Using Data to Drive Agility in the Face of Pandemics and Supply Shortages

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Introduction

Andrew Burton

Global Industry Director for Manufacturing, IFS

Over 40 years Supply Chain Experience

Mostly Aerospace and Defence, Discrete Manufacturing and Niche Automotive in Operations, Inventory Management, and Material Planning

Partner and Independent IFS Consultant

Issues Manufacturers are Facing

- Lockdowns around the world
- Staff shortages – Some not returning after Restrictions Lifted
- ‘Containergeddon’ – Short supply of containers and Hugely increased costs
- Shortage of Semi Conductors
- Shortage of Lorry Drivers
- Long Supply Leadtimes
- Spiralling Energy and Raw material Costs
- Data produces in many places – Almost too much Data to be able to react quickly to changes
- Security Breaches – Constant Threat of Malware attacks

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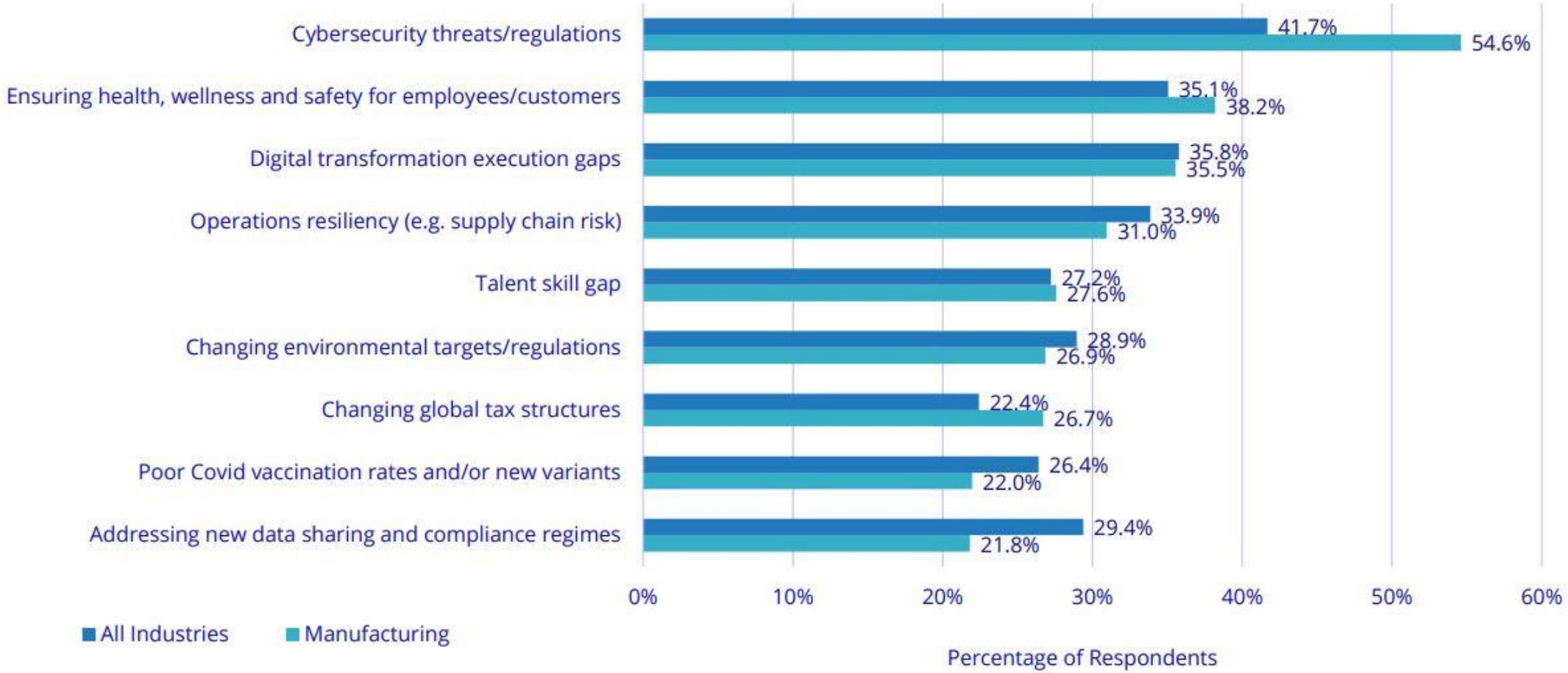
Political / Social / Economic Risks with Greatest Impact on DX Plans



