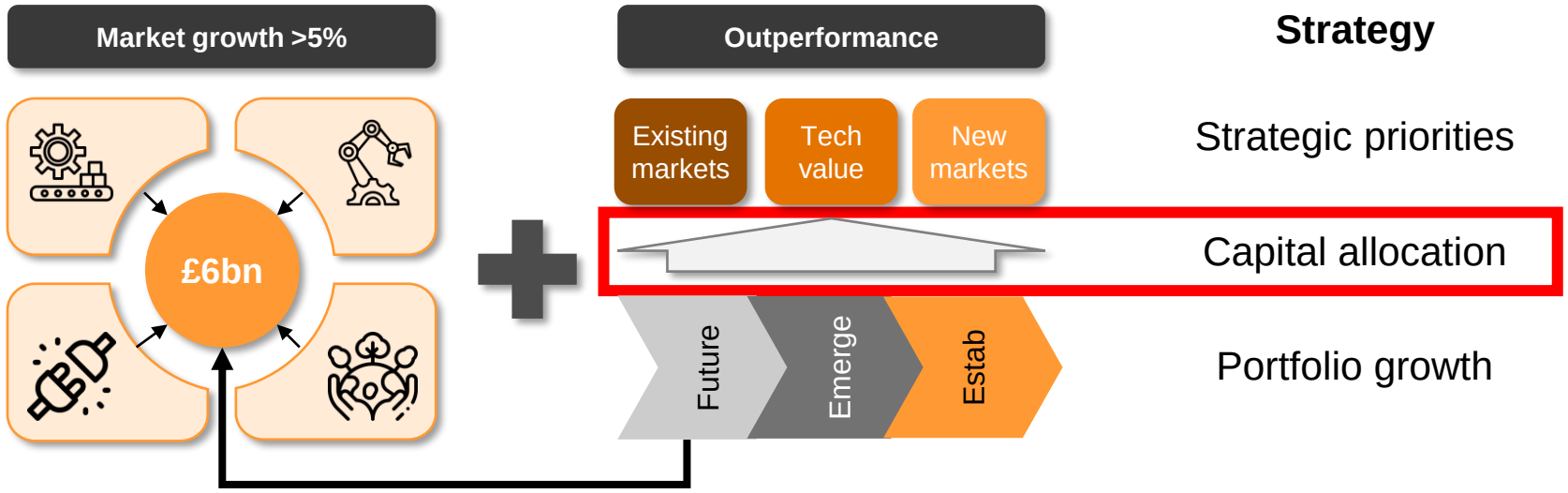
Value creation model

Competitive position

Market segmentation

Market growth

Market share



Strategy

Strategic priorities

Capital allocation

Portfolio growth

Manufacturing strategy topics

Strategy

- Global competitiveness
- Showcase & testbed for our products

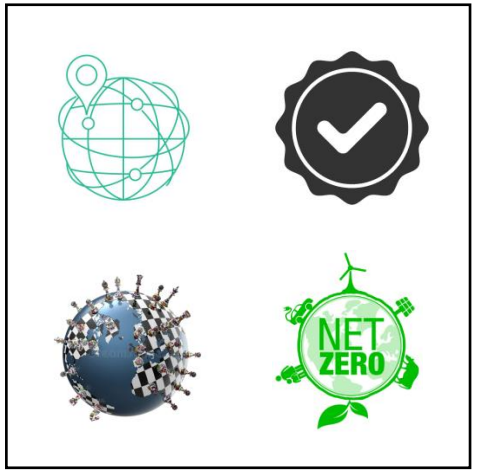
Capabilities

- Volume, complexity & variety
- Footprint & key processes

Investment

- Capex & engineering
- Miskin expansion
- Sustainability

Supply chain



- Risk management, compliance & sustainability

Manufacturing strategy

Globally-competitive manufacturing:

- Perform all important manufacturing operations in our factories to give us control of costs, quality & delivery
- Use our own technologies to maximise precision & productivity
- Continuous process development & progressive process automation to maintain competitiveness
- Design for manufacturing / assembly / procurement (DFX) to enable rapid new product introduction

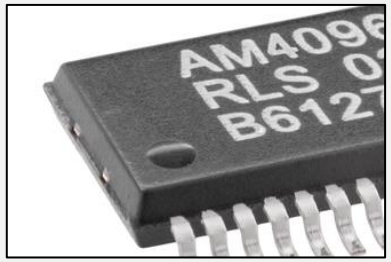
A vertically-integrated manufacturer

In-house manufacturing supports high gross margins

Material costs

Raw materials

Electronic devices



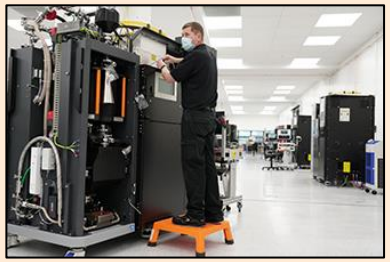
Base components

Factory costs

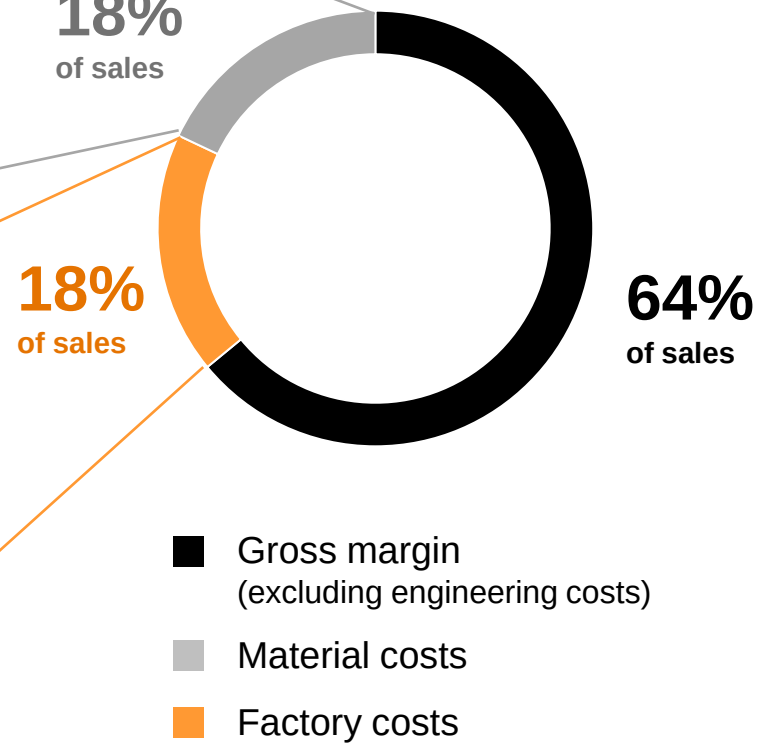
Part manufacturing

Electronics assembly

Product assembly



Cost of goods sold & gross margin



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Our manufacturing challenge

Broad product range across a spectrum of production volume and product complexity

Styli

Position encoders

Metrology sensors

Calibration

Capital equipment

Volume	Very high	High	Medium	Low
Complexity	Low	Medium	High	Very high
Variety	**50,000** components	+ **40,000** sub-assemblies	+ **60,000** products	

Our manufacturing footprint

Critical functions distributed across multiple manufacturing sites

Gloucestershire

Stonehouse
- 9,000 sqm
- Machining
- Process finishing
- 200 staff

Woodchester
- 15,000 sqm
- Electronics assembly
- Product assembly
- 500 staff

New Mills
- 7,000 sqm
- New product introduction
- Spectroscopy assembly
- Additive manufacturing
- 150 staff

South Wales

Miskin
- 96,000 sqm, (52,000 sqm newly constructed)
- Machining
- Process finishing
- Electronics assembly
- Product assembly
- 650 staff

Overseas

Dublin, IRE
- 9,000 sqm
- Product assembly
- Neurological
- 200 staff

Pune, IND
- 15,000 sqm
- Product assembly
- 200 staff

Völklingen, DE
- Styli

Lyon, FR
- Neurosurgical robots

Component manufacturing

- 200 CNC machines across 2 sites
- 24x5 operation, plus weekend working
- > 1.5 million parts per month

Machining centres

Sliding head lathes

Metal 3D printed galvo block

Mill-turning centres

Showcasing our manufacturing technologies

Practicing what we preach

- Our machining facilities are showcases for what can be achieved by intelligent application of metrology, position measurement and design for manufacture
- Integrated process control and in-house automation enable 24-hour unattended production of high-variety / medium-volume components
    - Up to 140 value-added hours per week
    - < 0.5% machining scrap
    - 1 operator running 8 machines
    - 200 CNC machines across 2 main production sites
    - 24x5 operation, plus weekend working
    - Typically producing 1.5 million parts/month

Green lights on a row of automated machining centres. Low manning levels enable globally-competitive costs to be achieved in UK factories

DFX is the foundation of world-class manufacturing

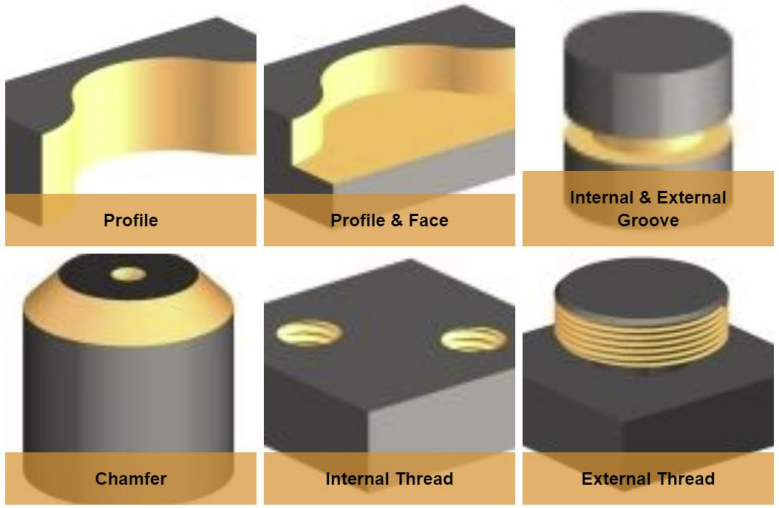
A close link between design and manufacturing

