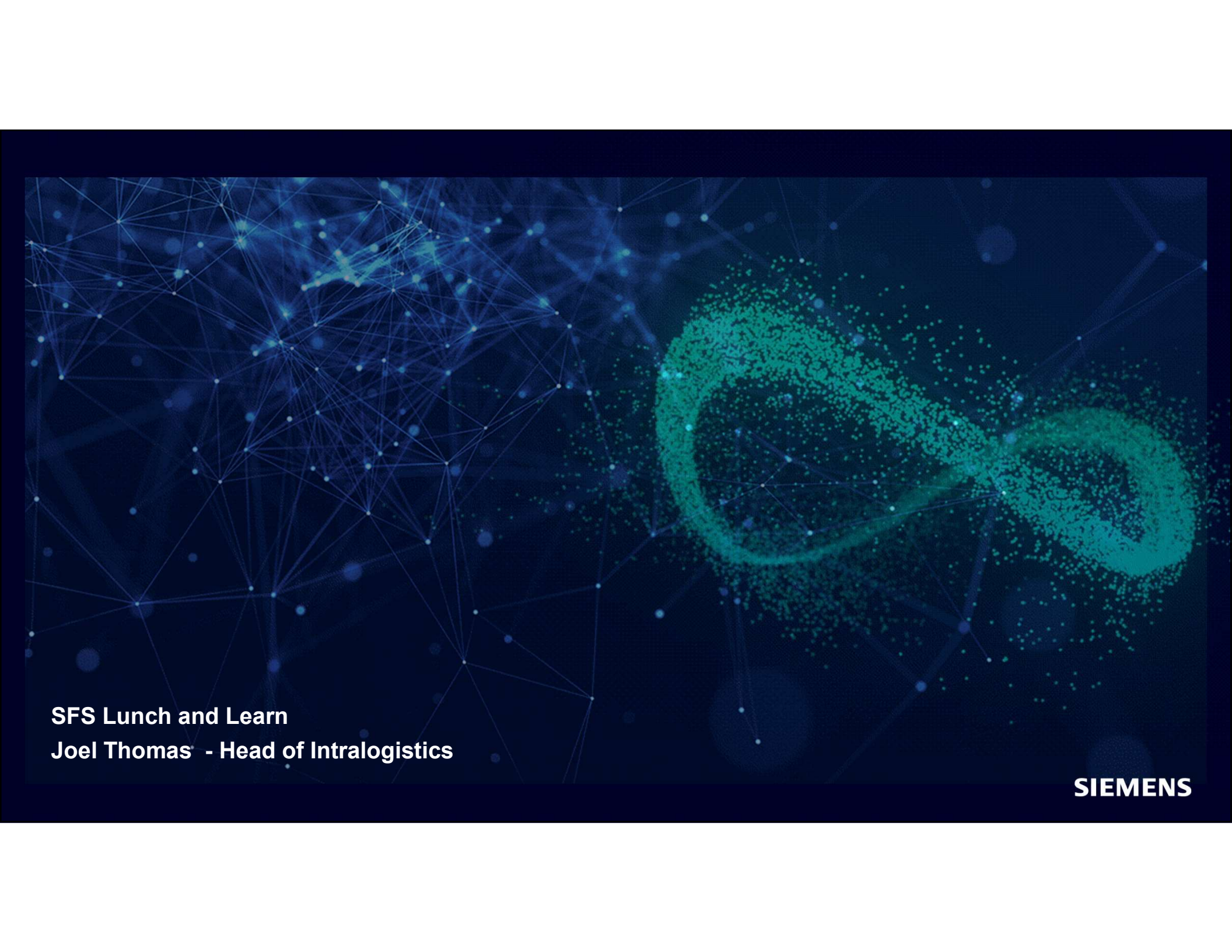


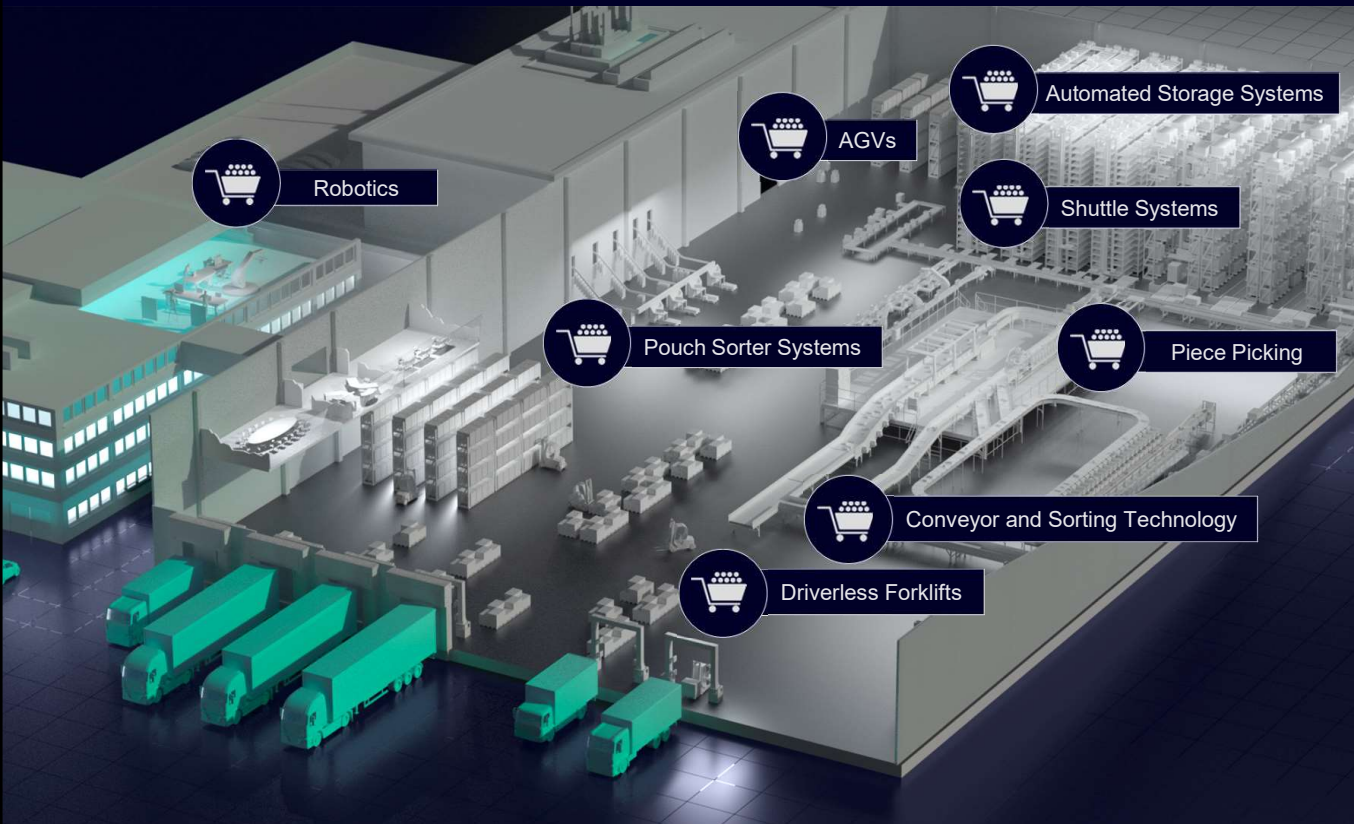


SFS Lunch and Learn
Joel Thomas - Head of Intralogistics

SIEMENS



Co-creating the Digital Enterprise with Totally Integrated Automation for applications tailored to Warehouses and Distribution Centers



Our **digitalization & automation** offerings cover **all warehouse operations** areas like receiving, transport, storage, picking, packing, and shipping.

Fully automated material flow systems allow to **streamline** your warehouse operations and **optimize** your processes, **reduce costs & errors** and achieve a **higher throughput**.

