



VAN METER



smart

SOLUTIONS SUMMIT

**BUILD SMARTER,
MORE FLEXIBLE MACHINES**

WELCOME



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WELCOME



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CUSTOMER CHALLENGES AND OUTCOMES



150%

INCREASE IN AUTOMATABLE
TASKS IN 10 YEARS

4/5

COMPANIES HAVE MORE
THAN 100 PRODUCT SKUS

2.1 M

SKILLED MANUFACTURING
JOBS WILL GO UNFILLED

Source: National Association of Manufacturers

TODAY'S ROADBLOCKS



LABOR SHORTAGE

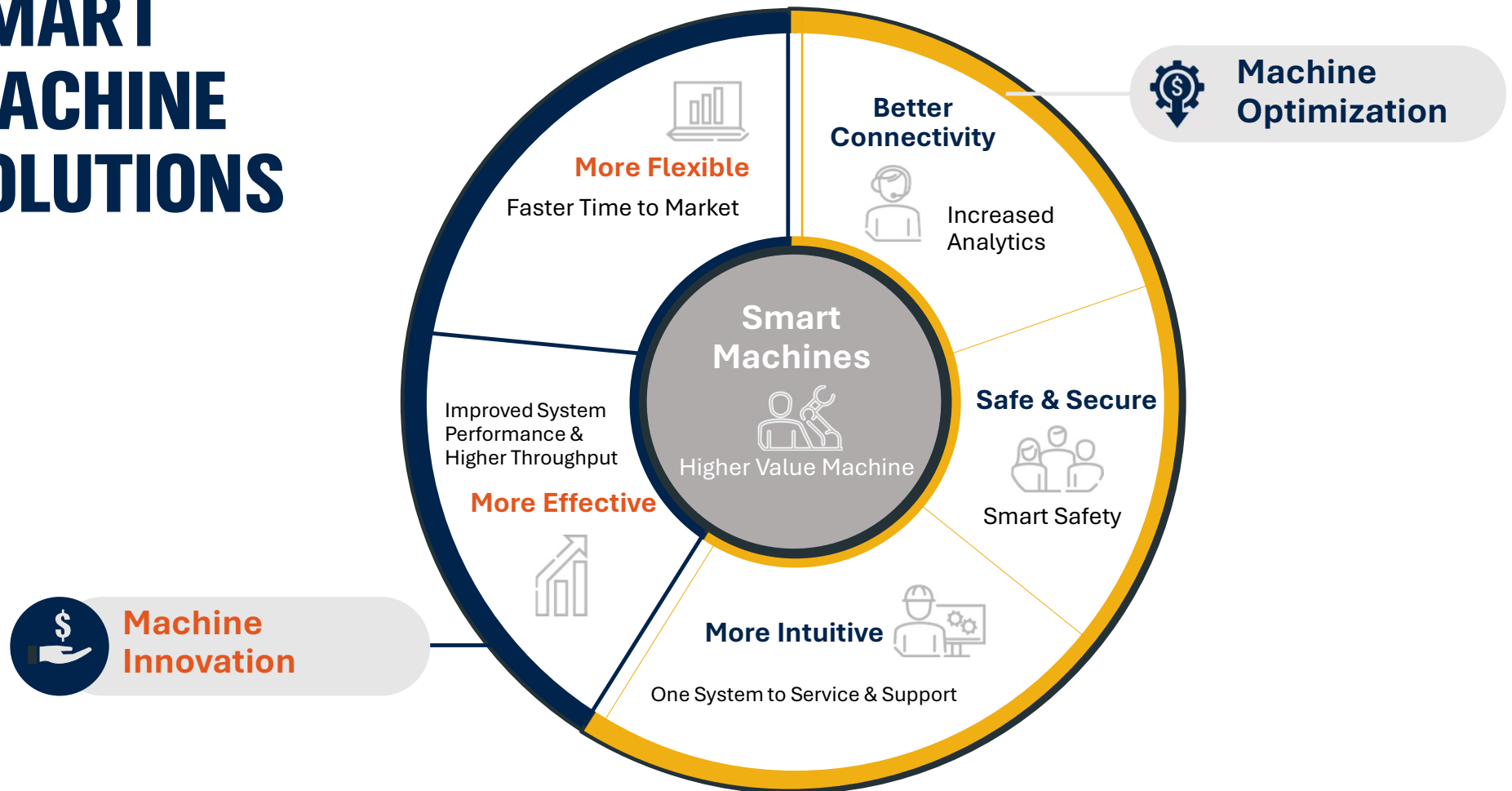


MACHINE PERFORMANCE



PACKAGING DEMANDS

SMART MACHINE SOLUTIONS



CASE STUDY



LEVERAGING INDEPENDENT CART AND ROBOTICS TECHNOLOGY

CHALLENGES ADDRESSED

- Growing demand for more product variety
- Workforce and training requirements
- Downtime resulting from changeover