IDC

Source: IDC Future Enterprise Resiliency & Spending Survey (Wave 8) – September 2021

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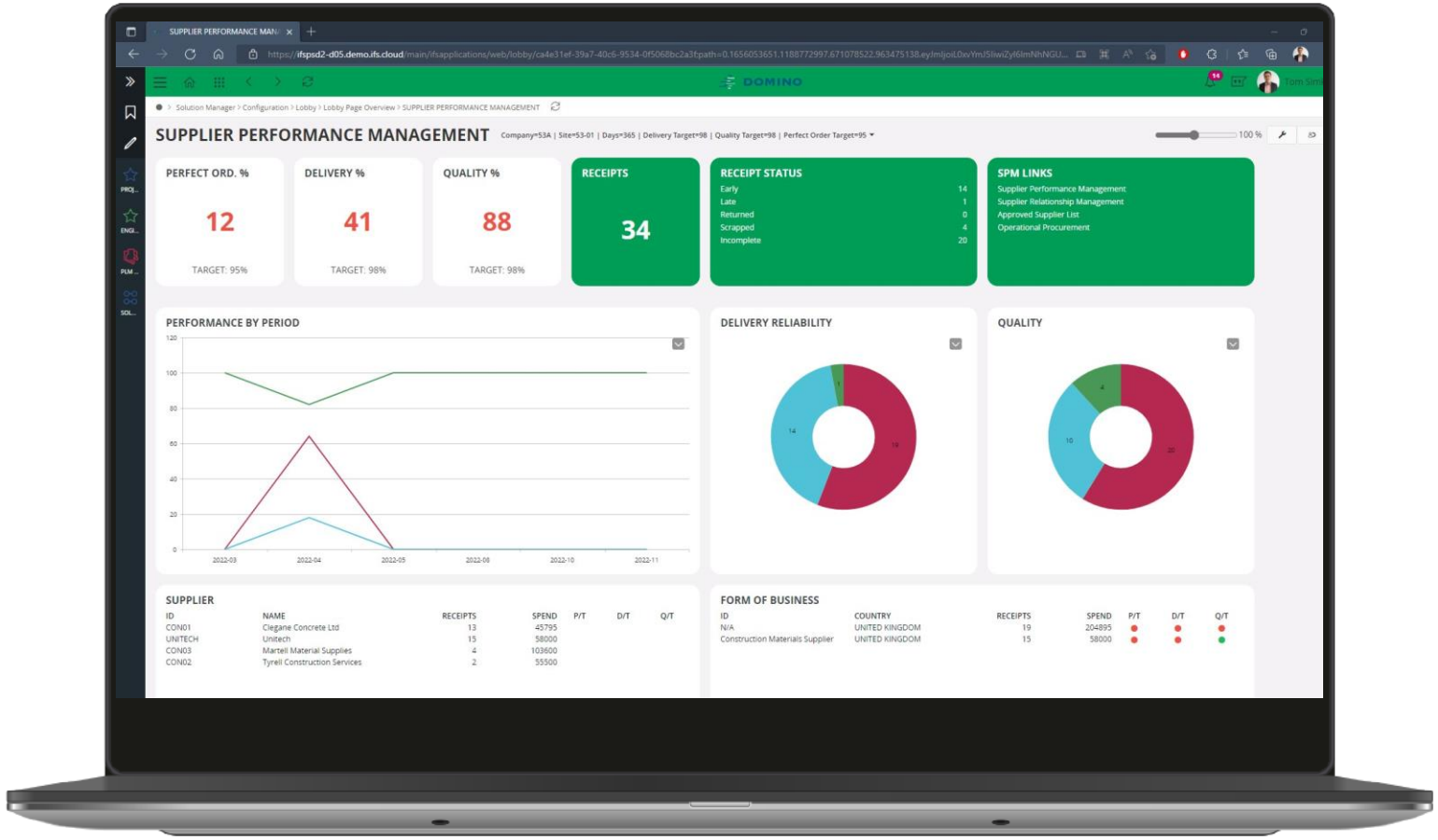
How to Identify the Risks