The Team, Key Objectives, Go To Market Strategy, and Key Actions

Intralogistics Vertical Executive Summary

Mission, Vision Strategic Goals



Intralogistics Vertical Executive Summary

Mission, Vision Strategic Goals

MISSION:

- Effectively promote Siemens as thought leaders to the strategic focus areas in the USA

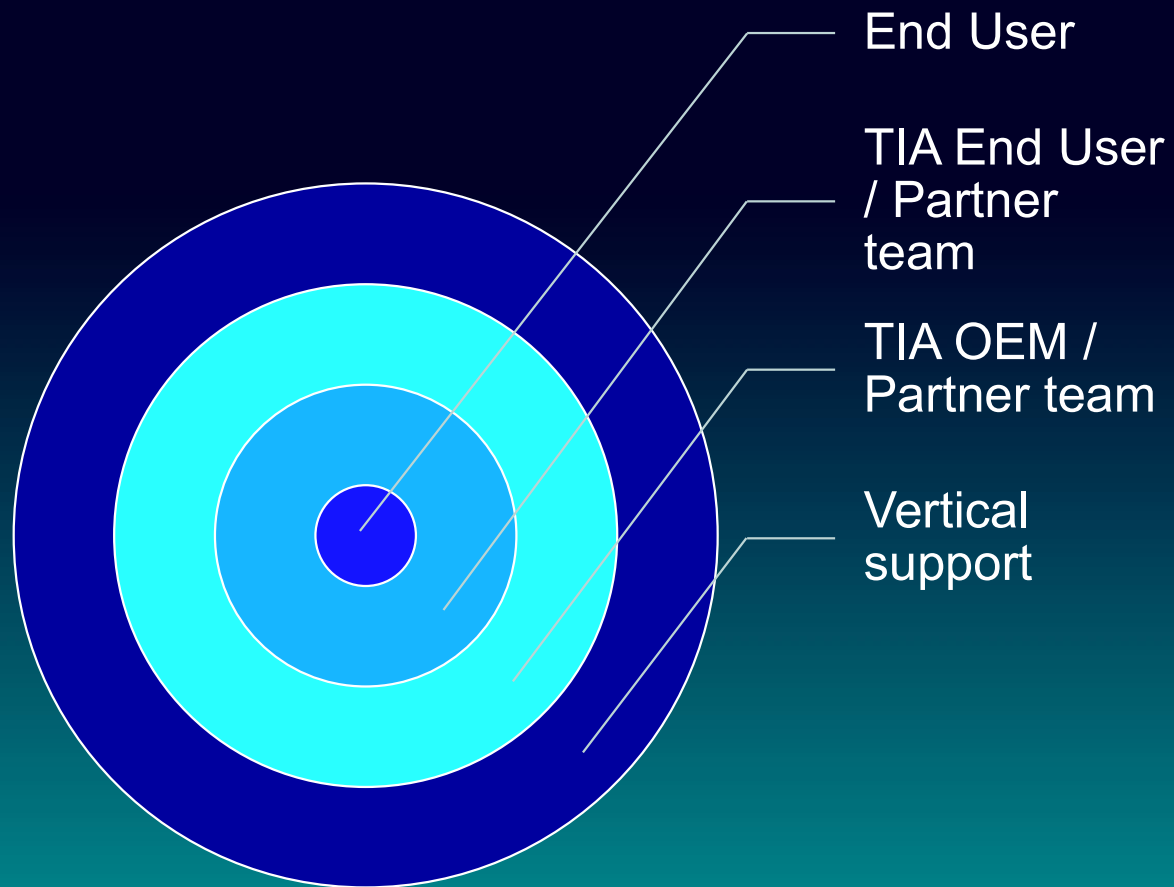
VISION:

- Siemens is driving the Digital Transformation in Intralogistics in the USA

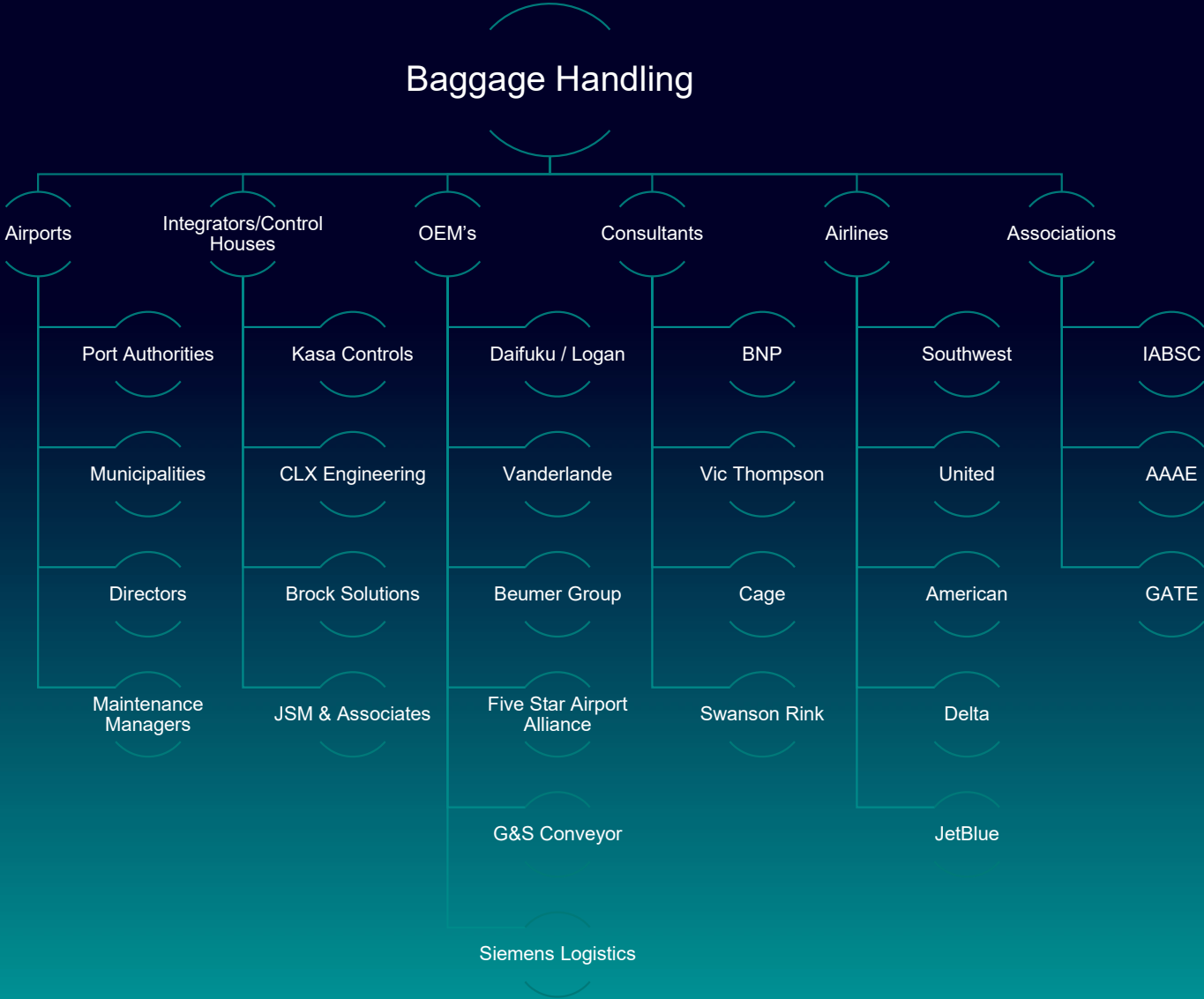


- Increase domestic revenue
 - Engagement and obtain listings at targeted key end users
- Identify, target and engage with key OEM's and integrators within focus segments
 - Active engagement with associations
- Collaboration internally with other groups within Siemens