Design for manufacture / assembly etc (DFX)

- Re-use proven, repeatable processes
- Builds deep process expertise, enabling automation & improvement
- Standardised equipment = flexibility

New product introduction (NPI)

- Partnership between Design and Manufacturing
- DFX enables faster process development & smoother production scale-up
- Dedicated new product introduction (NPI) facility



DFX guidebook

NPI facility at New Mills

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Testbed for new products

Our most demanding customer is ourselves

Our factories are a rich source of insight into real-world manufacturing problems

First to evaluate new manufacturing technologies

Case study:

Renishaw CENTRAL smart data platform deployed across multiple manufacturing sites

- Powerful insights into patterns & trends
- Identified key sources of unplanned stoppages & opportunities to reduce set-up times to boost productivity

Process finishing

- Anodising plants on 2 sites
- Aqua-blasting, auto-deburring, hardening & laser engraving

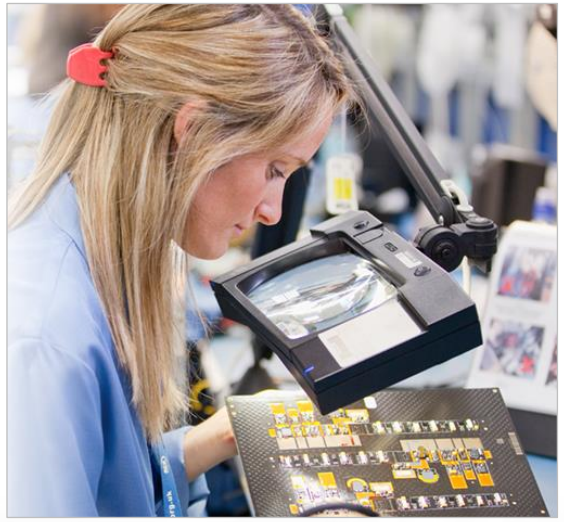
Anodising

Deburring

Laser engraving

Electronics assembly

- 4 electronics production lines across 2 sites
- New product introduction line for rapid prototypes
- Automated flow lines & de-panelling
- Wire bonding of ICs and strain gauges
- Functional & in-circuit test



PCB inspection at Woodchester

ATOM miniature encoder PCB

Electronics assembly at Miskin

Product assembly

- Wide range of product assembly challenges
- Cellular assembly of low- and medium-volume products, with extensive use of step-locked jigs
- Increasing automation of high-volume operations & position encoders assembly using flow-line principles
- Developing dual site assembly capability for key products

Robotic automated assembly

Assembly of AM machines

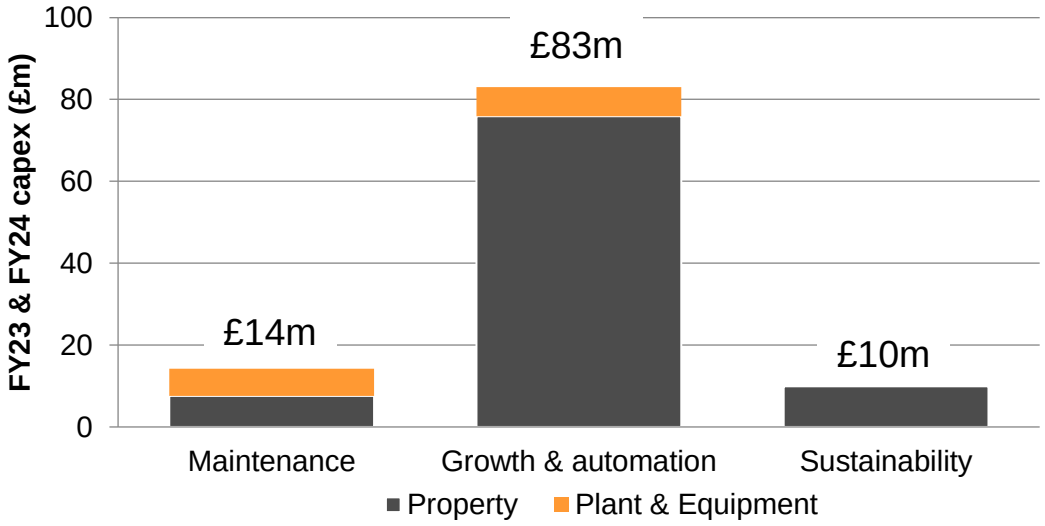
Cellular small product assembly

Investment in manufacturing

Investment in FY23 and FY24 to boost capacity, sustainability & productivity

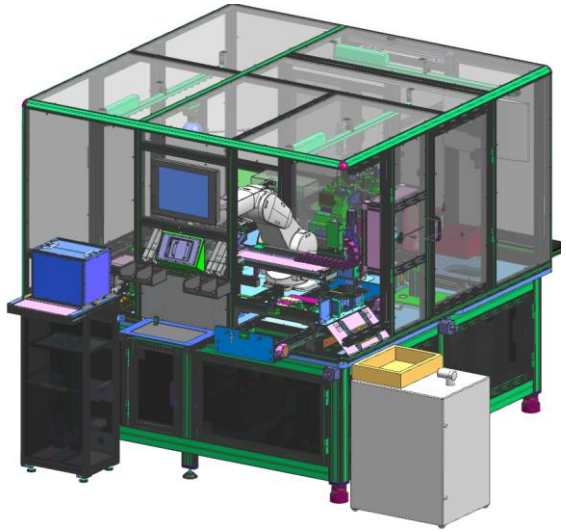
Capex

- Miskin expansion
- Machine tools
- Electronic assembly equipment
- Robotics & automation
- PV capacity, HVAC & insulation

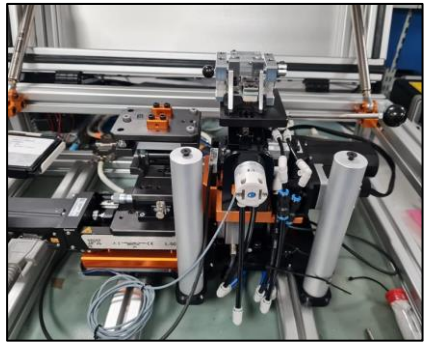


Engineering

- 200 manufacturing engineers
- New production processes
- Assembly process automation
- Warehouse & logistics automation



Encoder assembly cell



Gluebot

Robot metrology

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Miskin expansion

Room to grow over the next 5 years

Additional capacity

- 193 acres site acquired in 2011
- Halls 1 & 2: 44,000 sqm now full
- Halls 3 & 4: 52,000 sqm additional space
- Occupation of Hall 3 in progress – assembly of large products (Agility CMMs, AM machines, FORTiS enclosed encoders)
- Hall 4 ‘mothballed’ – commission when needed for additional product assembly capacity

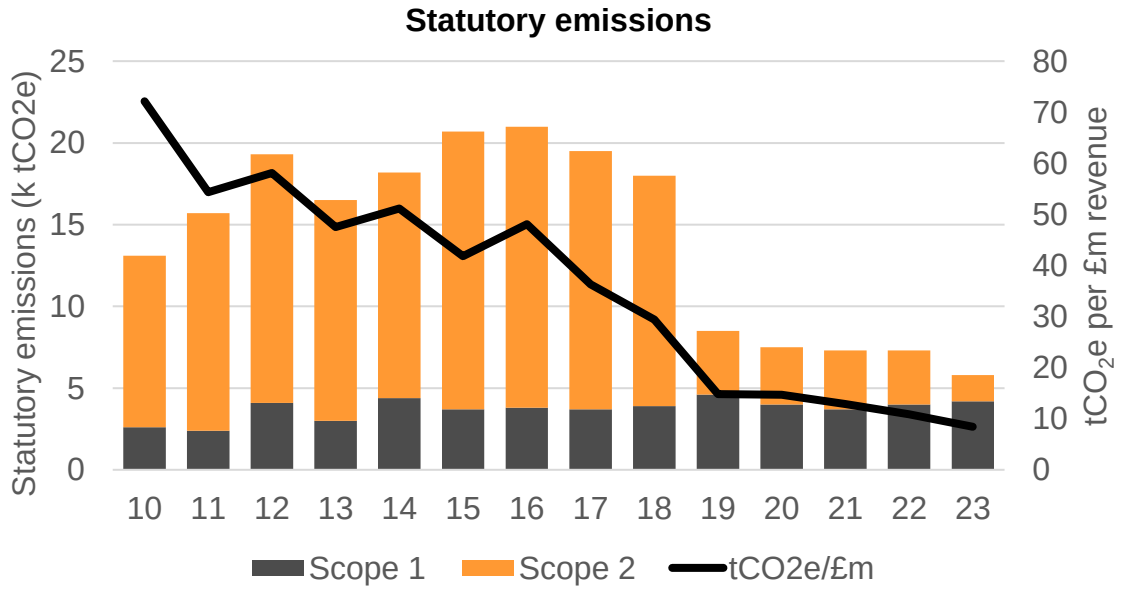
Sustainability

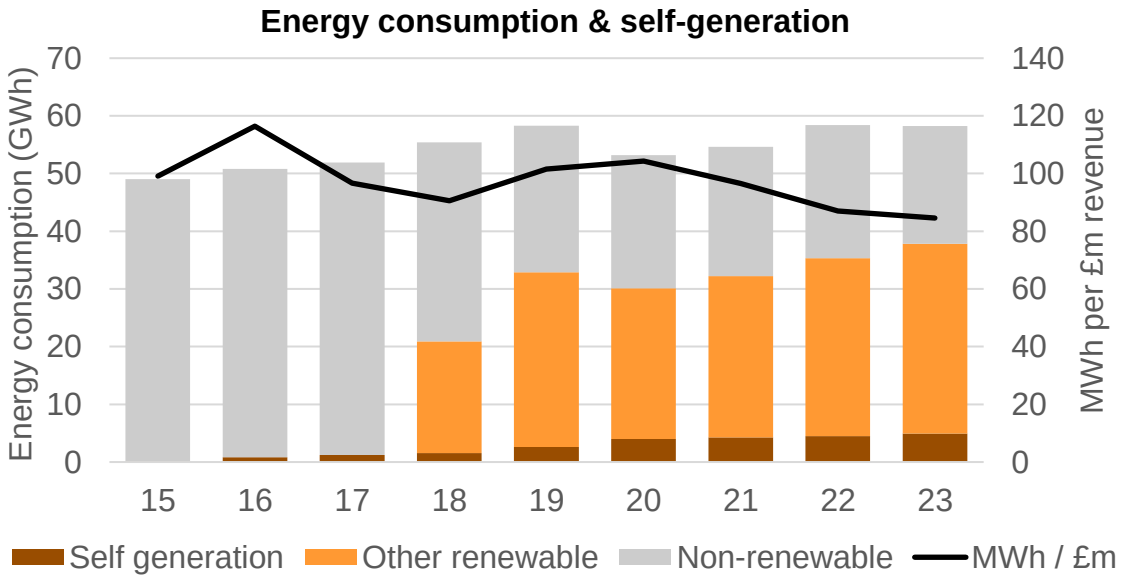
- Net Zero buildings
- 3.7 MW of PV self-generation
- Sustainability improvements to existing halls