Use Past Performance as an indicator

- How far does the part have to come?
- Identify Parts that are unique or bespoke to you
- Are the parts options that the Customer can specify?
- Look at Supplier Delivery performance – Are they achieving their Promise Dates?
- Analyse the quality of the Parts – Are there ‘regular’ Rejects for Quality?
- Review Customer Feedback



Changes to Minimise Supply Risks Now

- Sourcing
  - **Is it possible to dual source**
  - **Can components be sources locally?**
- Protect
  - **Add buffer stocks to critical components and raw materials**
- Design
  - **Can supply risk components be designed out?**
  - **Are there alternative components that can be used?**
  - **Can alternative Routings be used.**
- Costs
  - **Consider the total costs of sourcing a component and the risk of it not being available**

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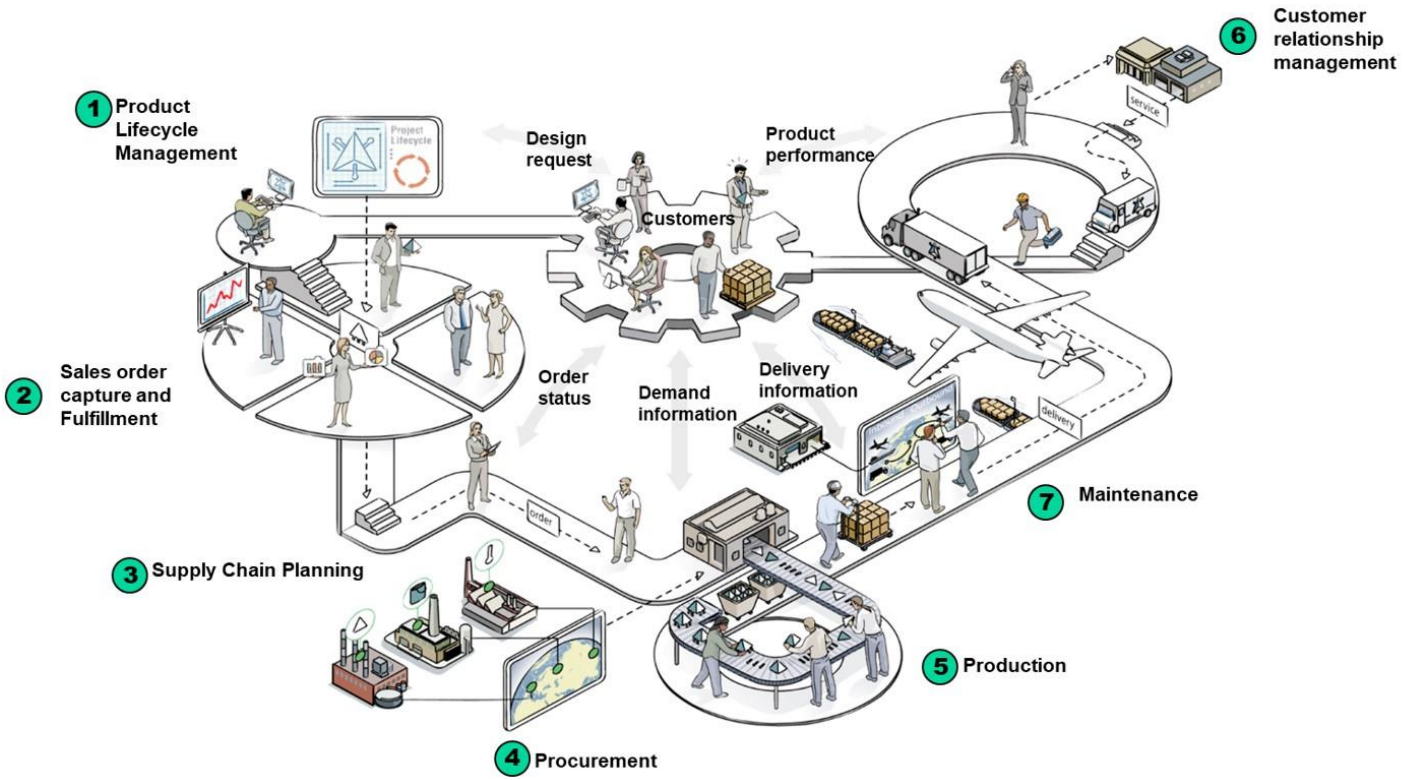
What is in the Future?