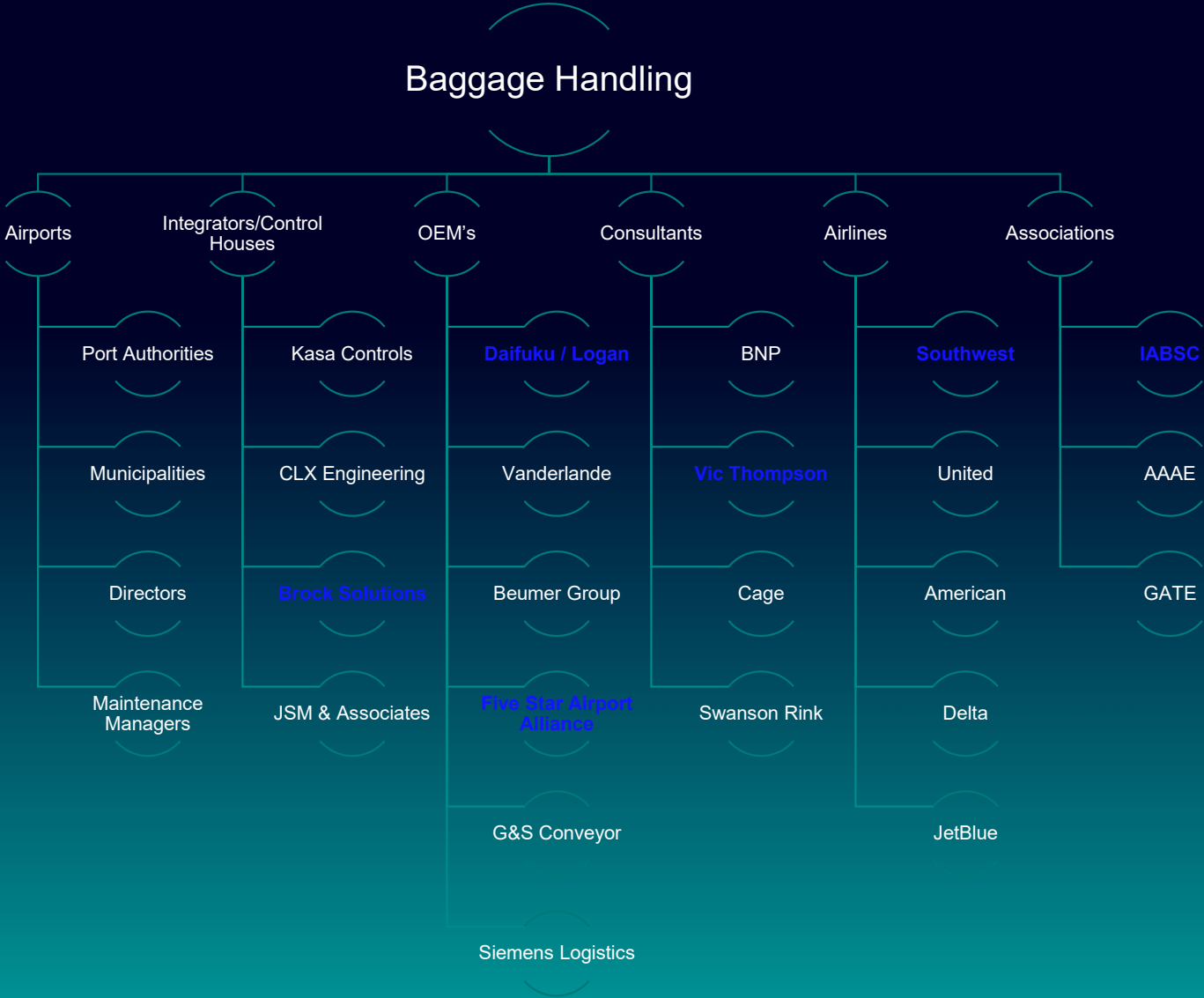
Creating Push Pull as a team



Ecosystem



Ecosystem



ILOG Vertical Executive Summary

Target Accounts FY23

	Amazon / Warehousing Industries	Airport Baggage Handling and Parcel Industries	Warehousing and Postal Industries
ILOG BD manager	Craig Henry	Robert Salone	Jason Sina
End User Accounts	- Amazon Fulfillment - Amazon Logistics	- FedEx - DHL - UPS - Southwest Airlines - American Airlines	- Walmart - Pitney Bowes
OEM Priority Accounts - International accounts - Consultants	- Amazon Robotics - Vanderlande - Designed Conveyor Systems - Intralox - Koerber - Lewco - Talos Engineering Products	- MHS Global / Fortna - Fives Intralogistics - Daifuku Webb - Siemens Airport Logistics - Beumer - Vic Thompson - Ross & Baruzzini - BNP - Swanson Rink	- Hytrol Conveyors - FMH Conveyors - KPI Integrated Solutions - Symbotic - Bastian - Knapp Logistics - Hilmot/Trew - Caljan Rite-Hite - Swisslog
Associations	MHI	- MHI - IABSC (international Association of Baggage Supplying Companies)	- MHI - CEMA (Conveyor Equipment Manufacturers Association) - MHEDA (Material Handling Equipment Distributor Association)

Key Activities / Success Stories



VM Intralogistics Partnership Engagement - Robert Salone

Target Account	Working With	Key Account Contacts	Engagement
UPS	- Paulo Gonzales (TIA EU) - Sean Marroquin (S-TIA) (Koerber) - Various BU Support	- Joel Stenson – Sr. V.P. of Operations Technology - Ken Edmonds - Senior Director, Corporate BaSE Electrical Department	- Goal: Secure Siemens Products on their approved specification list globally and in the U.S. - Future Step: The meeting had to be rescheduled from 2/8 and is scheduled for 3/16
DHL	Paulo Gonzales (RC-US DI S-TIA EU)	- Omer Rashid -Vice President, Operations Development Supply Chain - Greg Cain - IT Vice President, Supply Chain - Chris Lozinak - Vice President IT - Transportation	- Made initial contact with Omer the Manifest Tradeshow and he suggested we work with Greg to coordinate a Siemens Solution overview meeting - Follow up meeting date to be determined (Promat)?
FEDEX	- Joe McCullough (DI S TIA PA) - Colm Gavin (DISW) - Ryan Herron (DISW) - Various BU Support	- Michael LeDonne - Manager Automation Engineering - James Campbell - Automation Engineer - Ben Siecinski - Automation Engineer - Firyal Kassim - Manager Design Development	- Set up February 7th TEAMS meeting to provide an overview of Siemens Solutions for standardization as part of FEDEX specification - FEDEX would like to continue conversation around Digital Twin solutions. - We will be submitting other products from the FA & MC Business Units for consideration