Reducing our carbon footprint

An ongoing journey towards greater energy efficiency

- 88% reduction in statutory emissions per £m revenue since 2010
- Steady improvement in energy efficiency (MWh / £m) through investment in facilities and equipment
- Increasing use of renewable energy sources to reduce carbon footprint
- Rising self-generation from solar across our property portfolio – new arrays at Miskin & Brazil connected in FY24





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Supply chain

Risk management, compliance & sustainability

Risk Management

Likelihood, impact/materiality & mitigation across both manufacturing and operational needs

Emerging & changing compliance

Investing in resources & processes to ensure compliance across a range of global supply chain agendas

Geopolitical risk

Continual monitoring of supply chain vulnerability and implementing appropriate mitigation

Sustainability: Scope 3 impact & approach

Engagement and collaboration with suppliers to reduce Scope 3 GHG emissions by 50% by 2030

Q&A

Gareth Hankins

Group Manufacturing Director

Growth investment & driving returns

Marc Saunders
Director of Group Strategic Development

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Organic growth investment & driving returns

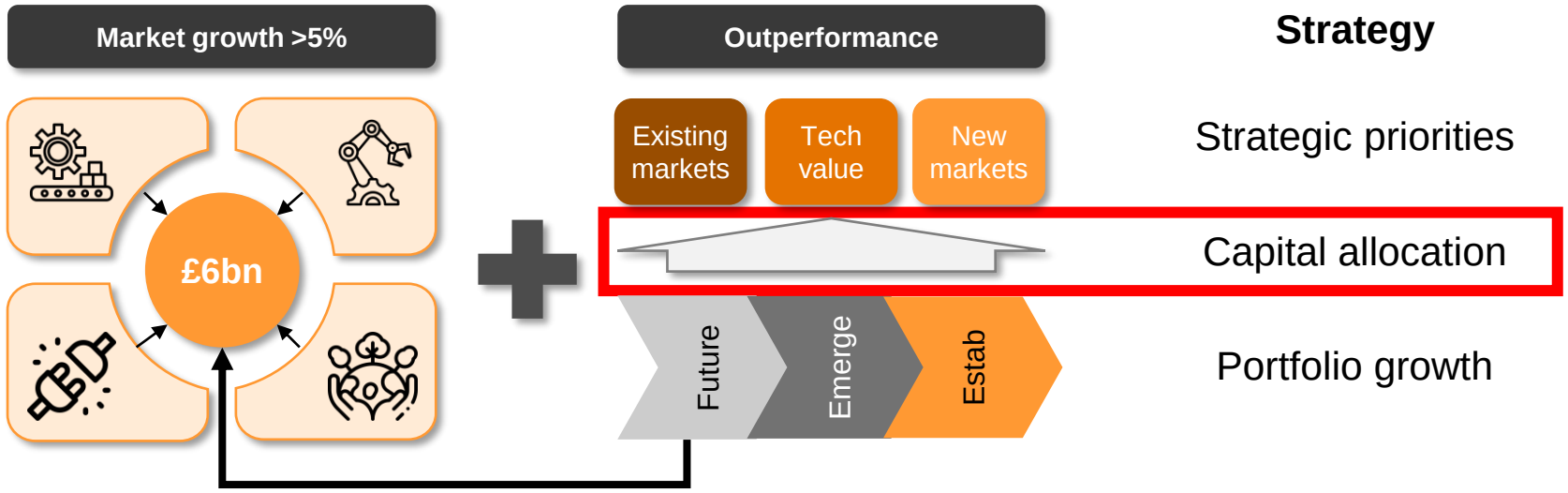
Value creation model

Competitive position

Market segmentation

Market growth

Market share



Strategy

Strategic priorities

Capital allocation

Portfolio growth

Created new market

Entered existing market

Growth through continuous innovation

50-year track record of growth and portfolio expansion built on innovative solutions

1973

Touch-trigger probe

1983

Motorised indexing head

Machine tool probe

Laser calibration

1993

Open optical encoders

Raman spectroscopy

Interferometric laser scale

Magnetic encoders

2003

5-axis multi-sensing

Fibre laser encoders

Flexible shop-floor gauges

2013

Enclosed optical encoders

Multi-laser additive

5-axis CMMs

2023

Industrial automation

Smart factory data platform

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Growth investment topics

Capital allocation for through-cycle organic growth

Commercial focus | Innovation | In-house manufacturing

Growth investment

Engineering

Maintain, upgrade & new products

Sales & marketing growth

Expand sales teams & routes to market

Capital expenditure

Grow our infrastructure & intellectual property

Working capital

Inventory & trading capital to support growth

Value creation & return on investment

Gross margin

Margin drivers & future trends

Return on invested capital

Robust balance sheet & solid returns

Engineering

Differentiated products enabling sustainable operating margins

Engineering investment:

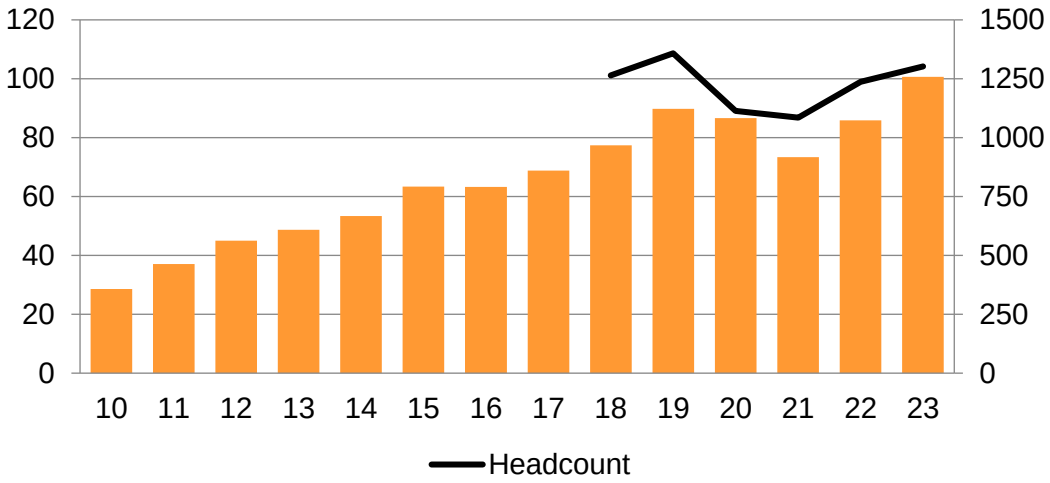
- Novel solutions to solve customer problems
- Strengthen & expand our product ranges
- Intellectual property to enable high gross margins
- Efficient manufacturing processes

Innovation supports long-term growth & margins:

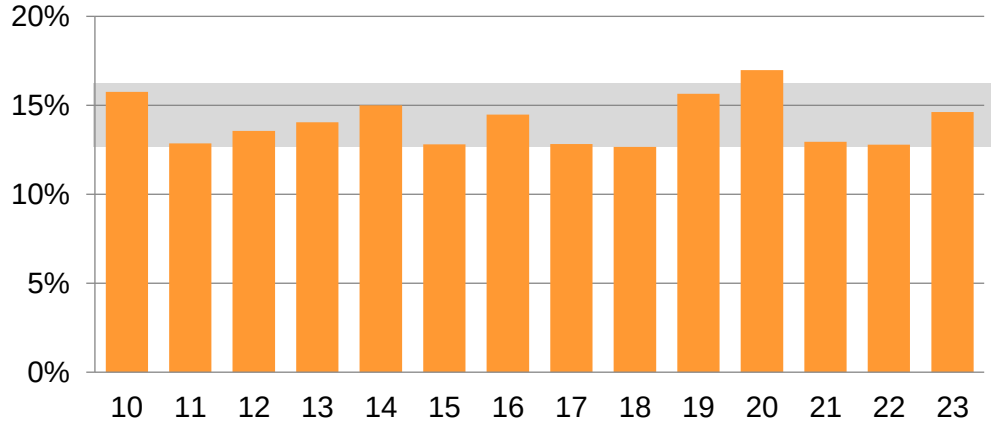
Precision | **Productivity** | **Practicality**

1800 patents **350** patent families

Gross engineering spend & headcount



Engineering spend as % of revenues



13%-16% range

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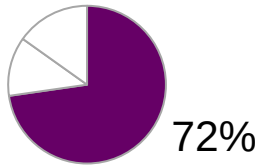
Engineering organisation

Inter-connected functions working together to develop & commercialise new products

Business function	Product Groups	Sales & Marketing	Manufacturing	Corporate Services
Activities	• New product development • New product introduction • Product roadmap • Technology research • Current products • IP generation	• Market intelligence • New product launch • New business development • Application engineering	• Manufacturing engineering for new products • Process improvement (automation, cost & quality)	• India software team • Electronics design • Laboratory services • Component engineering • Patents
Engineering headcount	 72%	12% 		15% 

