Manufacturing
**BIG DATA & ANALYTICS**
Collection and comprehensive evaluation of data from many different sources – for real-time decision making.

**AUTONOMOUS ROBOTS**
More autonomous, flexible and cooperative. Work safely alongside humans and learn from them.

**SIMULATION**
3D simulations of products, materials and production processes to be used in plant operations.

**HORIZONTAL & VERTICAL SYSTEM INTEGRATION**
Companies, departments, functions and capabilities will become much more cohesive, enabling truly automated value chains.

**INDUSTRIAL INTERNET OF THINGS**
Devices will be enriched with embedded computing and connected using standard technologies.

**CYBERSECURITY**
Protecting critical industrial systems and manufacturing lines from cybersecurity threats.

**THE CLOUD**
Increased data sharing across sites and company boundaries, enabling more data-driven services for production systems.

**ADDITIVE MANUFACTURING**
3D printing to prototype and produce individual components for small batches of highly customized products.

**AUGMENTED REALITY**
Provide workers with real-time information to improve decision making and work procedures.
Replicating human senses for production assembly tasks

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<th>TODAY'S PRODUCTION</th>
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Pre-production validation and testing

• 2D perception
• 3D perception
• Advanced controls software
AI Impact

Reduce Traffic Accidents & Fatalities

Increase Human Productivity

Manufacturing
How Magna Innovates
Cross Group Collaboration

- Customizable graphical overlays
- Customizable fields of view
- Lower drag
- Increased styling

- Add-On Hybrid solution for simple package integration
- High Power Design (25kW) to gain full recuperation potential
- Up to 18% CO\textsuperscript{2} reduction
- Integrated decoupling element

- 43% mass savings
- Applicable to 70% of the market
- 6g CO\textsuperscript{2} reduction
- SmartLatch functionality

CLEARVIEW MIRRORS & ELECTRONICS

48V E-Drive POWERTRAIN & ELECTRONICS

ULTRA LIGHTWEIGHT DOOR MODULE MAGNA R&D, COSMA & CLOSURES
Sources of Innovation

- Internal
- Cooperation with industry players
- Universities
- Start-ups
- VC’s
- Corporate VC’s
- Cross Industry
Investments and Collaborations

15 Partners
$290M Invested