VM Intralogistics Partnership Engagement - Jason Sina

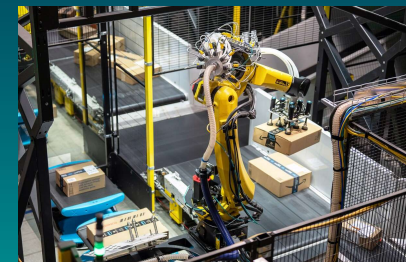
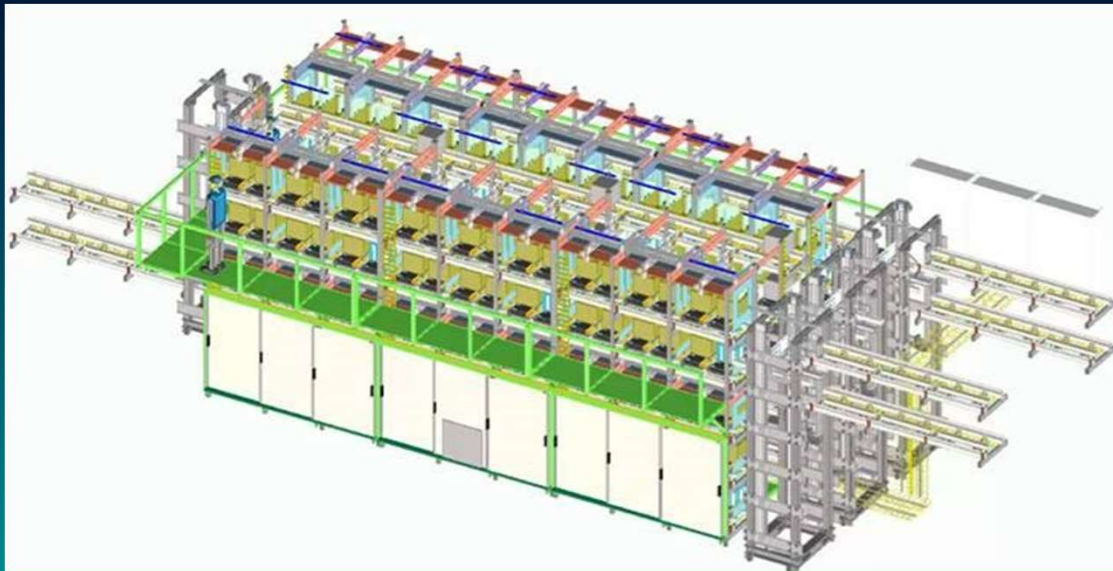
Target Account	Working With	Key Account Contacts	Engagement
Swisslog	Adam Dodson (TIA OEM)	- Ryan Connelly - Key Account Manager - David Bates - VP, Software, Controls, Integration Unit	- Goal: Grow brownfield activity and break into Greenfield opportunities. - Future Steps: Dinner with VP at ProMat - Continue engaging Tom Ginefra / Nicklaus Monroy - Walmart PlantSim Digital Twin (\$200k)
Target	- Lynn Lambert (TIA EU) - Adam Sharrett (TIA EU) - Gail Norris (CS SD TR) - Adam Dodson (TIA OEM) - Bill Ellsworth (TIA OEM)	- Brittany Sorg - Senior Equipment Engineer, Supply Chain Engineering - Jerome Rossi - Lead Engineer - Christian Burres - Lead Controls Engineer - Brian Hartbarger - Sr Operations Manager - Paul Rael - Sr Systems Engineer	- Goal: Keep growing brand awareness and position as key partner - Establish dialogue on long term support/training (most all support has come from Swisslog) - Future Steps: Emphasize continued need for National account management approach (low local partner engagement)
Walmart	- Lynn Lambert (TIA EU) - Gail Norris (CS SD TR) - Adam Dodson (TIA OEM) - Aric Stacey (TIA OEM) - Bill Ellsworth (TIA OEM) - Kevin Gustin (TIA OEM) - Stewart Terhorst (TIA OEM) - Terry Wallace (TIA OEM)	- Mike Spigoda - Senior Director, Automation Engineering - Ray Hughes - Sr. Material Handling Manager, Controls - Darren Cooper - Technical Resource Manager - David Guggina - Executive Vice President, Supply Chain Operations	- Goal: Keep growing brand awareness and position as key partner - Alert - Assist with developing an integrated control and safety for Alphabots - Utilize PlantSim models from similar accounts to boost Siemens footprint and presence - Establish dialogue on long term support/training - Future Steps: Emphasize continued need for National account management approach (low local partner engagement) - Executive Meeting TBD in Q3 FY23

VM Intralogistics Partnership Engagement - Jason Sina

Target Account	Working With	Key Account Contacts	Engagement
Bastian	- Kevin Gustin (TIA OEM) - Derek Eastep (TIA OEM) - Steve Wilcox (TIA OEM) - Eugen Solowjow (FOA AMA)	- Bryan Evans - Senior Manager, Controls Engineering - Mark Diehl - Strategic Accounts Manager - Geoff Schreiber - Sr. Engineering Manager, Robotics - Alex Haines - Business Development Manager	- Goal: Grow Greenfield opportunities through solutions approach and expand into other divisions across US - Enter Autonomous Vehicle facility (Kentucky) - Expand Robotics facility (Missouri) - SGWS Dynamic Gapper 3.0 (\$65k)(expand to dozens) - Future Steps: - Drive customer to select complete hardware solution for Gapper and other conveyor suppliers - Keep pushing Digital Twin investment - Overview of AI Pick n Place solution
KPI	Derek Eastep (TIA OEM)	- Larry Strayhorn - Chief Executive Officer - Mike Conrath - Chief Product and Technical Officer - Dylan McCune - Business Development Specialist - Nick Saur - Innovation Manager	- Goal: Approach with Digitalization solution and grow into hardware/software partner - Engage software team discussing simulation options replacing existing 9 softwares - Engage sales, controls and innovation team at exhibitions - Future Steps: Re-engage software team - Granular dive into Simulation softwares - Mendix overview - Lift experience (with innovation team)
FMH	Will Starling (TIA PS)	- Chris Glenn - President - Peter Rice - VP of Sales - Logan Walters - Electrical Engineer - Don Kennedy - Electrical Engineer	- Goal: Take over greenfield opportunities from Rockwell with FA, MC, safety, scale - Telescoping Conveyors S7-1200 Q4 FY23 (\$950K) - Future Steps: Continue engaging key contacts - AB to S7 conversion progress - Safety relay conversion to Safety PLC - PSU6200 for dc motors - Dinner with Glenn/Rice at Promat

Sucess story - Amazon

• Amazon Robotics	• Kevin Gustin (TIA OEM) • Chester Uchida (FA) • Colm Gavin (DE-SW) • Scott Eilers (SW) • Emily Cox (TIA) • Artur Zgoda (SDL) • Gail Norris (CS)	• Vincent Kerstholt, Sr. Global Controls Architect • Renato Carvalho, Strategic Sourcing, Supply Chain and Materials Management • Jeanne Moore, Procurement Global Components Manager • Kallie Ryan, Procurement • Felipe Polido, Engineer SPARROW, CARDINAL • Shankar Pakkuru, Engineer TASRS	• \$443K in new Robotics orders received YTD FY23 • STOW-Gantry flexible pick + place cells (\$1.5M) (DI FA MC EP) • Sparrow robot sortation cell (\$900K+) (DI FA MC EP) • TASRS Tote Automated Storage and Retrieval (\$500K+) (DI FA MC EP) • AUS Lifts upfit of Amazon Sortation Engines globally (\$1.4M+) (DI FA MC EP)
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SIEMENS

Sucess story – Dematic / Starbucks

Success Story in 2022 – Standard Conveyors in the US

We successfully placed our G115Ds instead of RW and ABB:

Background

- Dematic evaluation of Drive standard (Rockwell and ABB)
- Dematic's need - Reduce cost and improve performance

How we won:

- 3 years of presentations and testing - POC G110M/D (prior G115D)
- Challenged Dematic to consider machine mount architecture
- Our distribution partner developed custom ASi connector
- Overcame product gap KW limit of G115D with G120C connectorized solution in a box

Results

- Siemens standard drive for Dematic, 3000-5000 drives per year
- First order August 2022 - Starbucks 230 drives & \$200K in revenue



Sucess story – Ferrero



CONSUMER PRODUCTS AND RETAIL

Ferrero

Using a comprehensive digital twin to reduce high-bay warehouse commissioning time by 30 percent

Products
Tecnomatix, SIMATIC,
PLCSIM, WinCC

Business challenges

Save storage space by developing a high-bay warehouse
Shorten the time for commissioning a high-bay warehouse
Adopt virtual commissioning to enhance efficiency

Keys to success

Use Plant Simulation to rapidly activate high-bay warehouse
Facilitate virtual commissioning to speed time-to-market
Develop specific control programming with PLC and SCADA
Leverage Siemens' worldwide presence, excellent technology and strong partnership

Results

Reduced commissioning time for high-bay warehouse by 30 percent
Reduced the time necessary to achieve target availability by 88 percent
Improved the speed of delivering goods into the distribution cycle after production
Detected about 95 percent of errors prior to the hot phase, significantly reducing stress

Ferrero leverages Tecnomatix Plant Simulation to reduce the time to achieve target availability by 88 percent

Easy logistics

A high-bay warehouse, which can be used to store hundreds or thousands of pallets from 12 to 50 meters high, is both a dream and a nightmare for logistics professionals. It is a dream because a large number of goods can be stored using relatively little floor space. The more mechanical and automated the processes there are between storage and retrieval, the faster the goods can reach the customer in good shape. However, due to the complexity, until a high-bay warehouse is set up and all processes are running smoothly, it can be a nightmare for planners.

Ferrero is breaking new ground with Plant Simulation in the Tecnomatix® portfolio. It is used in combination with SIMATIC automation to rapidly commission a high-bay warehouse.

Tecnomatix is a part of the Xcelerator portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software.