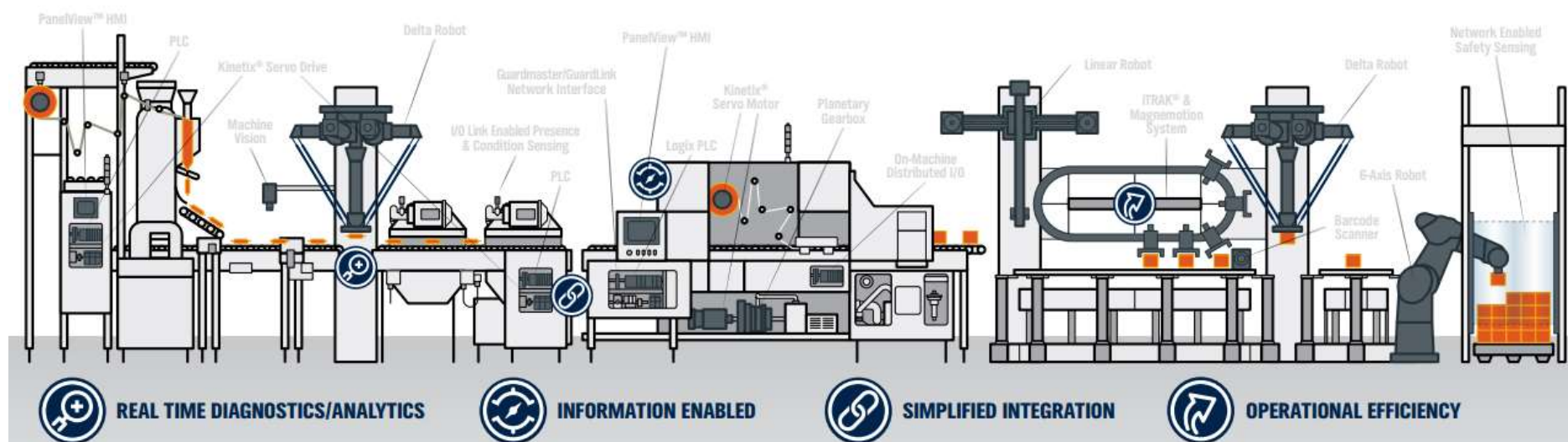
WAYS TO SOLVE

- Automatic machine process adjustments
- Dynamic product routing
- Motion, product transport and robotics integration

RESULTS ACHIEVED

- 4000 SKUs with the push of a button
- 97% OEE
- 49% cost decrease

SMART MACHINE SOLUTIONS

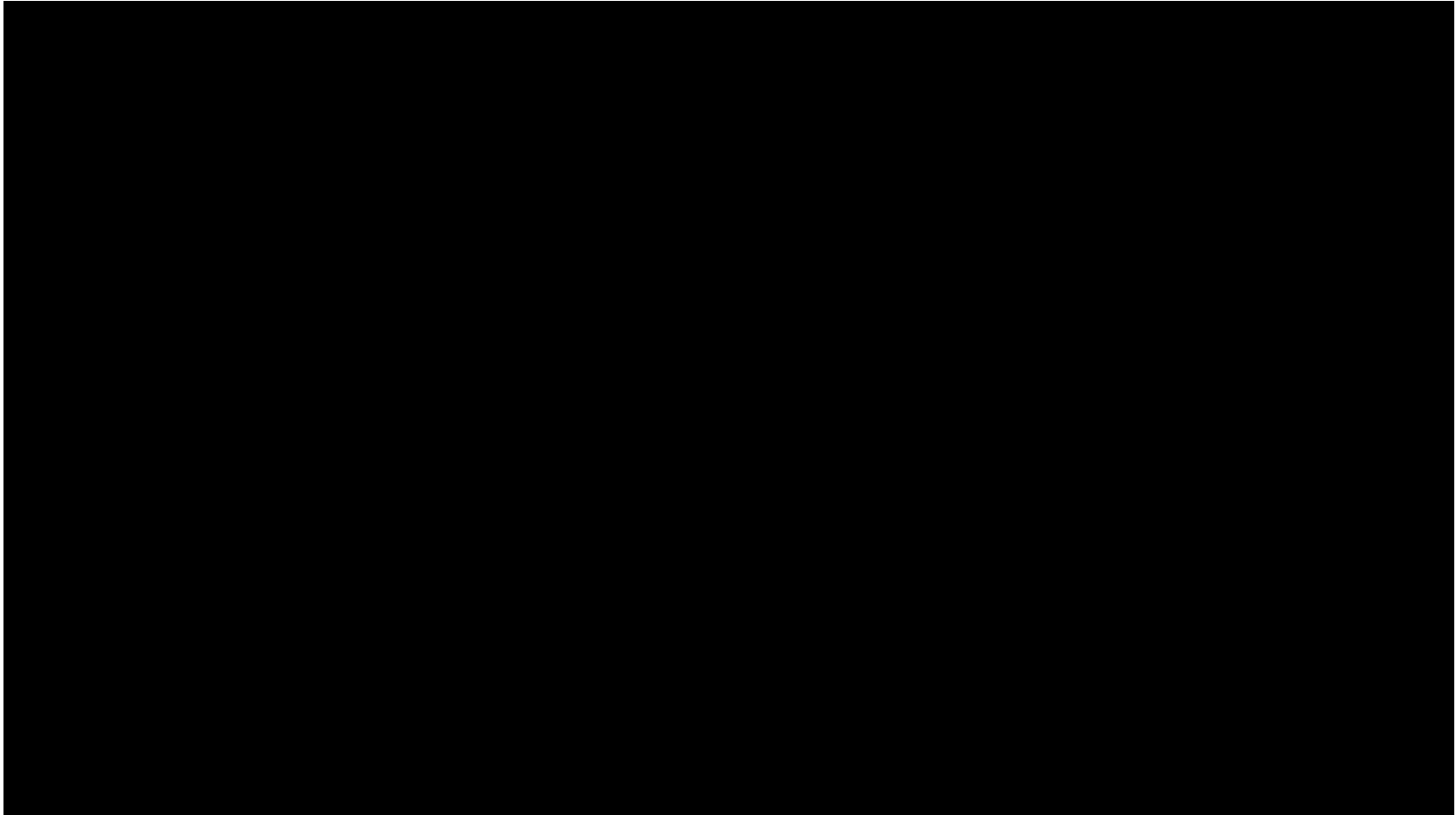


ROBOTICS

MOTION CONTROL

MECHATRONICS

CASE STUDY: PACKAGING MACHINE EVOLUTION



FULL SCALABILITY WITH iTRAK



iTRAK 5730

iTRAK MEDIUM FRAME

iTRAK ETO

THE VALUE OF ICT

The next machine generation.