- **Planning**
  - Manufacturing Execution System (MES) for real time feedback on manufacturing operations.
  - Closer links to Human Resource Management for capacity planning
  - Automatically rescheduling to alternative routings when resources are not available.
- **Integration**
  - **Connecting to more shopfloor machinery**
- **Create a Data Lake**
  - Put all data from all devices into one place and then take only the data that is needed.
  - Using Machine Learning and Artificial Intelligence to sift the data
- **Shop Floor Modelling**
  - Use Model of Shop floor to create the most efficient layout (Digital Twin)
- **Use All Available Feedback**
  - Analysis of Manufacturing Rework and Warranty work
  - Customer Feedback



INTELLIGENT AUTOMATION

MANUFACTURING VISION

"Machine"

crosser

boomi
Powering the Data Economy

SIEMENS

Integration Platforms

IBASEt

SIEMENS

MES

AUTOCAD

SIEMENS

SOLIDWORKS

SOLID EDGE

windchill

CAD Software

IFS

IOT Controller

Manufacturing Management Controller

PDM (EBOM / MBOM)

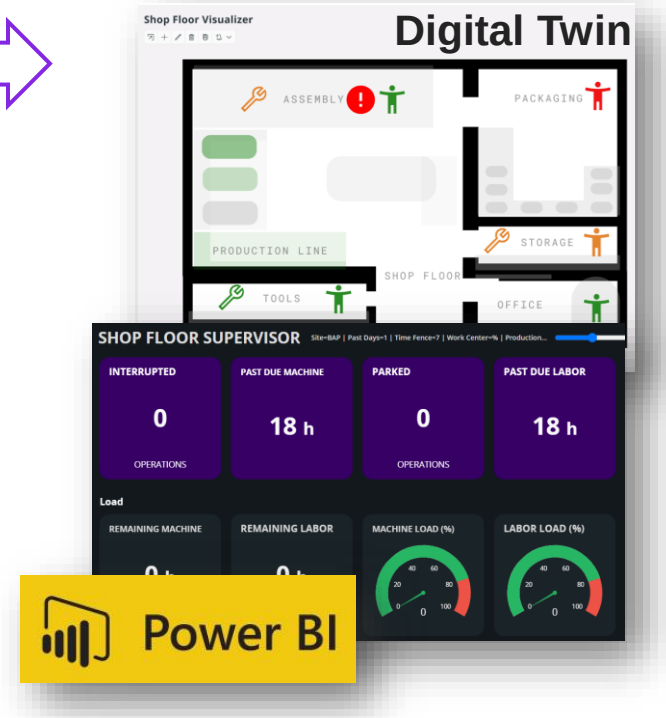
Master Data

Workbench (HMI)