The Ferrero Group is a third-generation, family-run business with annual turnover of 12.3 billion euros. The headquarters are located in Alba, a northern Italian town in Piedmont where the grandparents of the current company manager, Giovanni Ferrero, started a pastry shop and confectionery factory in the 1940s. Many childhood memories are closely linked to Ferrero when



[siemens.com/tecnomatix](https://www.siemens.com/tecnomatix)

SIEMENS

Trends and Key Focus Solutions from the market

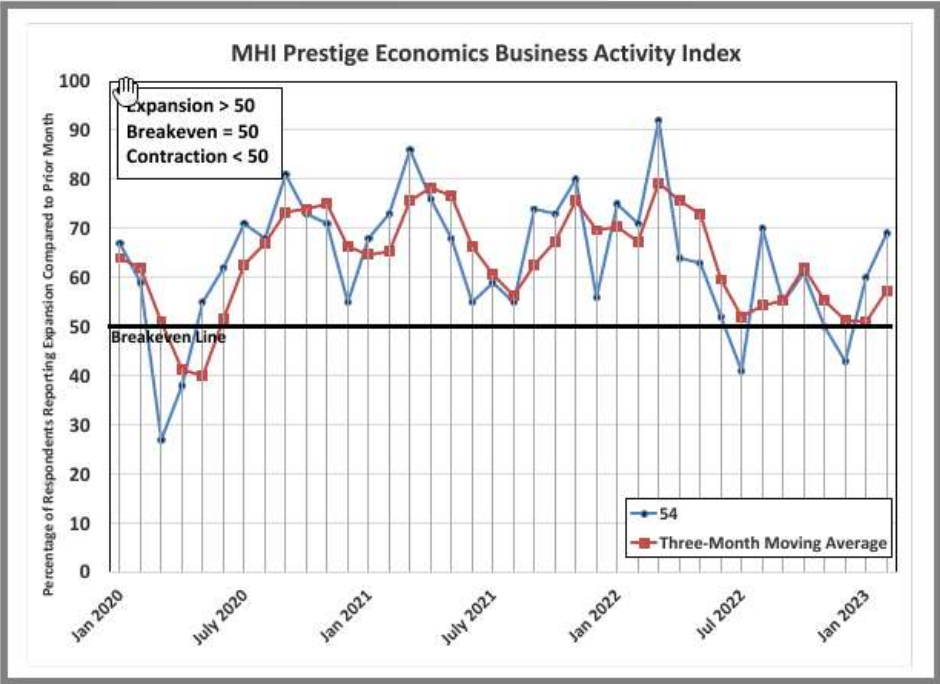
Material Handling Business Activity

Material Handling Industry Business Activity						
MHI	February 2023	January 2023	% Point Change	Growth Indication	Rate of Change	Trend in Months
MHI Business Activity Index	69	60	+9	Expansion	Acceleration	2
Capacity Utilization	67	48	+19	Expansion	From Contraction	1
New Orders	62	48	+14	Expansion	From Contraction	1
Shipments	54	48	+6	Expansion	From Contraction	1
Unfilled Orders	50	56	-6	No Change	From Expansion	1
Inventories	26	50	-24	Contraction	No Change	1
Exports	62	42	+20	Expansion	From Contraction	1
Future New Orders	69	52	+17	Expansion	Acceleration	8

BUSINESS ACTIVITY INDEX

Material Handling Business Activity expanded in February, as 69 percent of respondents noted monthly expansions, and 31 percent noted contractions.

This series rebounded in January and February, and the three-month moving averages for this series accelerated to 57 percent in February.

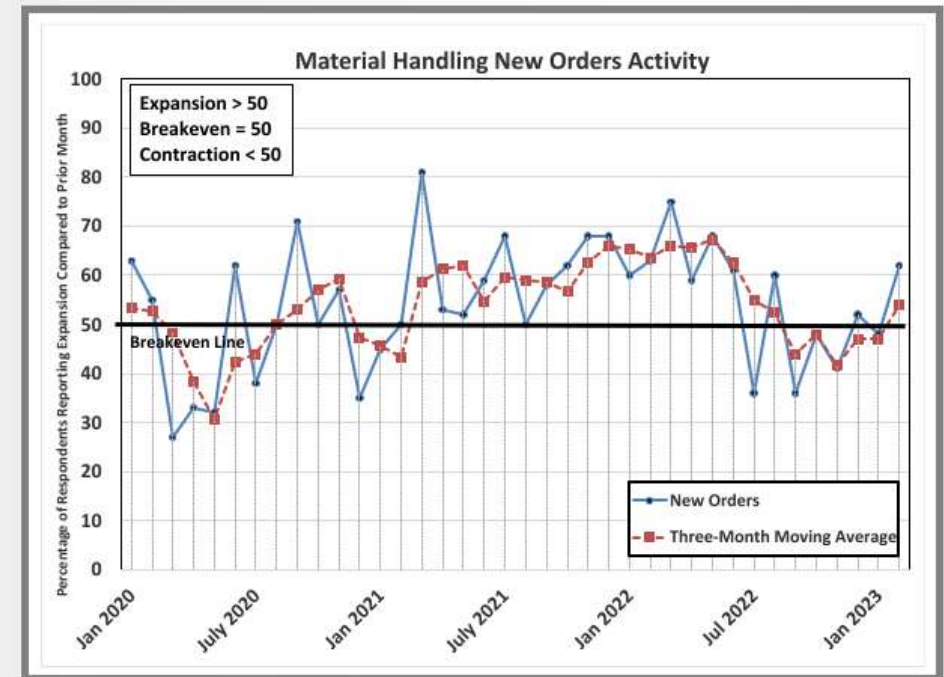


Material Handling Business Activity

NEW ORDERS

Material Handling New Orders expanded sharply in February as 62 percent of respondents noted monthly expansions and 38 percent noted monthly contractions.

New Orders have contracted in five of the past eight months but rebounded this month. The February 2023 three-month average also rebounded sharply to 54 from 47 in January, and this improvement is a solid signal for the material handling industry.

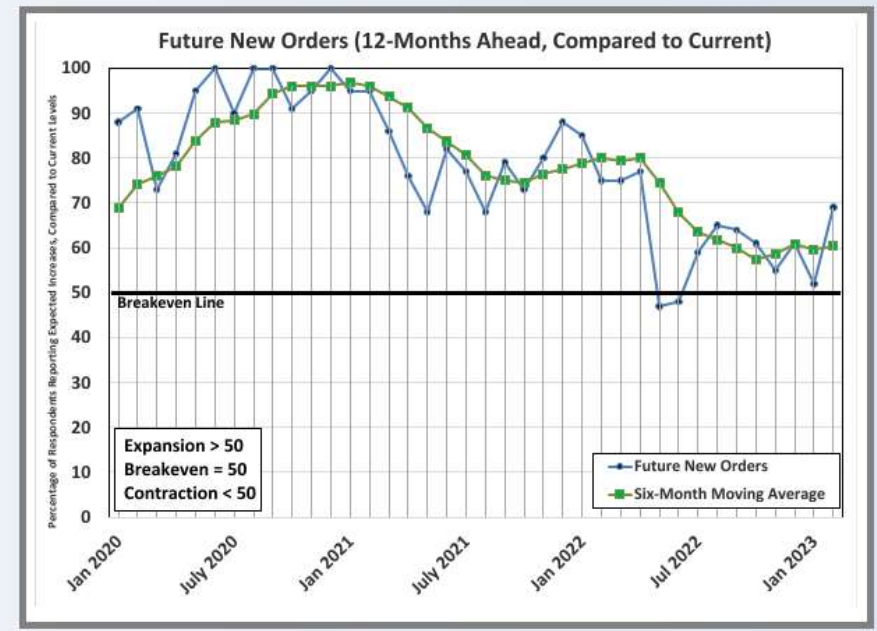


Material Handling Business Activity

FUTURE NEW ORDERS IN 12 MONTHS

The Future New Orders series rose sharply in February 2023 when 69 percent of respondents reported expectations that Future New Orders will be higher in 12 months, and 31 percent reported expectations that Future New Orders will be lower. This series rebounded sharply in February, boding well for 2024, sending the three-month average for the Future New Orders series higher.

Previous 2022 declines in the Future New Orders series implies future Material Handling slowing this year, with downside risks to New Orders in Q2 2023.