HIGHER THROUGHPUT



UNLIMITED FLEXIBILITY



INCREASED UPTIME



SMALLER FOOTPRINT



Traditional System



Independent Cart System

ICT PORTFOLIO

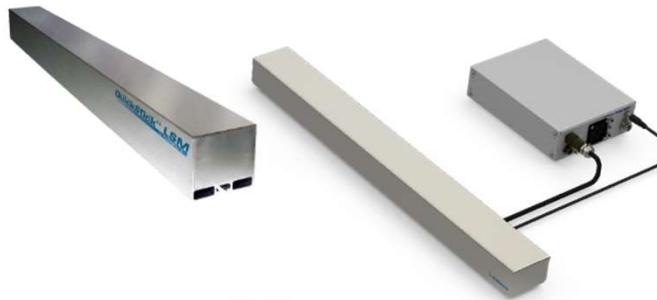
MagneMover LITE®

- Intelligent conveyor system for light payloads (<10 kg)
- Collaborative
- “Erector Set”, Easy design and setup
- Flexible, modular, and scalable
- Simple programming and control of 1,000s of carts
- Speed up to 2 m/sec



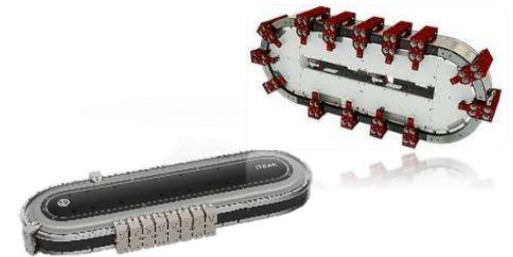
QuickStick® QuickStick® HT™

- Intelligent propulsion and control system
- Payloads from 10s to 1,000s of kilograms
- Flexible, modular, and scalable
- Simple programming and control of 1,000s of carts

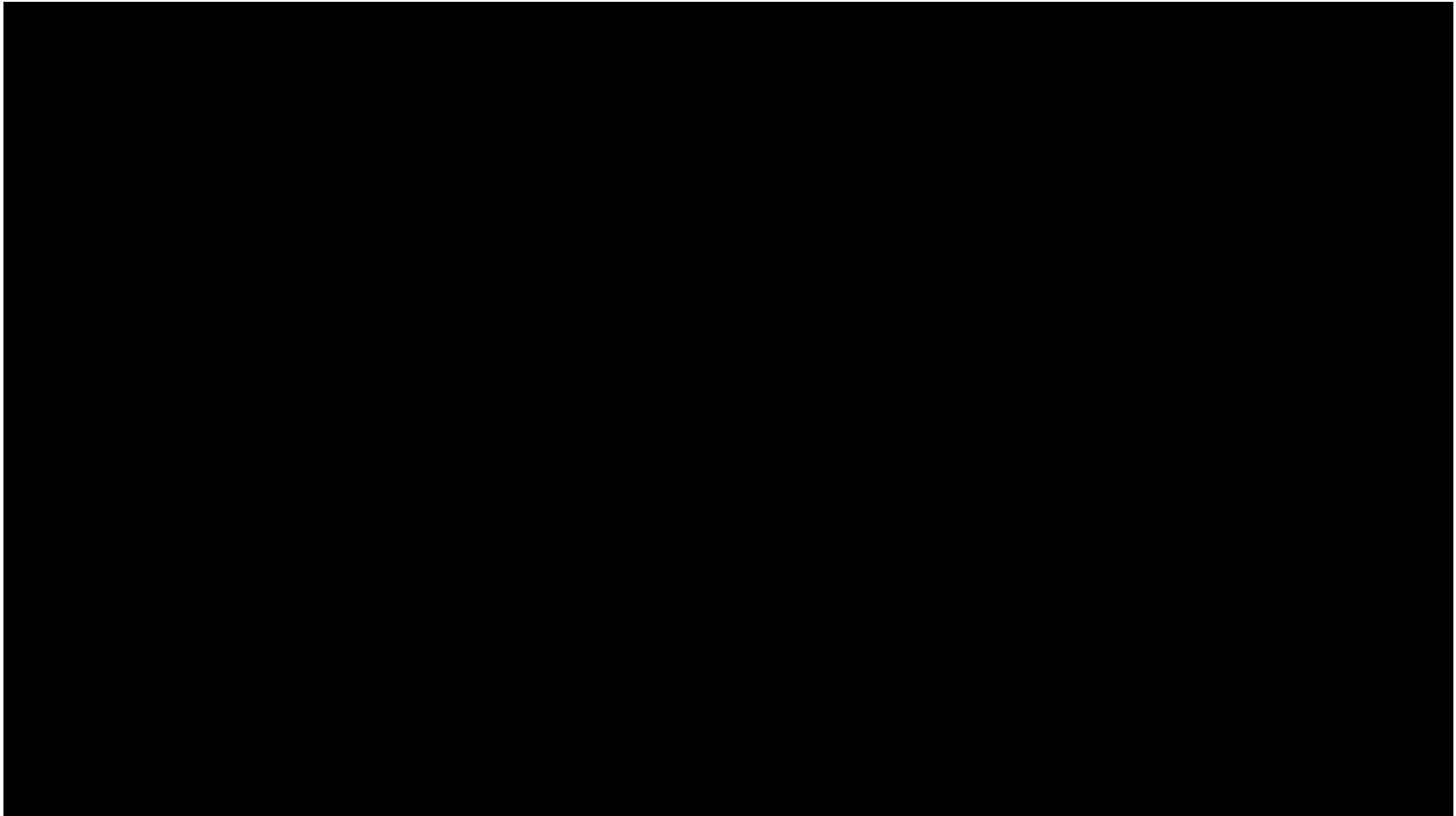


iTRAK

- Intelligent positioning and flexible conveyor system
- Deterministic closed loop servo performance
- Automatic synchronization with other motion axes
- High dynamic performance and force
- Speed Up to 5 m/sec.