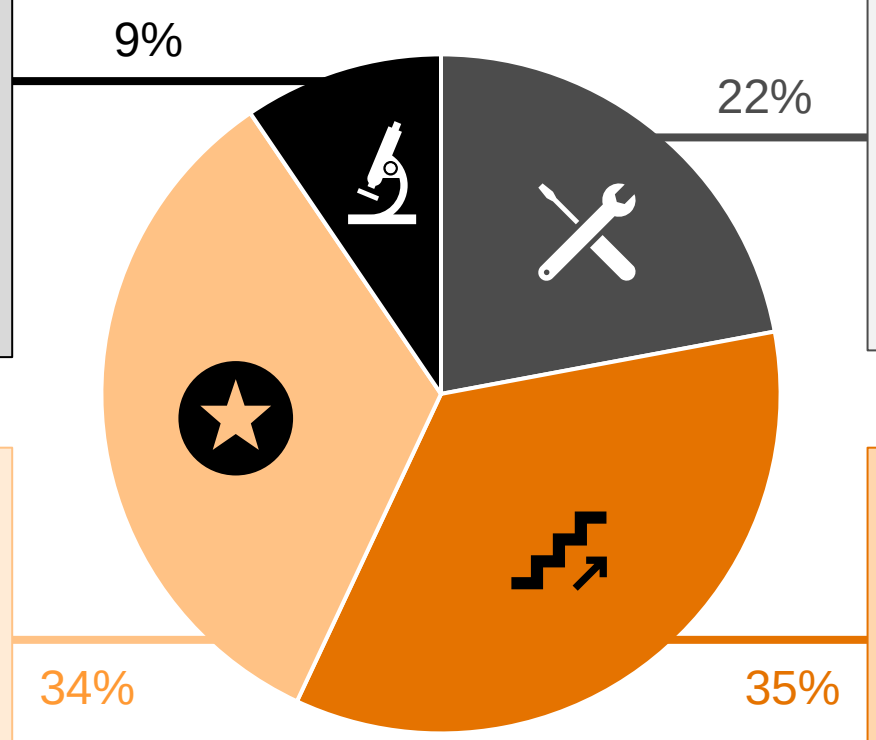
Engineering investment returns

A range of engineering activities to protect, enhance and diversify our product ranges

Central

What:	Shared technical & IP services supporting all R&D teams Early careers schemes
ROI:	Efficient deployment of specialists Lower recruitment costs
Payback:	Short term

FY24 engineering spend



Maintain

What:	Sustain existing products by design & process change Obsolescence, regulations, maintain quality, reduce cost
ROI:	Sustain position & profitability
Payback:	Short term

New

What:	Non-substitutional new products Enter close-adjacent segment with differentiated offering
ROI:	Grow addressable market Enter high-growth segments
Payback:	Long term

Upgrade

What:	Substitutional new products New features, improved performance, range extensions
ROI:	Grow existing business Renew patent protection
Payback:	Medium term

Portfolio development

Investing in established, emerging and future businesses to grow our portfolio

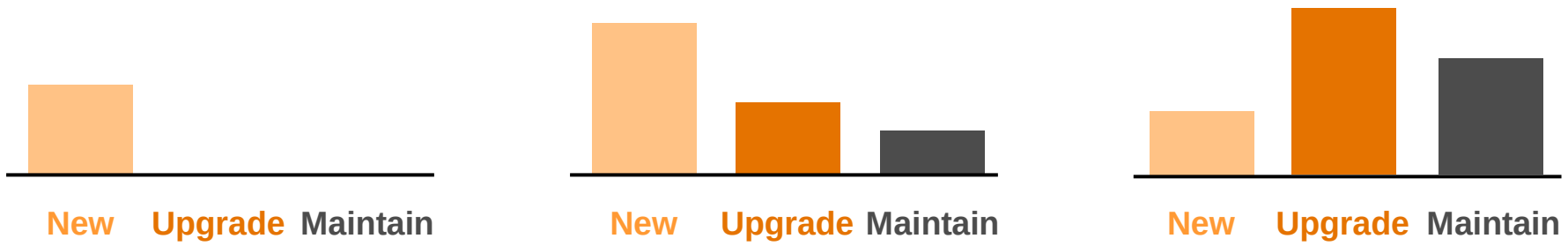
Future
- R&D in close adjacencies to grow market

Emerging
- Rapid market share gain to grow profit %

Established
- #1 / #2
- Profitable
- Growing

Portfolio growth

10%	35%	55%
FY24 engineering		



Activities

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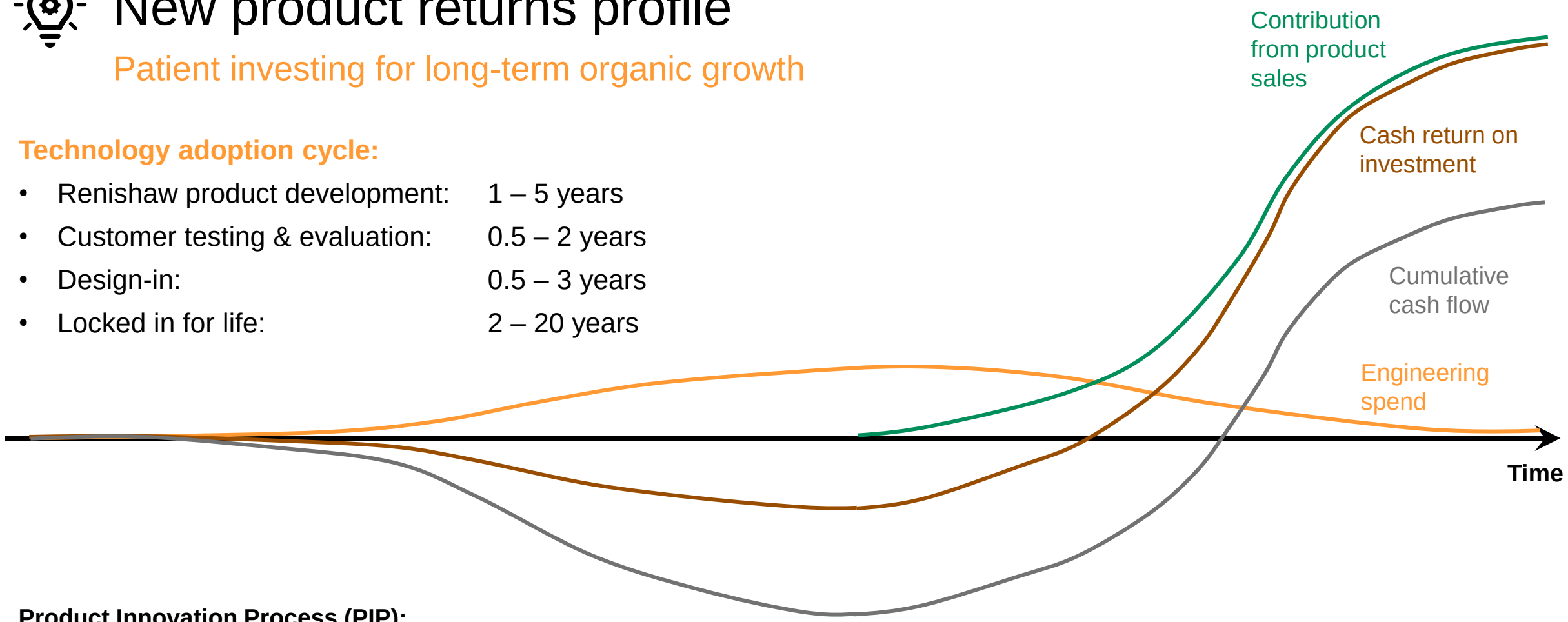
New product returns profile

Patient investing for long-term organic growth

Technology adoption cycle:

- Renishaw product development: 1 – 5 years
- Customer testing & evaluation: 0.5 – 2 years
- Design-in: 0.5 – 3 years
- Locked in for life: 2 – 20 years



Product Innovation Process (PIP):

Pre-project	CONCEPT	GATE 1	DESIGN	GATE 2	DEVELOP	GATE 3	COMMERCIALISE	GATE 4	PRODUCE	GATE 5

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Sales & marketing

Global network providing expert sales, service & support

Sales & marketing investment:

- Grow local teams to support our strategic priorities and drive profitable growth
- Expand office network to support changing geographic patterns of customer demand
- Pay, logistics, travel & marketing expenses

Commercial focus for profitable growth:

Growing in existing markets

- Fitment levels
- Customer wins

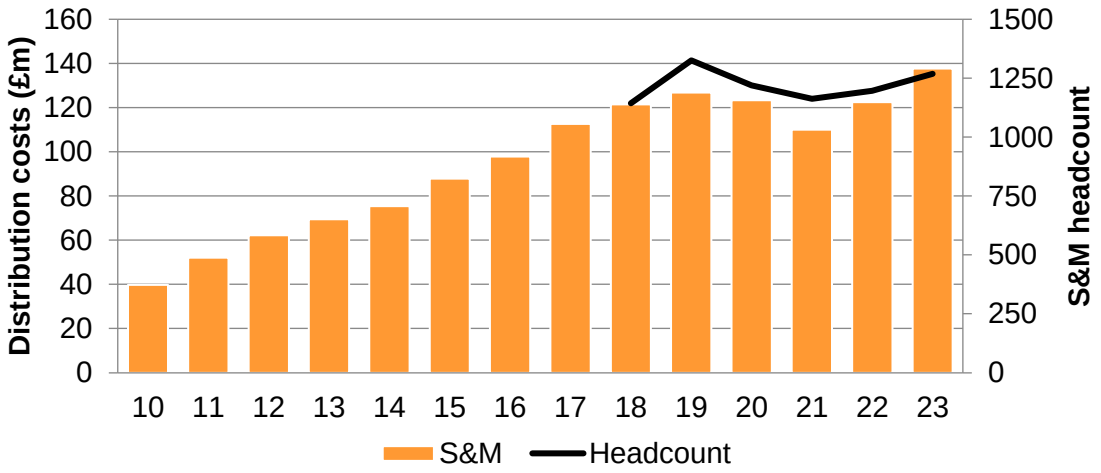
Increasing technology value

- Systems & s/w
- Key accounts

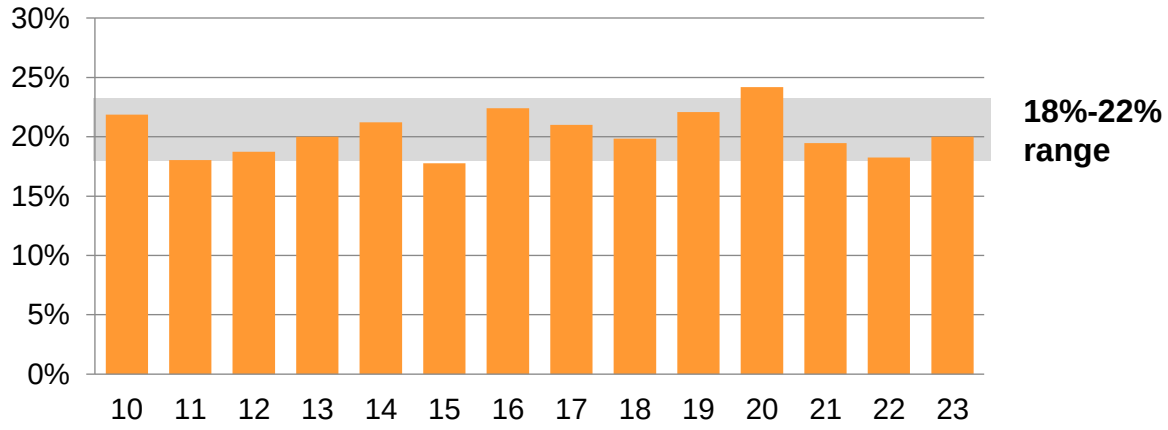
Extending into new markets

- Route to market development

Sales & marketing spend & headcount



Sales & marketing spend as % of revenues



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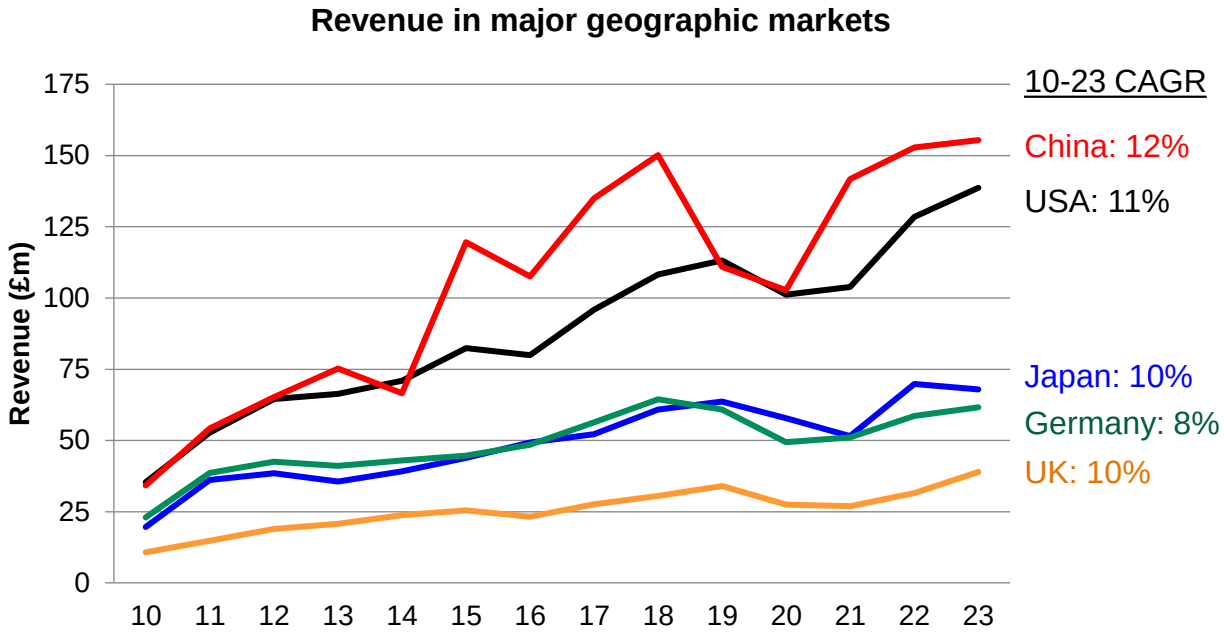
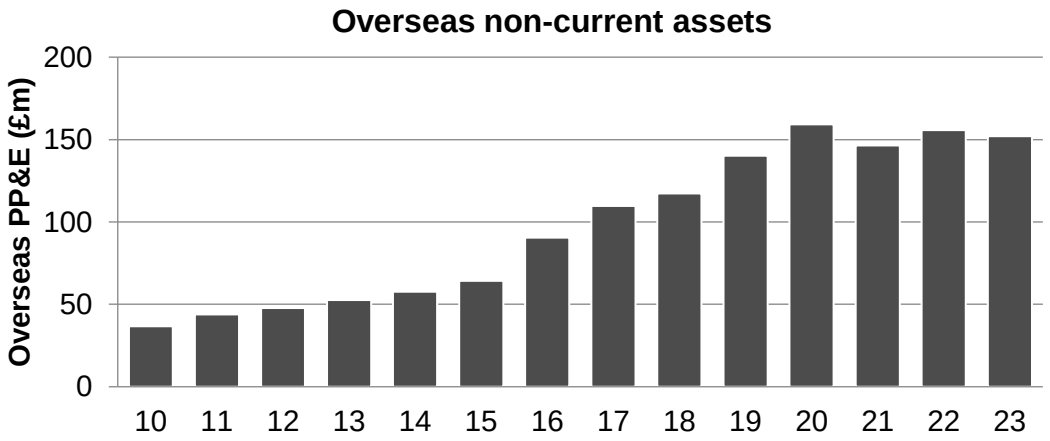
Growing our global network

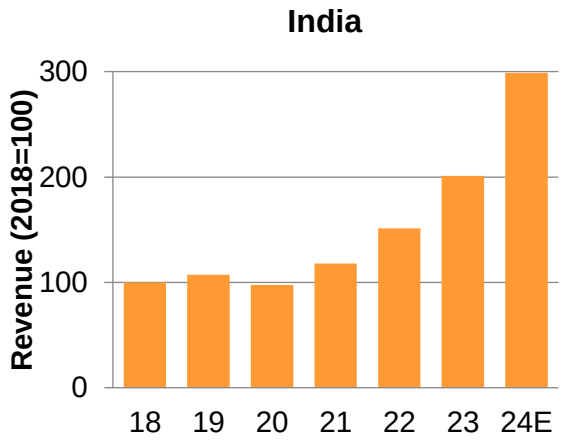
Responding to changing demand patterns

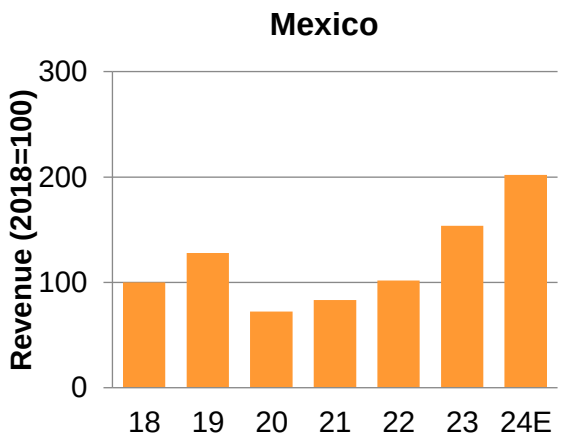
Sales & marketing investment:

- Rapid China growth in 2010s, including large consumer electronics projects - 14 offices, 200 employees
- Expanded global sales network during 2010s to develop routes to market for emerging businesses
- Recent investment in Gulf, Korea, Thailand, Brazil
- Directing future investment into high-growth markets – e.g. India, Mexico









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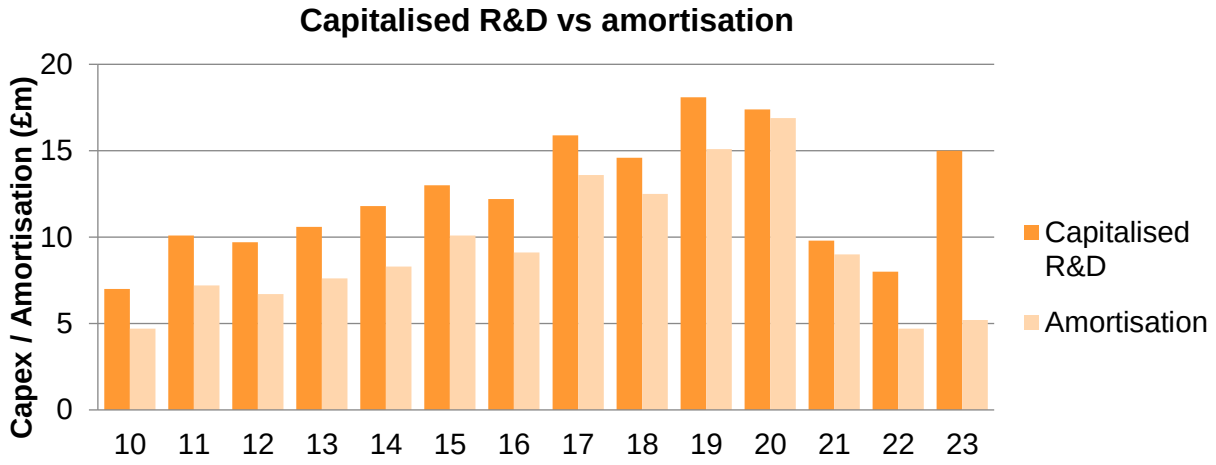
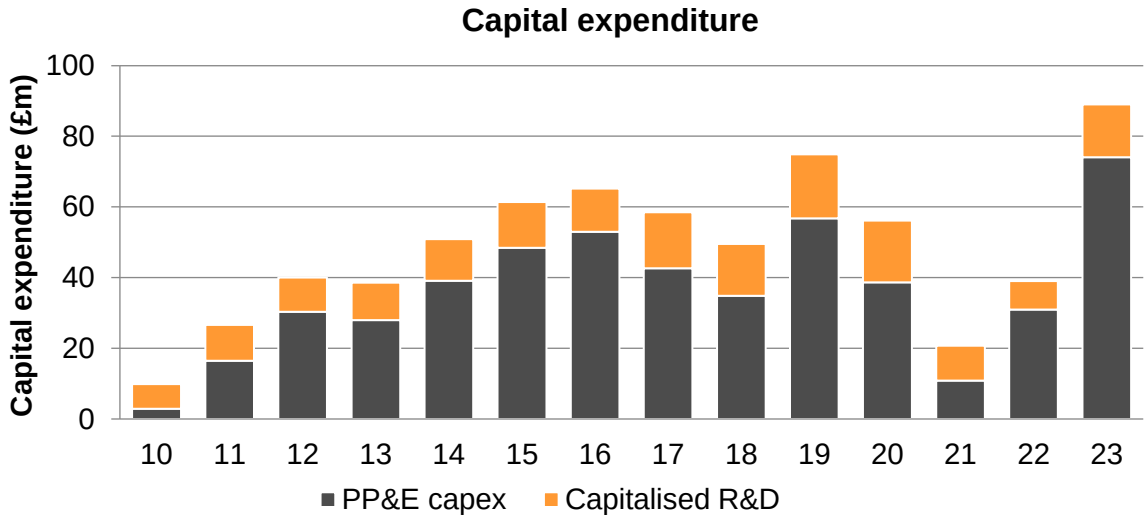
Capital expenditure