Company Challenges in the supply chain

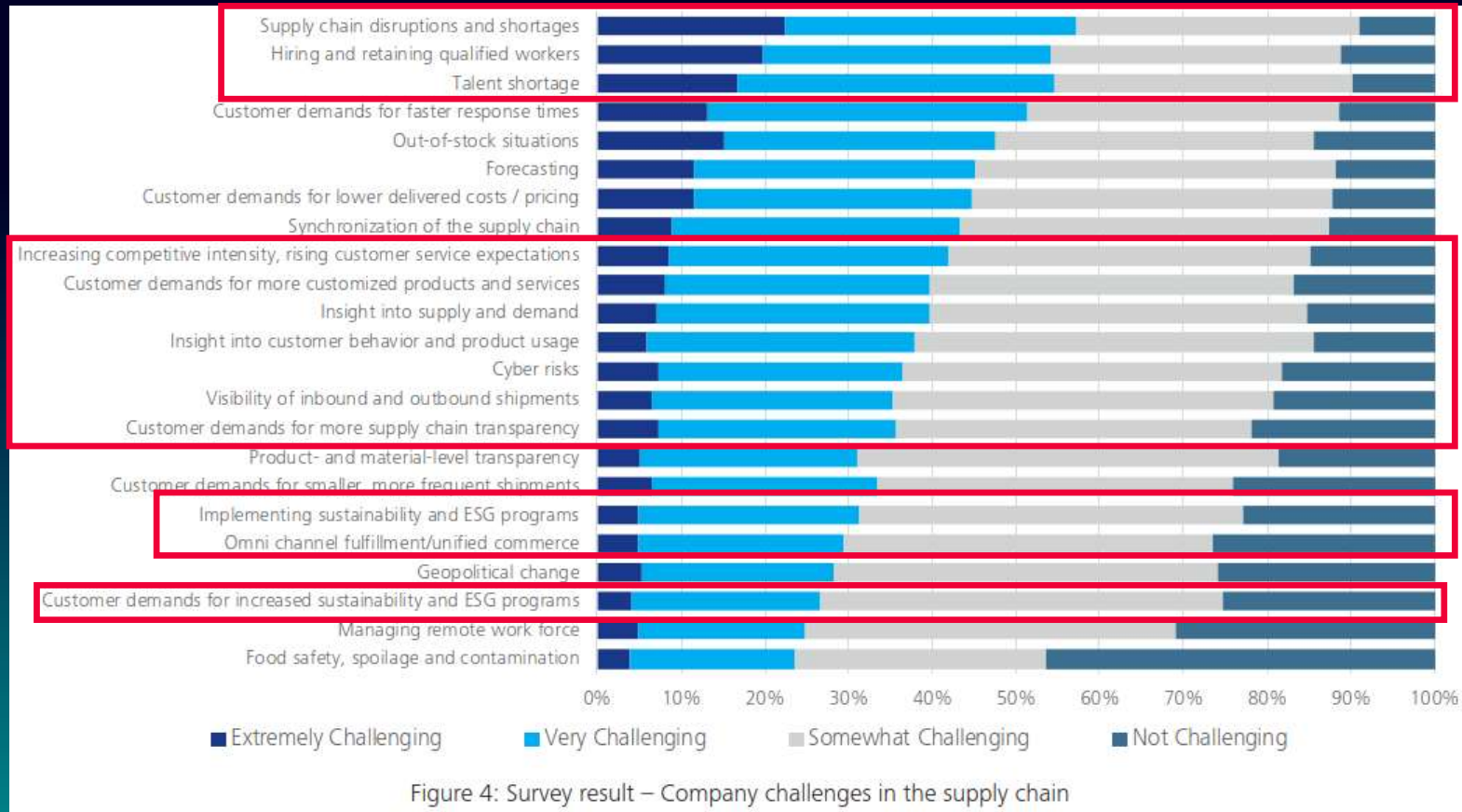
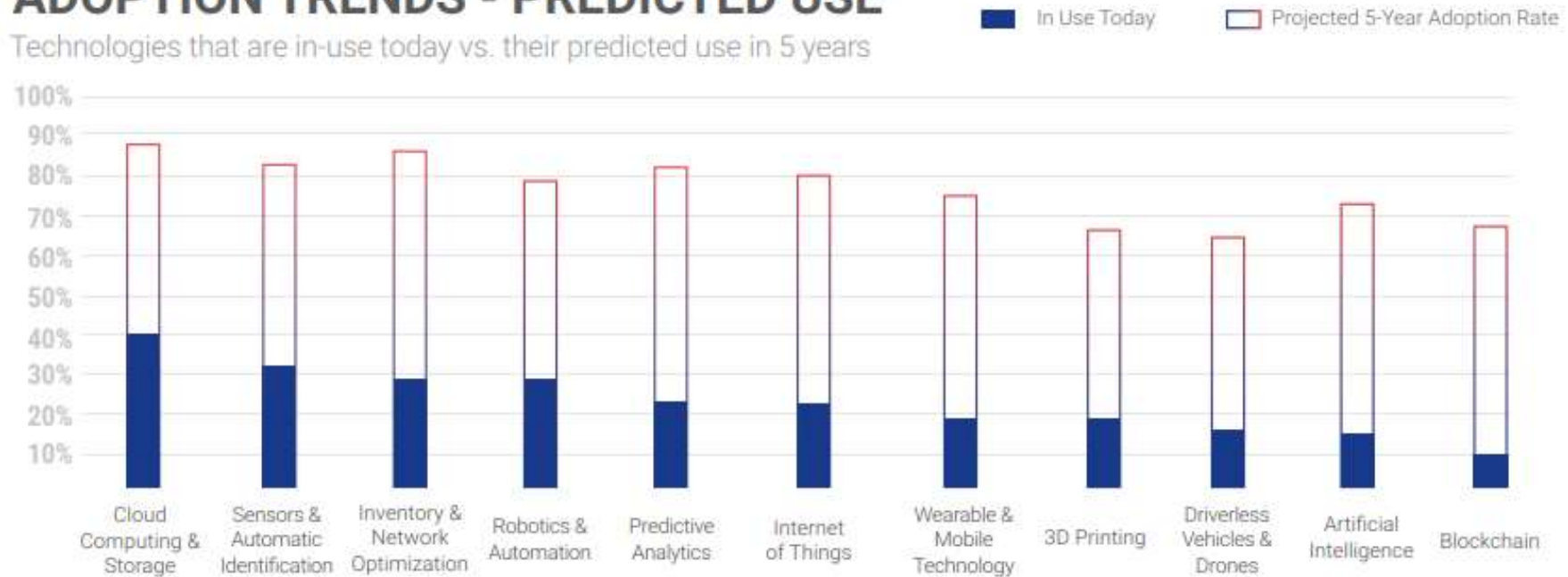