MAGNEOVER LITE

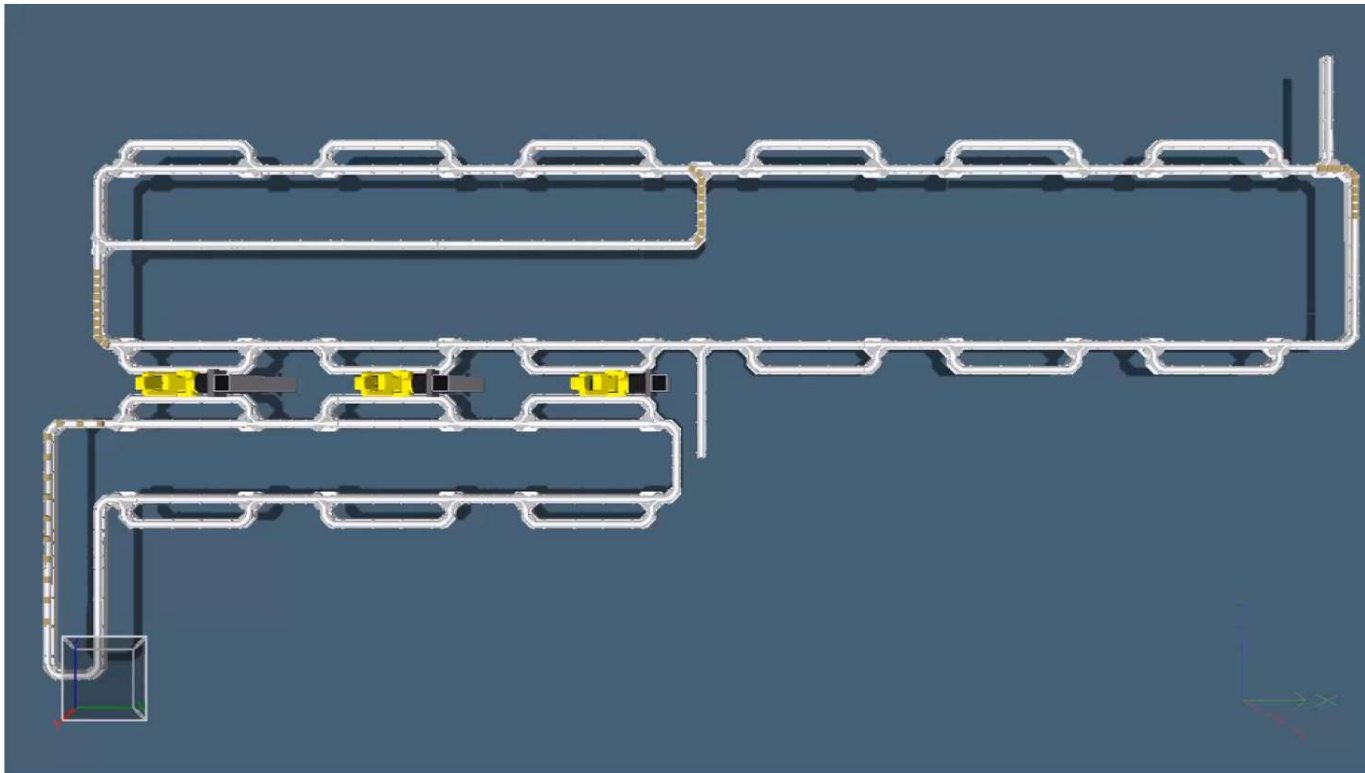


CASE STUDY: ARUP/ANALYTICS

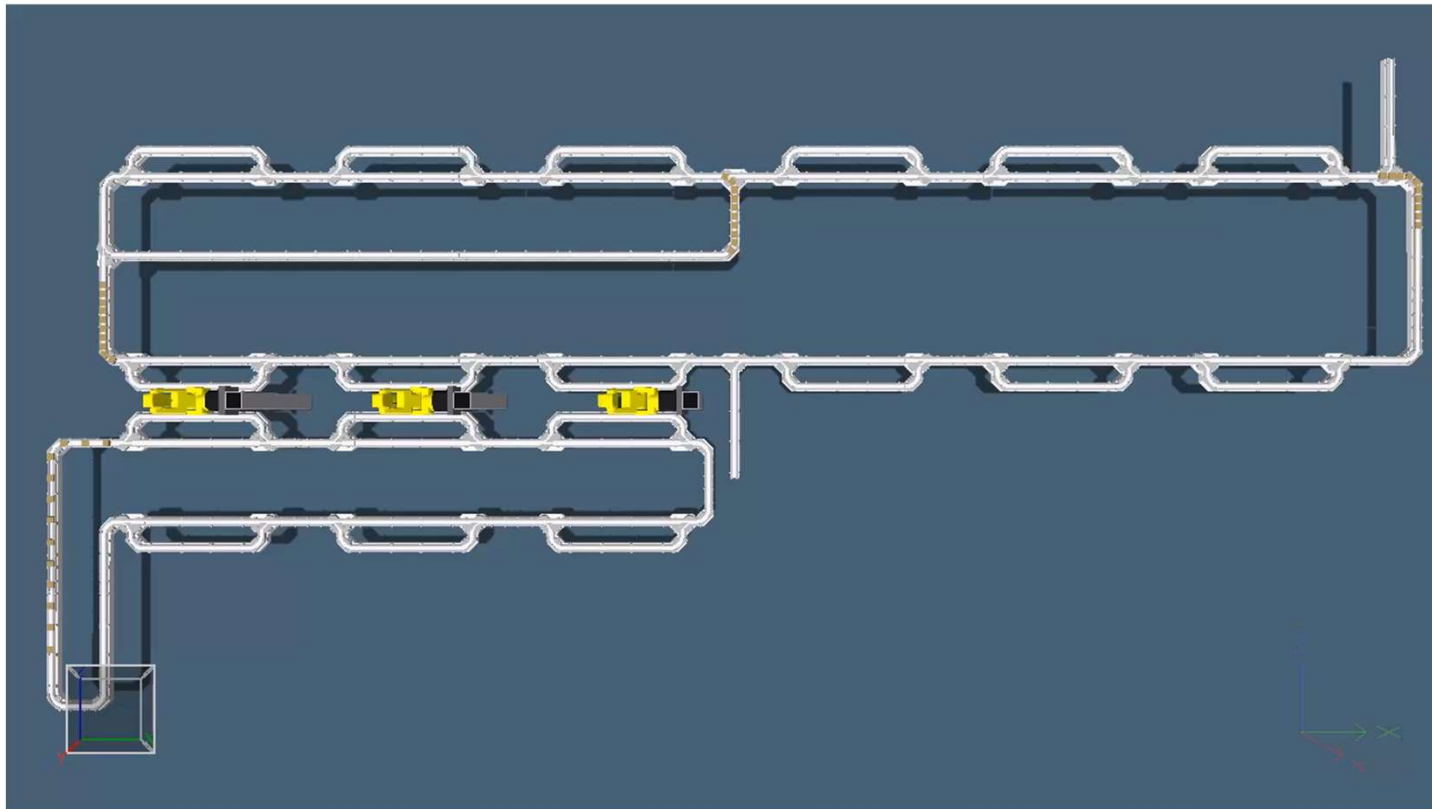


CASE STUDY: BOTTLE VARIETY PACK

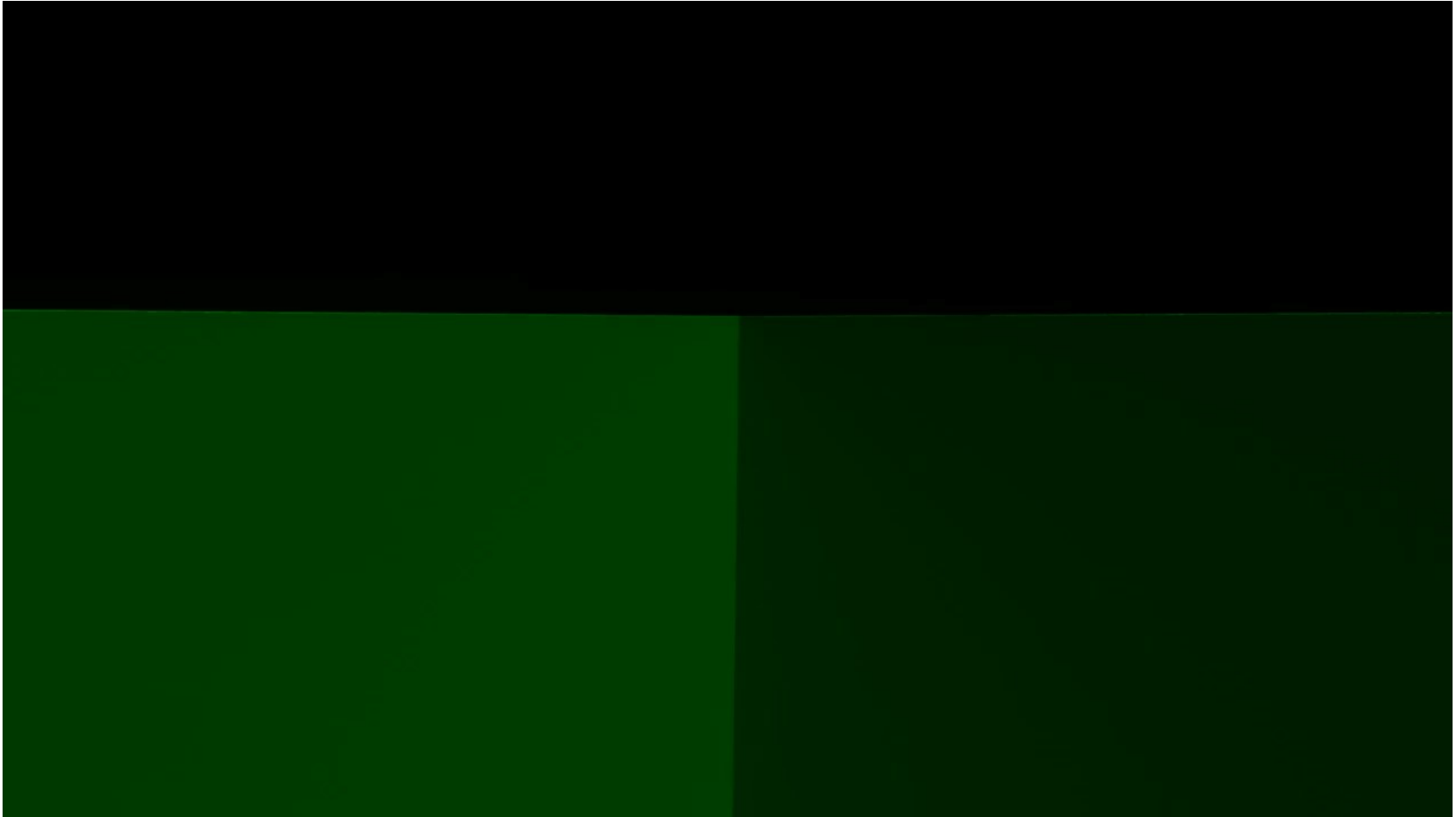
SECONDARY PACKAGING



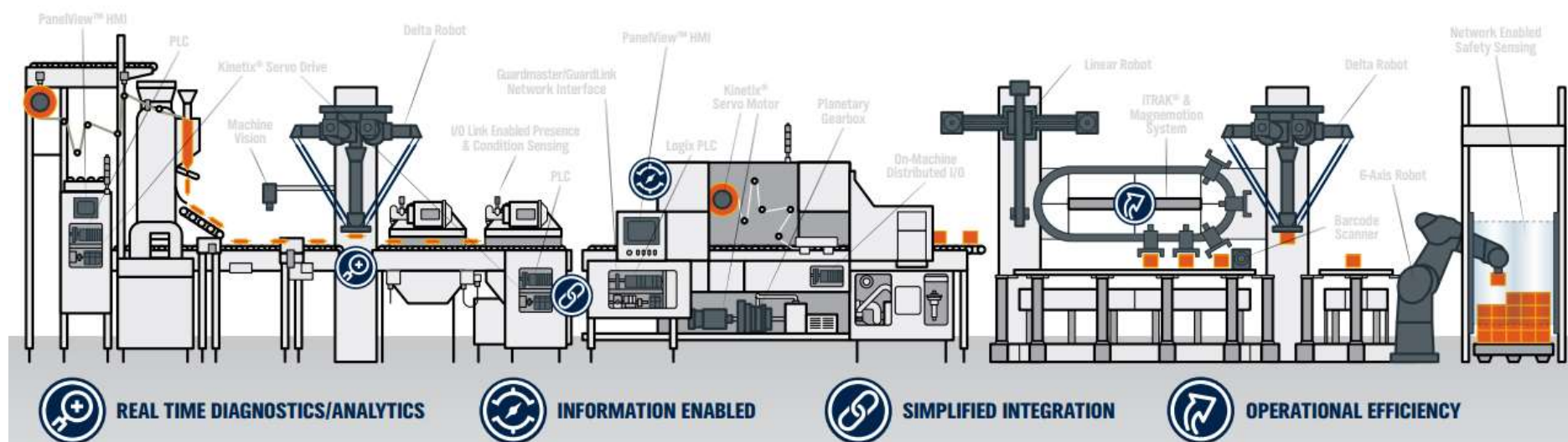
CASE STUDY: BOTTLE FILL OPERATION



ROCKWELL MILWAUKEE CONTRACTOR LINE



SMART MACHINE SOLUTIONS



ROBOTICS

MOTION CONTROL

MECHATRONICS

A background image of a factory worker wearing a hard hat with a light, safety glasses, and a dark shirt, holding a laptop. The image is overlaid with a dark blue semi-transparent layer.

“ Although **industrial robots** have been used in factories for decades, **robots currently perform only around 10% of manufacturing tasks**, on average. By 2025 BCG estimates, the portion of **tasks performed by robots** will near **25% for all manufacturing** industries worldwide.

Source: Boston Consulting Group

”

ROBOTS ARE KEY TO...