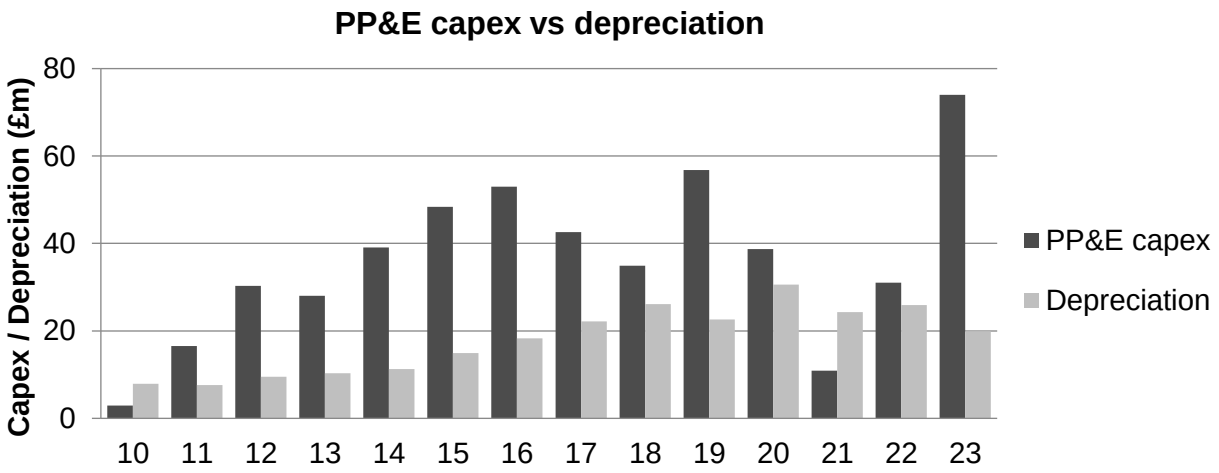
Building our sales, R&D and manufacturing capacity

Capital expenditure:

- Property, plant & equipment to grow our sales network, R&D facilities, and manufacturing capacity
- Capitalised R&D to develop our IP assets
- Extra capacity to allow rapid response to opportunities
- FY24 capex similar to FY23







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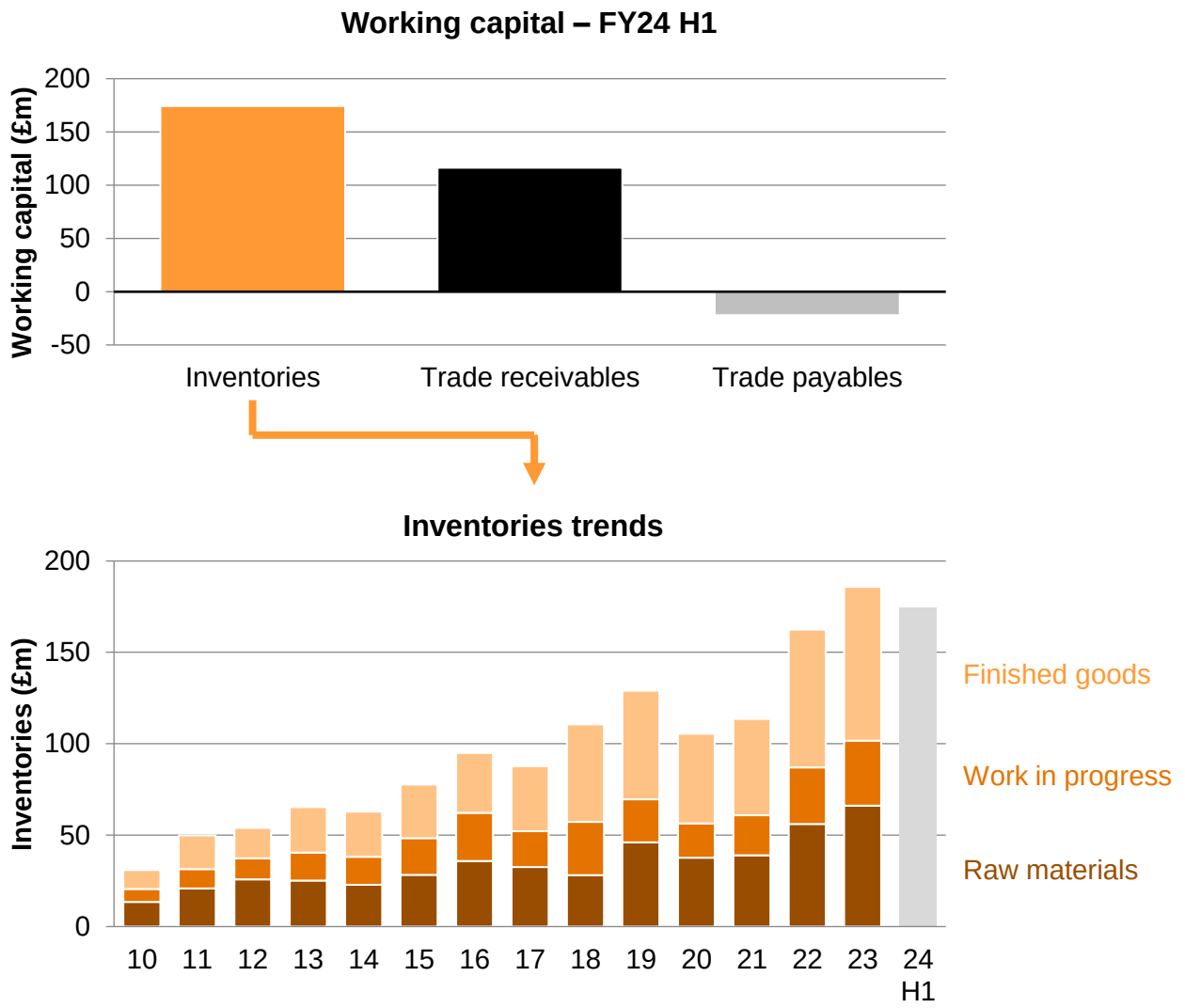
Working capital – inventories

Adjusting stocks in preparation for growth

Inventory as a competitive advantage:

- We build strong customer relationships by being a reliable and responsive supplier
- Our investment in inventory means that we are ready to respond to fluctuating market demand on short lead times
- Supply chain disruption in FY21 and FY22, followed by reduced customer demand from semicon equipment builders in FY23, left us over-stocked in some products
- £11m reduction in FY24 H1, whilst retaining resilience for future demand increases



Notes

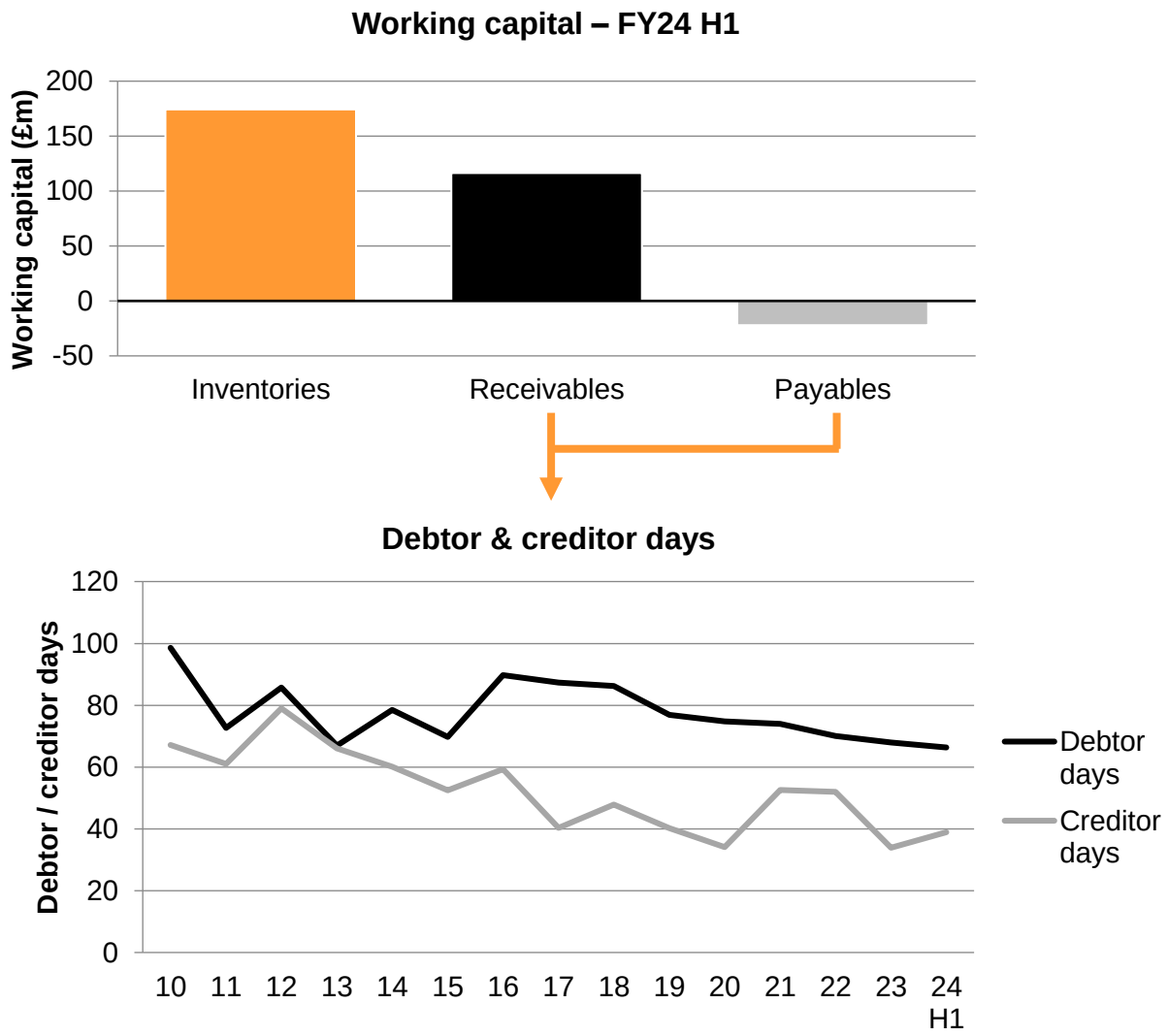
1. Debtor days = how long customer take to pay = trade receivables (inc. sales tax) / revenue x 365
2. Creditor days = how long Renishaw takes to pay suppliers = trade payables / material cost of sales x 365