Figure 4: Survey result – Company challenges in the supply chain

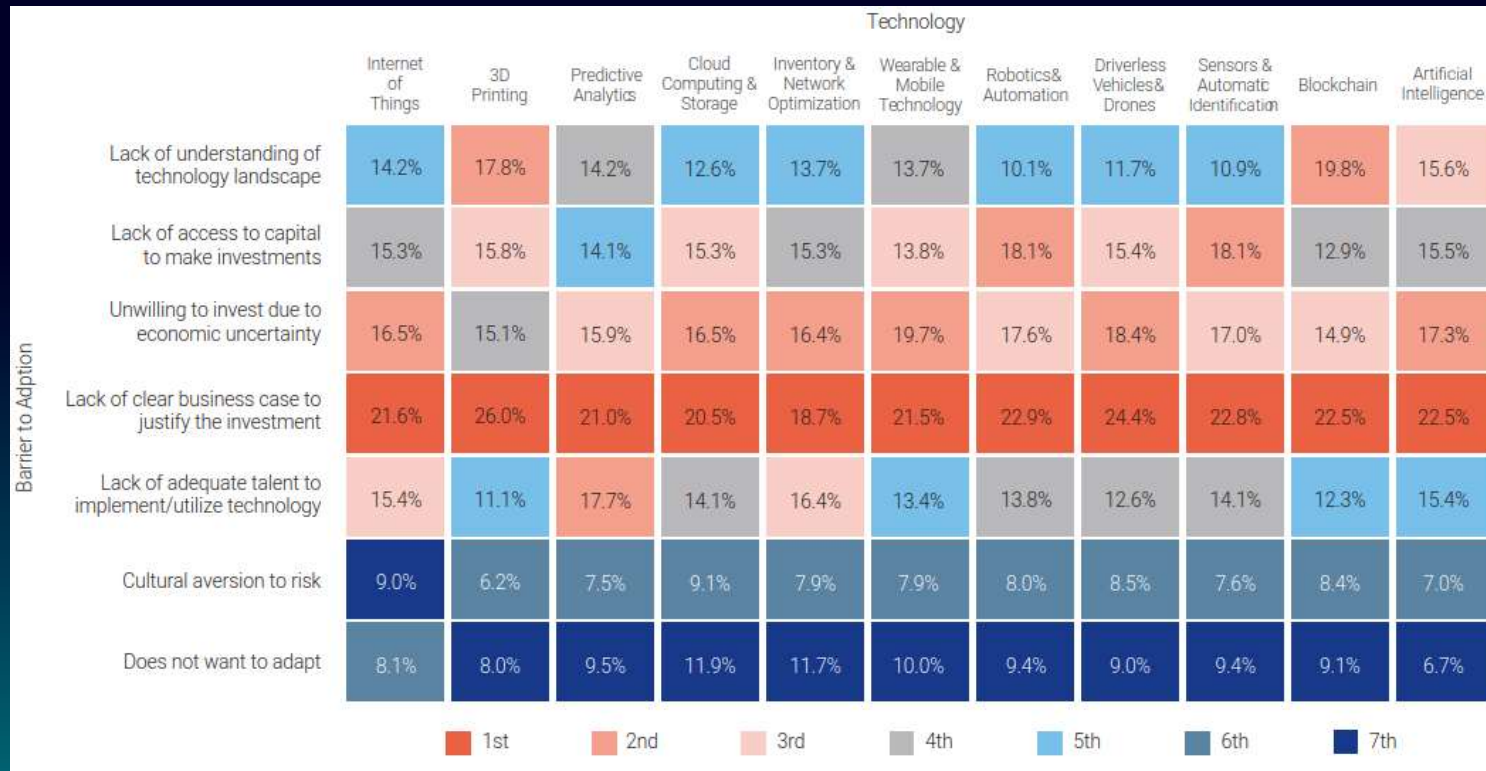
Adoption Trends in the industry

ADOPTION TRENDS - PREDICTED USE

Technologies that are in-use today vs. their predicted use in 5 years



Ranking of Barriers to adoption of supply chain innovations and technology



Lack of clear business case was the **#1** biggest barrier to adoption for every technology

8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9
1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3

New technologies being incorporated into warehousing

5G ENABLED SMART WAREHOUSE

SITUATION
The US Department of Defense (DoD) launched its "5G-to-Next G" program to accelerate implementation of advanced wireless communications applications across its operations. The program includes the 5G Smart Warehouse project, which aims to improve warehouse operations using advanced 5G-enabled technologies. These smart warehouse technologies will increase the efficiency, accuracy, security, and safety of material and supply handling, management, storage, and distribution.

Deloitte Consulting was selected to manage the first phase of the initiative, working with key technology partners to successfully demonstrate a comprehensive suite of smart warehouse applications operating on a 5G network (and to highlight the numerous resulting benefits). Key focus areas included predictive analytics and visualization, and warehouse space optimization.

ACTIONS
The vision was to enable digitization, automation, and optimization of warehouse functions. The team used a systems engineering approach to design the prototypes. It also relied on recognized open-industry standards and interfaces for all integrations.

Although some leading technologies work on Wi-Fi today, 5G extends next-level communications capabilities across the entire supply chain – from inside the four walls of a warehouse to far beyond those four walls.

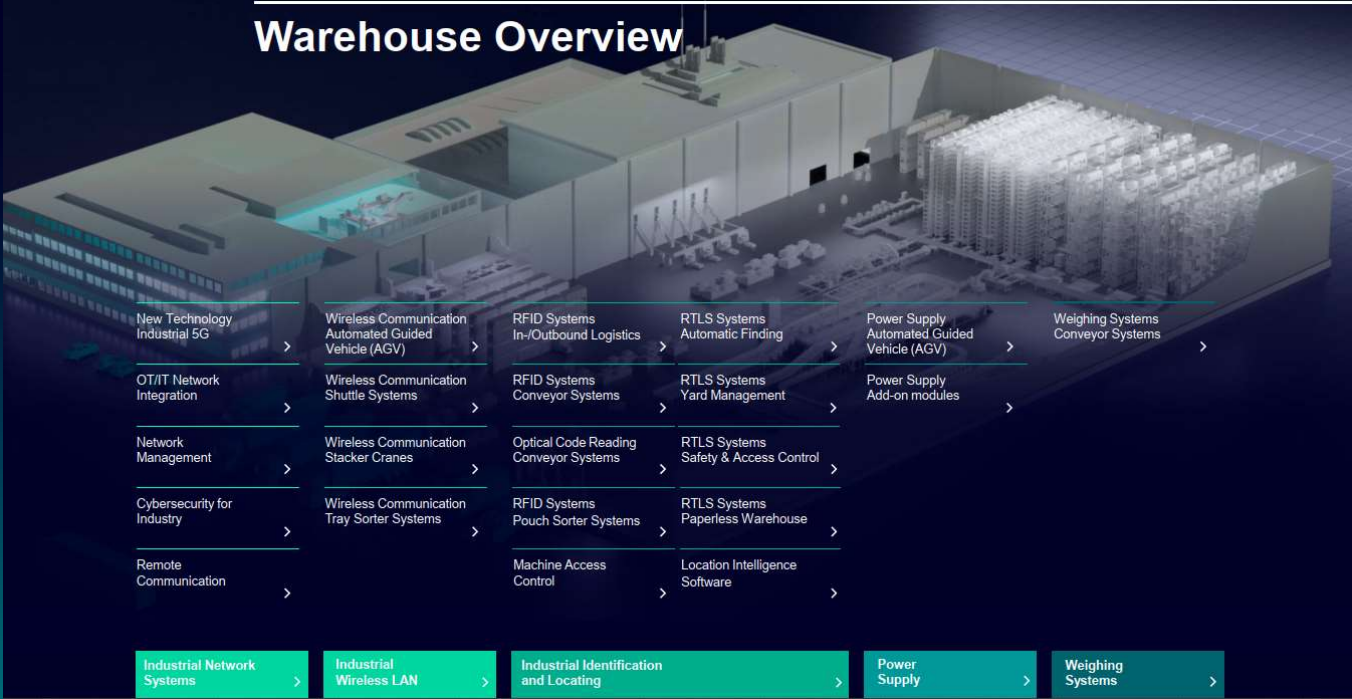
RESULT
The initiative built a groundbreaking 5G network in a live functional warehouse, using it to demonstrate technologies that benefit from the power of 5G connectivity, including:

- Warehouse automation featuring robots that collaborate on tasks using machine-to-machine communication enabled by 5G's sub 15 msec latency
- Perpetual autonomous audits using high-precision indoor location mapping and battery-



- less cellular Bluetooth technology to enable digital tracking tags on high value assets and every item in inventory
- Augmented reality to improve the experience of warehouse workers and streamline shop floor operations
- High throughput data transfer (e.g., high quality streaming video to perform biometric identification of people for access control purposes)
- Computer vision and artificial intelligence to train robots to interpret visual cues, identify and classify objects, and collaborate with human workers and other computers

Warehouse Overview



New technologies being incorporated into warehousing

ECOSYSTEM OF AUTOMATION WITHIN THE WAREHOUSE

SITUATION

DHL Supply Chain is well known as a leader in innovation and operates more than 450 warehouse facilities in North America, ranging in size from fifty thousand square feet to over a million square feet – and serving an equally broad variety of client types. To effectively serve this diverse client portfolio, DHL must be able to adapt and customize its operations to fit a customer's unique needs and products. Also, as a large third-party logistics provider, DHL is highly susceptible to the workforce shortage that has plagued the supply chain industry for years and needed to get ahead of the looming workforce issues.