**REDUCE
OPERATING
COSTS**

**INCREASE
OUTPUT**

**RAISE
PRODUCT
QUALITY**

**IMPROVE
RELIABILITY**

**“Flexible industrial robot-based automation delivers
the solution to all these challenges.”**

– INTERNATIONAL FEDERATION OF ROBOTICS
WORLD ROBOTICS 2021

OBSTACLES TO OVERCOME



**LACK OF VISIBILITY
& CONTROL**



**RIGID
PRODUCTION /
LOW FLEXIBILITY**



**SCHEDULING
& DELIVERY
PRESSURES**

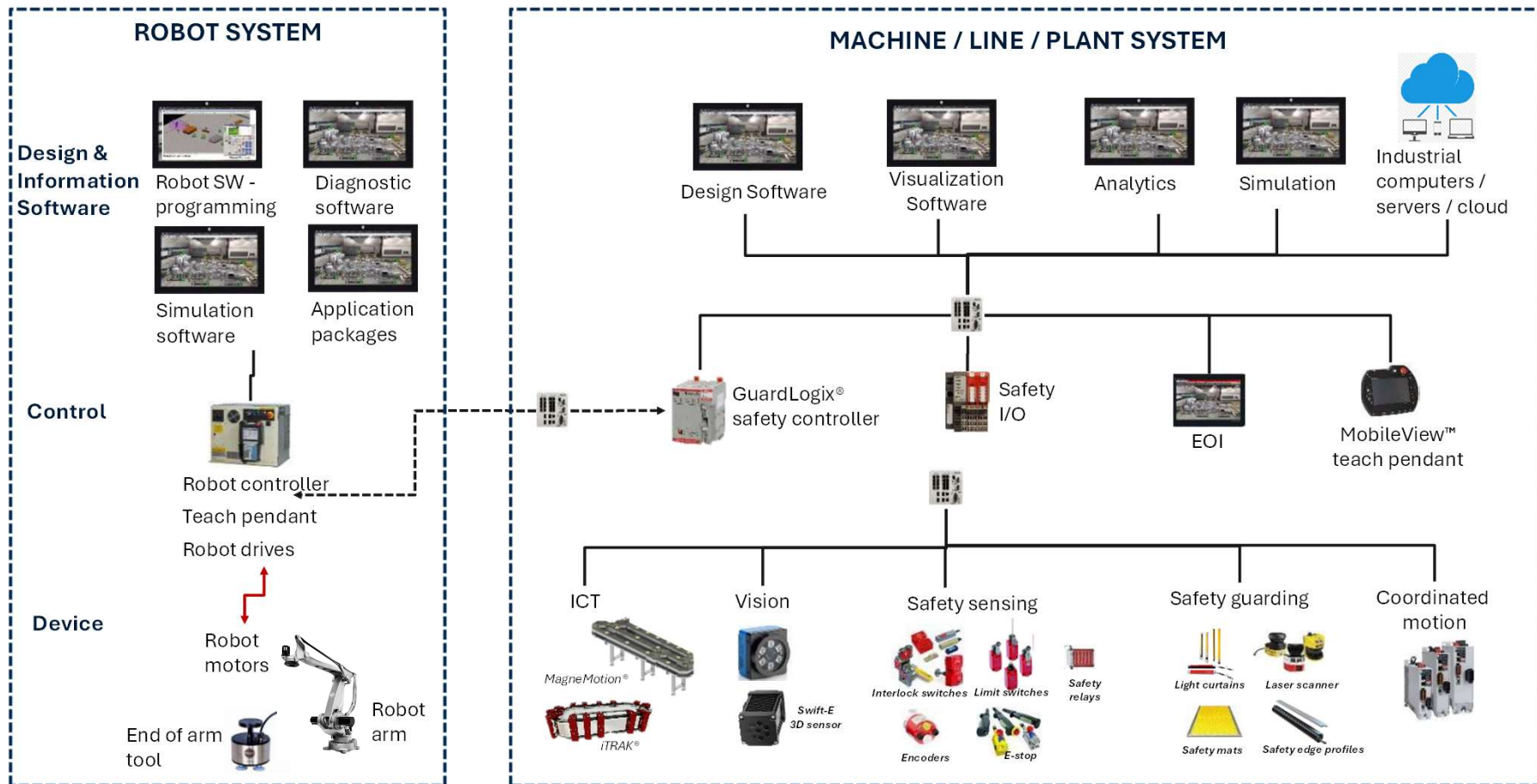