Working capital – debtors & creditors

Steady reduction in debtor & creditor days

Stable trading terms:

- Large projects in 2010s with consumer electronics contract manufacturers with long payment terms pushed up debtor days
- Steady recent reduction in debtor days as project sales have reduced in scale
- Creditor days rose in the post-covid period as we built up inventories – recently reversed



Notes

1. Debtor days = how long customers take to pay Renishaw = trade & finance lease receivables / revenue (i.c sales tax) x 365
2. Creditor days = how long Renishaw takes to pay suppliers = trade payables / (material cost of sales + other overheads) x 365

Growth investment topics

Capital allocation for through-cycle organic growth

Commercial focus | Innovation | In-house manufacturing

Growth investment

Engineering

Maintain, upgrade & new products

Sales & marketing growth

Expand sales teams & routes to market

Capital expenditure

Grow our infrastructure & intellectual property

Working capital

Inventory & trading capital to support growth

Value creation & return on investment

Gross margin

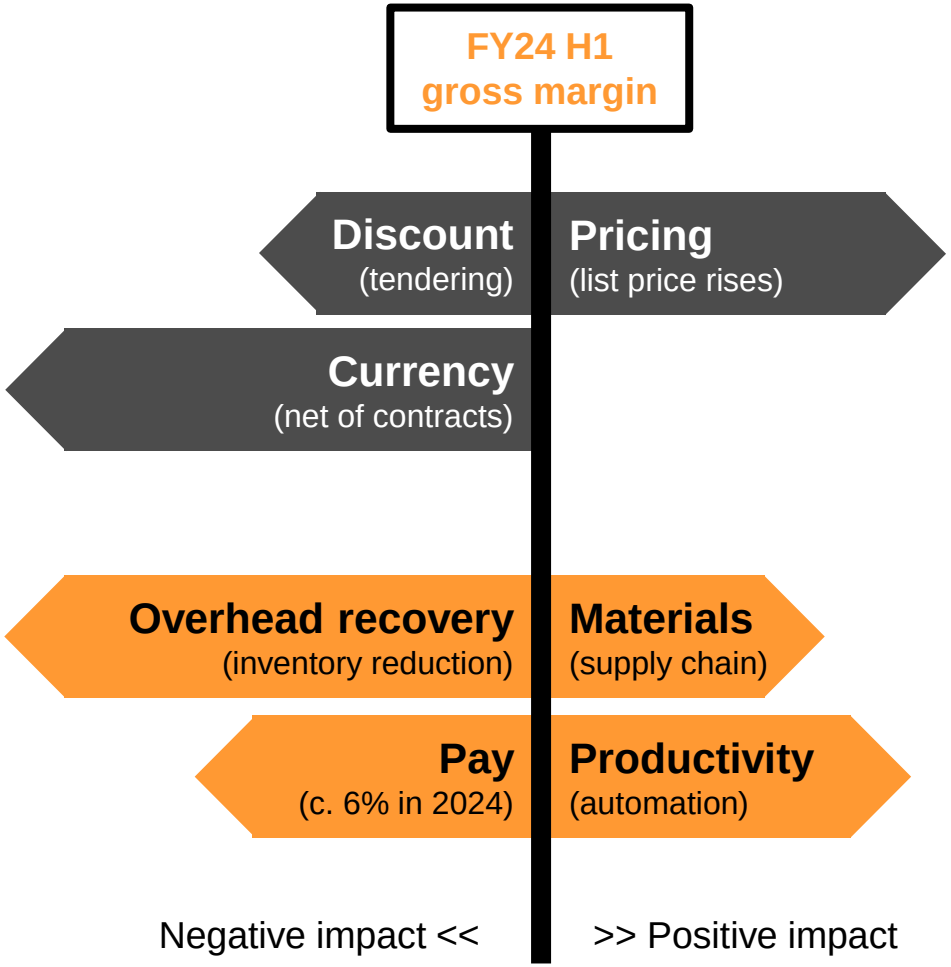
Margin drivers & future trends

Return on invested capital

Robust balance sheet & solid returns

Gross margin (excluding engineering costs)

Factors driving recent margin variation



FY24 H1 gross margin is 3% lower than previous year

Revenue factors:

- List price rises in selected markets
- Partially offset by increased discounting to secure competitive tenders, notably in China
- Strengthening GBP against most major currencies, contracts in USD & EUR, not hedged against JPY

Cost factors:

- Lower overhead recovery as we reduce inventory during a period of lower demand, whilst maintaining our capacity in readiness for a cyclical upturn
- Material cost deflation & FX benefits
- Pay rises offset by productivity improvements & headcount control

Future margin evolution

Maintaining gross margins by driving productivity improvements

Historic margin trends

- Fluctuations in both GM% and EBIT% as we smooth fixed cost development through the cycle

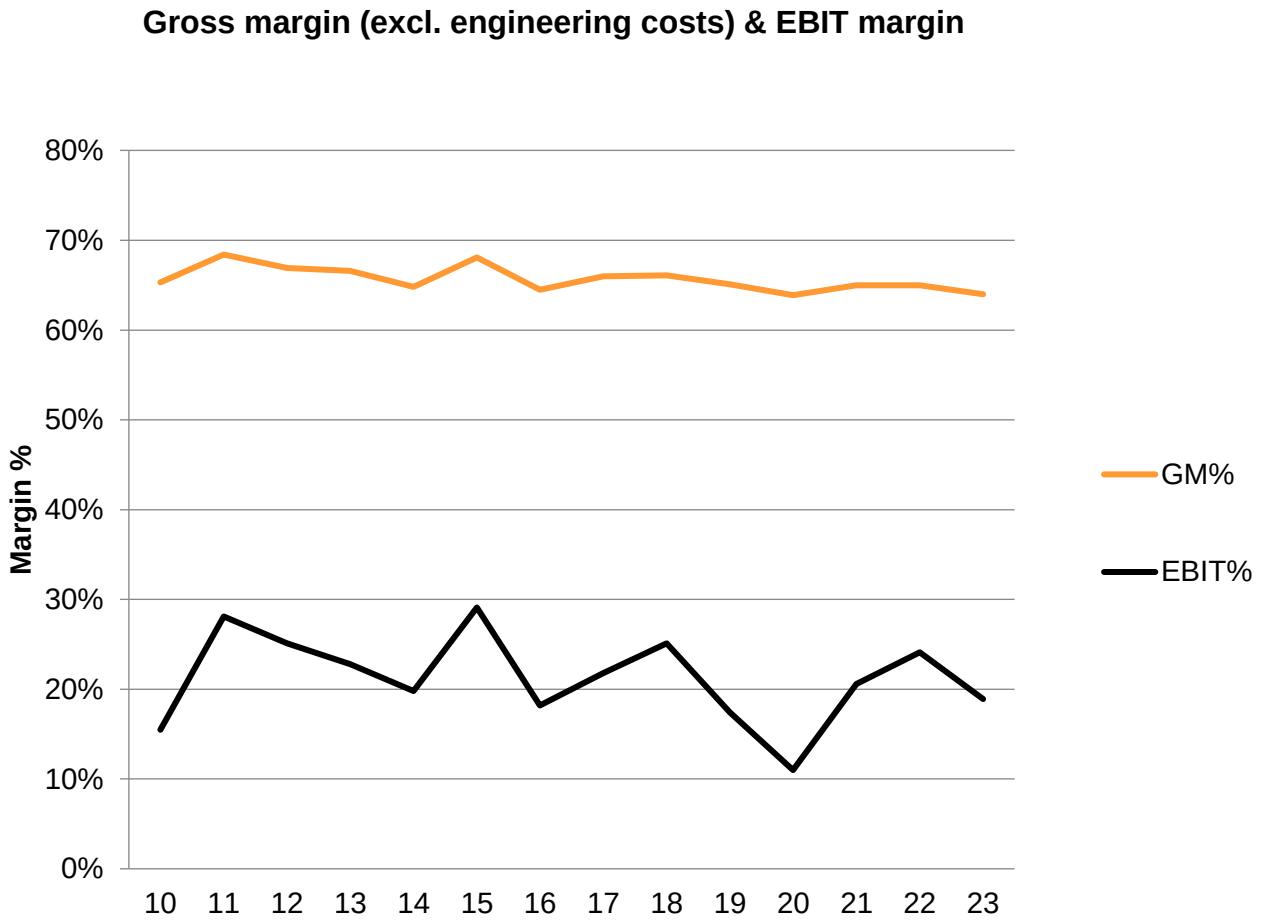
Targeting mid 60% gross margin

Headwinds:

- Some emerging markets have structurally lower GM
- Pricing pressure is expected to continue
- Pay inflation remains significant in many countries

Productivity – increase output per person:

- Intelligent automation in manufacturing & logistics
- Key account strategy to drive sales efficiency
- Streamlined processes in engineering & administration



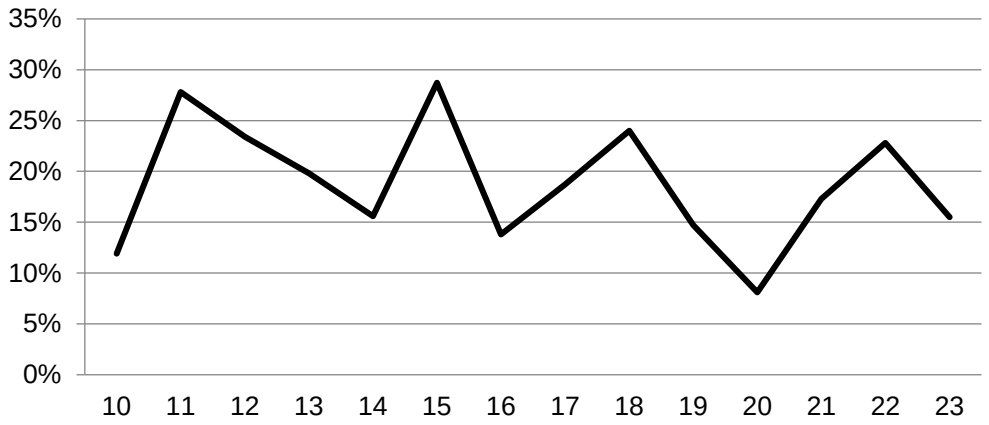
Return on capital

Robust balance sheet and solid returns

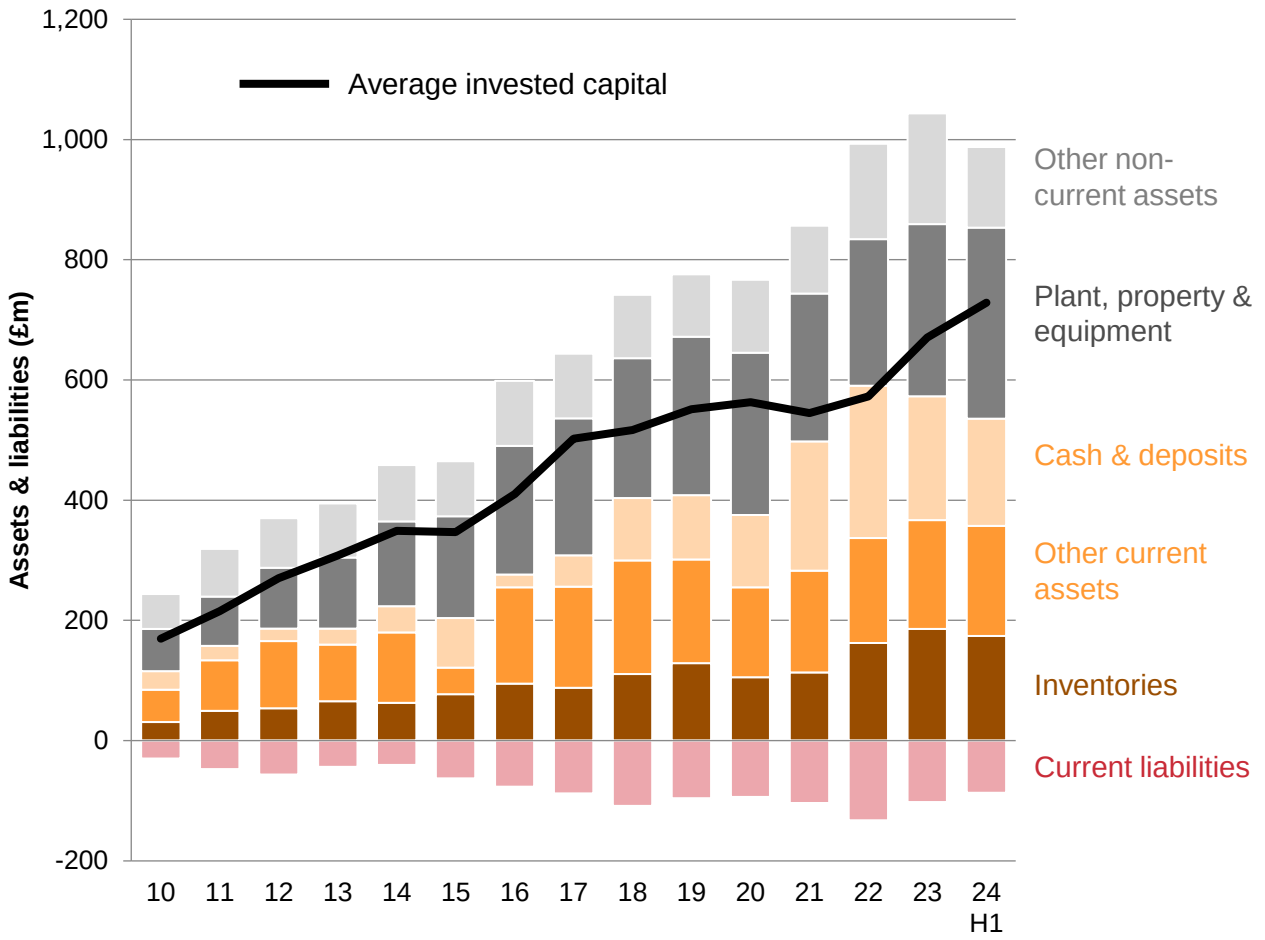
Assessing returns:

- Focus on ROIC – independent of capital structure
- ROIC typically > 15%
- Strong balance sheet to weather economic challenges
- More active recent investment in manufacturing capacity and working capital

Return on invested capital (ROIC [1])



Invested capital



Notes

1. ROIC = return on invested capital = net operating profit after tax / average of (capital employed – cash & deposits)
2. Lower other non-current assets in FY24 H1 due to reduction in DB pension surplus following buy-in for UK scheme

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Summary

Continuing to invest at >15% ROIC to support our through-cycle organic growth ambition

Engineering

Maintain, upgrade & new products

Sales & marketing growth

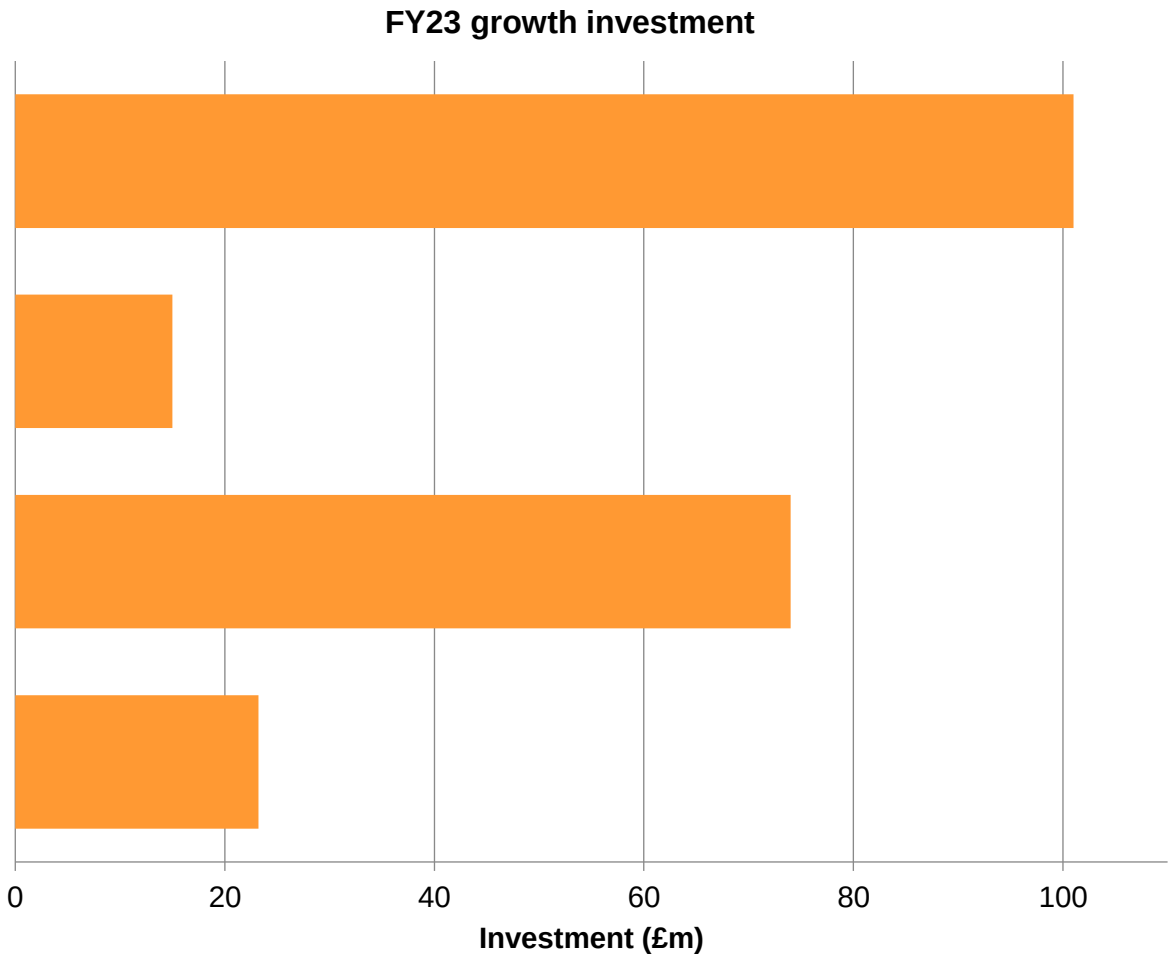
Expand sales teams & routes to market

Capital expenditure

Grow our infrastructure & intellectual property

Working capital

Inventory & trading capital to support growth



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Q&A

Marc Saunders
Director of Group Strategic Development

Allen Roberts
Group Finance Director