AI/ML

Telemetrics / Observations

Digital Twin



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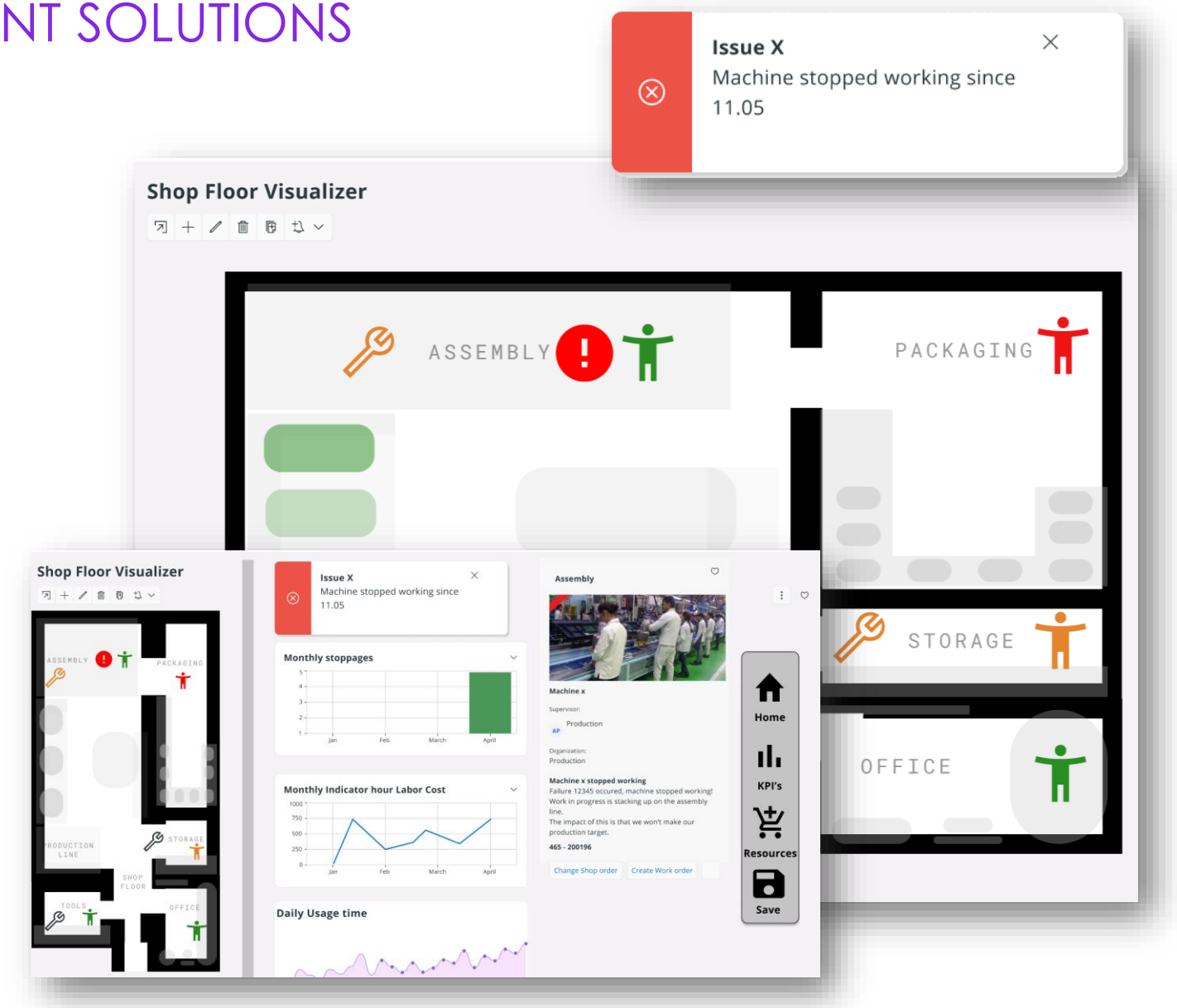
CLOUD MANUFACTURING

AUTONOMOUS AND INTELLIGIENT SOLUTIONS

DIGITAL TWIN

2D representation of a factory showing shop floor layout with graphical presentation of the production status, i.e., a digital twin of the production facility.

Enable real time monitoring of work center and machines to identify downtime, interruptions, utilization, ongoing production, setup, etc.



Industry Trends

Embrace digital technology benefits

76%

of manufacturers will increase use of smart devices or embedded intelligence in manufacturing processes in the next two years.

Want to know more?

- Come and Find us at Stand **G90**
- Experience Virtual Reality on our stand
- Have a go on the Aston Martin F1 Simulator in the Innovations Area

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Questions

Thank you!

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