**STRANDED OR
DIFFICULT TO
REACH DATA**

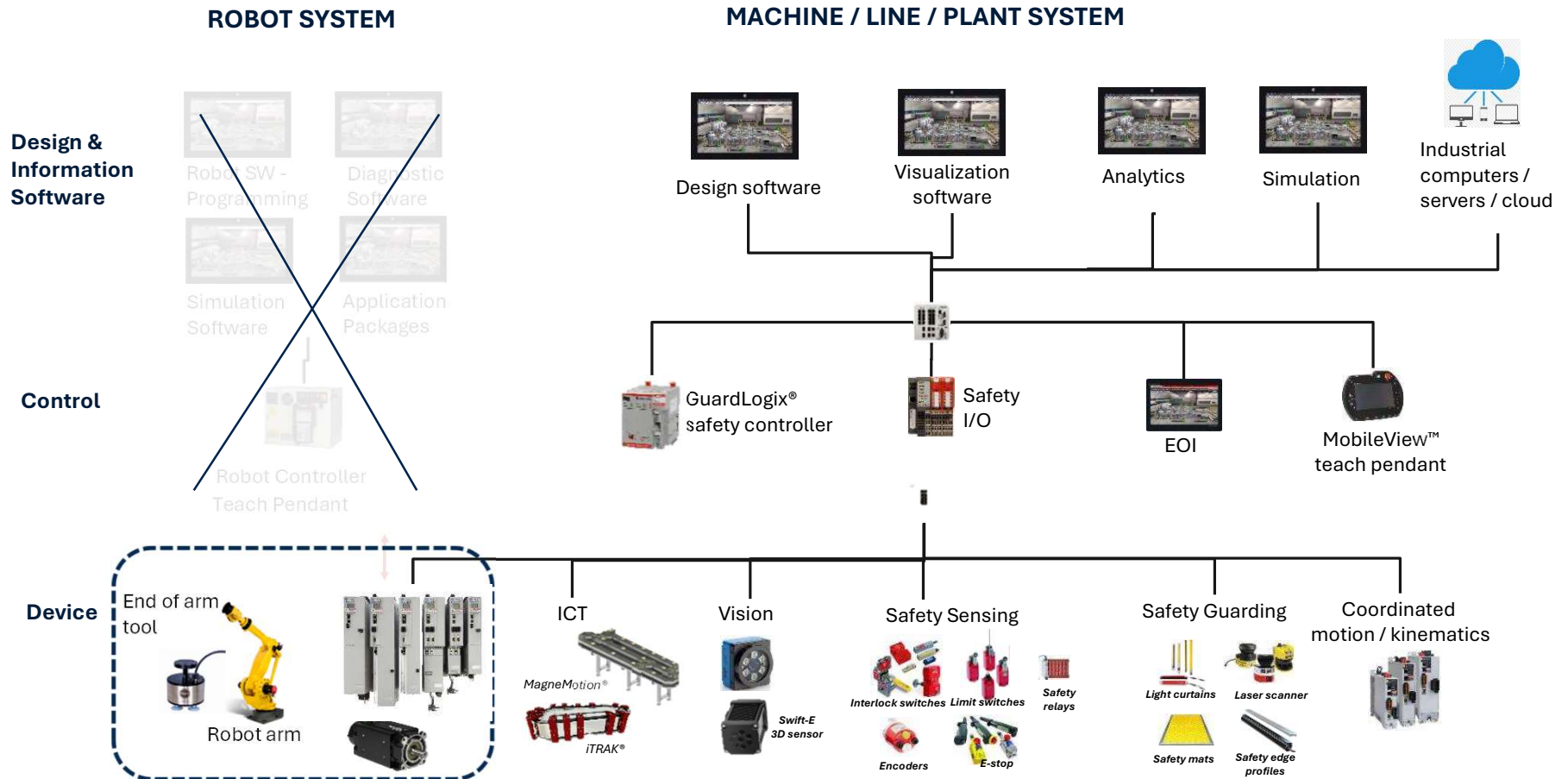


**SKILLED
WORKFORCE
CHALLENGES**

SMART MACHINE WITH ROBOTS



UNIFIED ROBOT CONTROL



VALUE OF UNIFIED ROBOTS

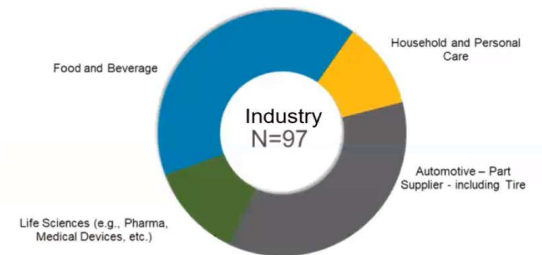
VoC for Unified Robot Control

Blind Customer survey via 3rd party

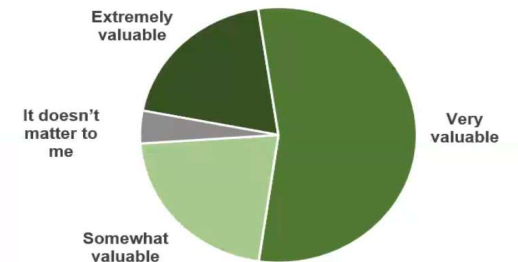
Value of unified robot control in Logix multi-discipline environment

- Simplified robot and line coordination & operation
- Single programming & operating environment
- Centralized robot & machine information for diagnostics & analytics
- Simplified lifecycle management (integration, operation, maintenance, training)
- Leverage Comau application expertise & mechanical arm portfolio

Benefit to having a Unified Robot Control Solution



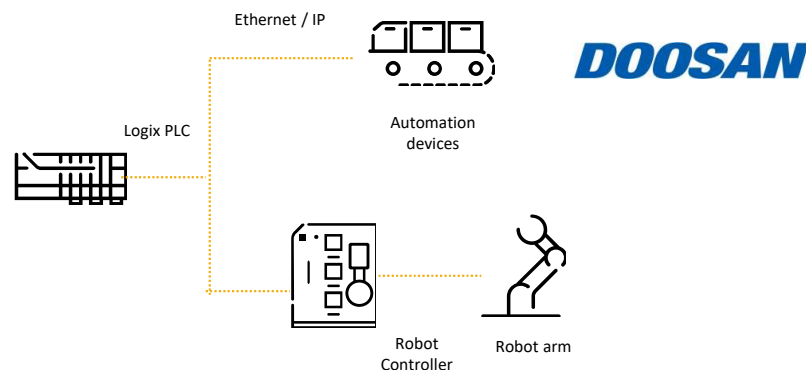
Value to have same environment for both machine/line control and robot control



TWO PATHS FOR ROBOTIC SOLUTIONS

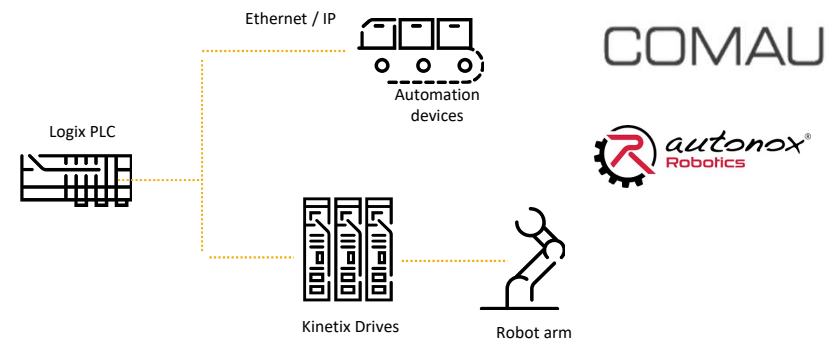
ETHERNET/IP CONNECTED ROBOT CONTROLLER

- Support the value of Ethernet/IP connected robotics in our Logix architecture.
- Leverages **Rockwell Automation capabilities** of safety, sensing, operator interface, and information solutions.
- Robot controller communicates via standard **EtherNet/IP**.
- Robot programs are written in either the robot vendor's programming environment or via Studio 5000® **AOI robot integration** features.



UNIFIED ROBOT CONTROL

- **Direct Logix control** of the robot eliminates the need for a dedicated robot controller.
- **Studio 5000 programming** provides complete machine and robot control support.
- **Fully integrated with Rockwell Automation capabilities** of safety, sensing, operator interface, information solutions, and software.
- **Emulate3D** simulation and virtualization.
- **Robot vendor partnerships** for optimal user experience.



VAN METER ROBOTICS SOLUTIONS

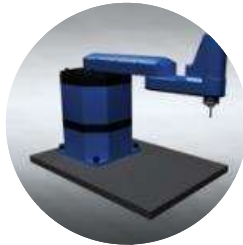
CARTESIAN



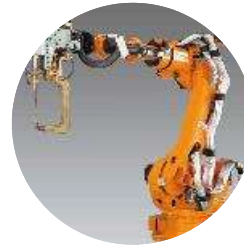
PARALLEL (DELTA)



SCARA



ARTICULATED



COLLABORATIVE



AMR



APPLICATIONS



CNC MACHINE TESTING

Placing material on pallet after injection into/removal from CNC machine



ASSEMBLY (SCREW, GEAR)

Traditionally manual assembly tasks such as screw locking and gear assembly



PLASTIC INJECTION ASSISTANCE

Detaching item from mold of injection molding machine and loading onto/unloading from pallet



WELDING

Welding parts like skilled welder by various paths with certain quality



PICK & PLACE

Simple loading/unloading work such as moving objects between tasks



POLISHING & DEBURRING

Burr removal and surface polishing after processing



PACKAGING & PALLETIZING

Product packaging and palletizing, including transportation and loading of packaged products (e.g. electronics/F&B industries)



SERVICE

Safely and repeatedly performs pre-defined tasks in accordance with user needs in service industries like medical and F&B



AIR BLOWING

Exterior cleaning of finished products or workpieces with spiral spray motion and multi-angle composite spray motion



GLUING/BONDING

Spraying of consistent amount of adhesive for gluing and bonding



PRESS FORMING ASSISTANCE

Picking up panel for loading onto/unloading from press machine



INSPECTION

Inspection of parts for internal defects and confirmation of parts assembly

CASE STUDY



BACKGROUND

- **TARGET** - Create more intelligent and responsive packaging equipment
- **INDUSTRY** - Food and beverage
- **APPLICATION** – Pick-and-Place

CUSTOMER NEED

- Scalable advanced motion control functionalities
- Simplified lifecycle management
- Smaller machine footprint: less production space

SOLUTION

- Fully coordinated robot
- Precise pick accuracy with no encoder time delay
- Reduced space claim without the need for controller

CASE STUDY



BACKGROUND

- **TARGET** – Enhance end-of-line performance and flexibility.
- **INDUSTRY** - Food and beverage
- **APPLICATION** - Palletizing

CUSTOMER NEED

- Address various SKUs and order types in one robot cell
- Speed up time to market with faster implementation
- Improve efficiency by better linking to equipment

SOLUTION

- Use Studio5000 to easily build and update recipes
- Implement a simplified architecture
- Synchronize operations with data rich communications



QUESTIONS?