ACTIONS

As part of DHL's Accelerated Digitalization agenda, the company has invested over \$300 million in developing and scaling innovative solutions for new technologies. The most recent being a \$15 million investment to further automate warehousing in North America via collaboration with the global leader in mobile robotics, Boston Dynamics.

DHL and Boston Dynamics signed a multi-year agreement that begins with equipping DHL facilities with Stretch, Boston Dynamics' newest robot to automate the unloading process in distribution centers. Boston Dynamics will deliver a fleet of Stretch robots to multiple DHL warehouses throughout North America over the next three years.

Stretch will tackle several box-moving tasks in the warehouse, beginning with truck unloading at select DHL facilities. Stretch is equipped with a compact, omni-directional mobile base, custom-designed lightweight arm as well as a smart gripper with advanced sensing and controls that can handle a large variety of box types and sizes. It also includes Boston Dynamics' computer vision technology, which enables it to identify boxes easily and without any pre-programming. "What we like about these technologies, is that they work within the existing infrastructure," says Adrian Kumar, Global Head of Operations Science & Analytics at DHL Supply Chain. Stretch is capable of working autonomously



through complex situations like disordered stacking configurations and recovering fallen boxes.

RESULT

Following the first deployment, the multi-purpose mobile robot will handle additional tasks to support other parts of the warehouse workflow, which will effectively automate warehouse operations. This latest investment in technology follows DHL's commitment to Accelerated Digitalization, which has already seen numerous successful deployments of technology across the supply chain. Other recent examples include autonomous forklifts, autonomous trailer offloading, autonomous robot replenishment and putaway, autonomous robot pickcarts and more.

DHL's Accelerated Digitization agenda has delivered a wide range of significant operational improvements. However, the single biggest improvement has been enhancing the company's workforce by automating dangerous and repetitive tasks that prospective employees find unappealing. DHL's digitization deployments have produced near-perfect employee satisfaction surveys with the technologies, a 50 - 100% increase in warehouse labor productivity, and a 30% increase in facility throughput.

Costing and Carbon footprint for a more accurate and faster calculation of costs and CO₂ footprint

Configuration Platform for CTO and ETO processes

Engineering Tools for concurrent engineering based on mechatronic templates & libraries – one platform for CAx, steel construction and electrical Design

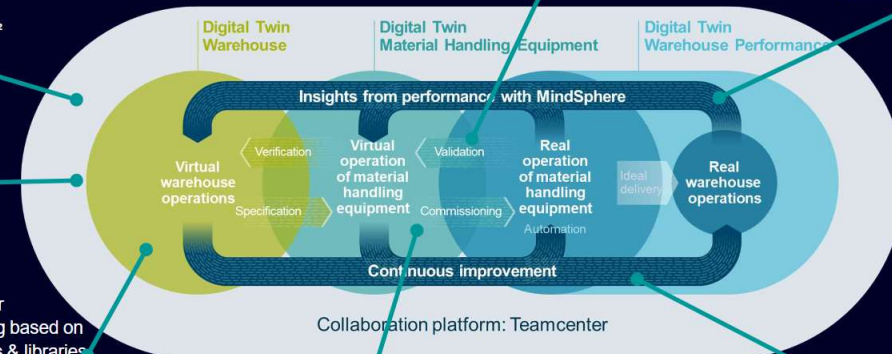
Virtual commissioning to speed up your time to market and fulfill the customer requirements

Layouting and Plant Simulation Tools for logistics concept design & optimization

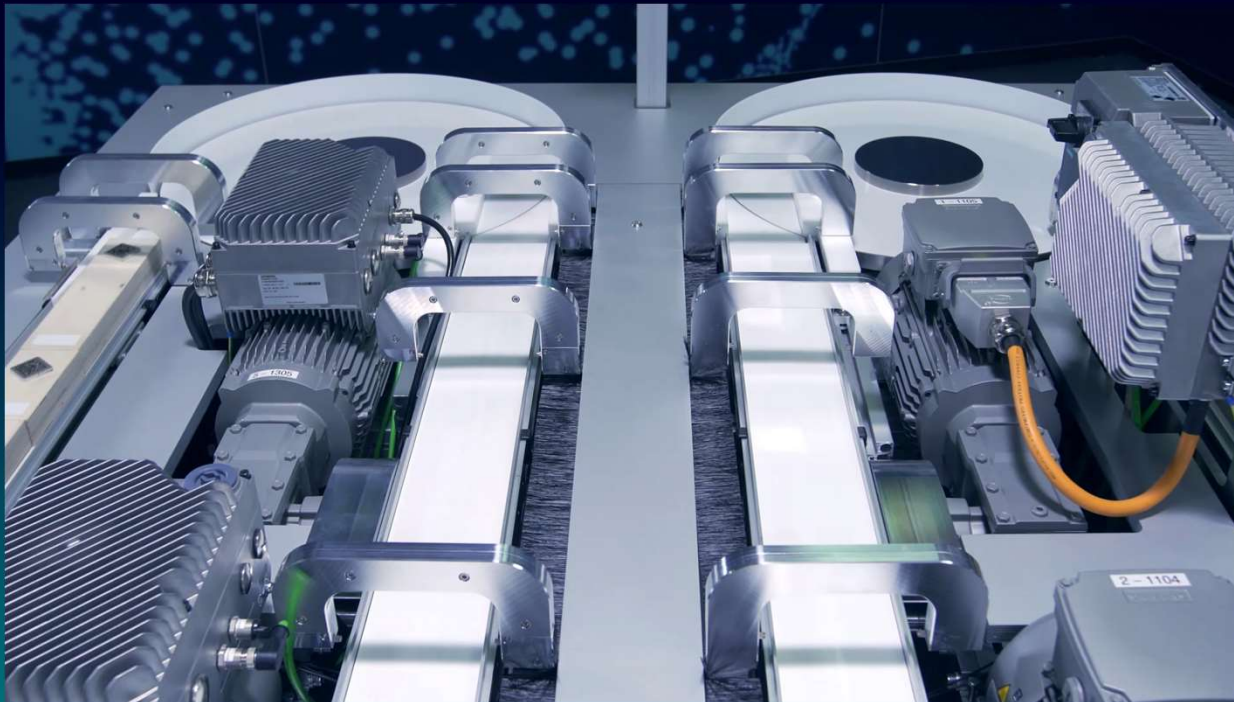
IIOT / Edge based applications to calibrate your digital twin and generate new business models

Low Code Platform Generate new Apps to improve internal and external business processes

Manufacturing operations and Quality Management to improve efficiency, quality and enhance flexibility



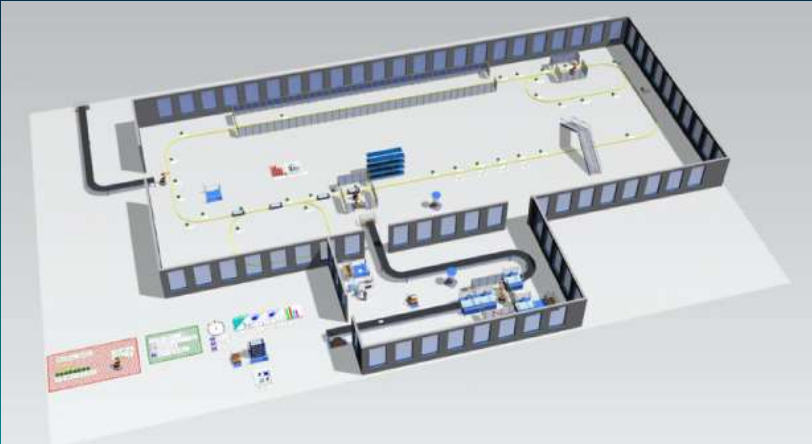
Varibale product gapping from sorting of products



Flexible drive system for centralized and decentralized implementation with different mounting options and functions

Future-proof **automation systems** for **all demands on performance and complexity** with most reliable and flexible **Safety Integrated**

Integrated industrial identification systems for seamless tracking of material flow



The pouch sorter system offers a flexible solution for the challenges of e-commerce in fashion and general retail

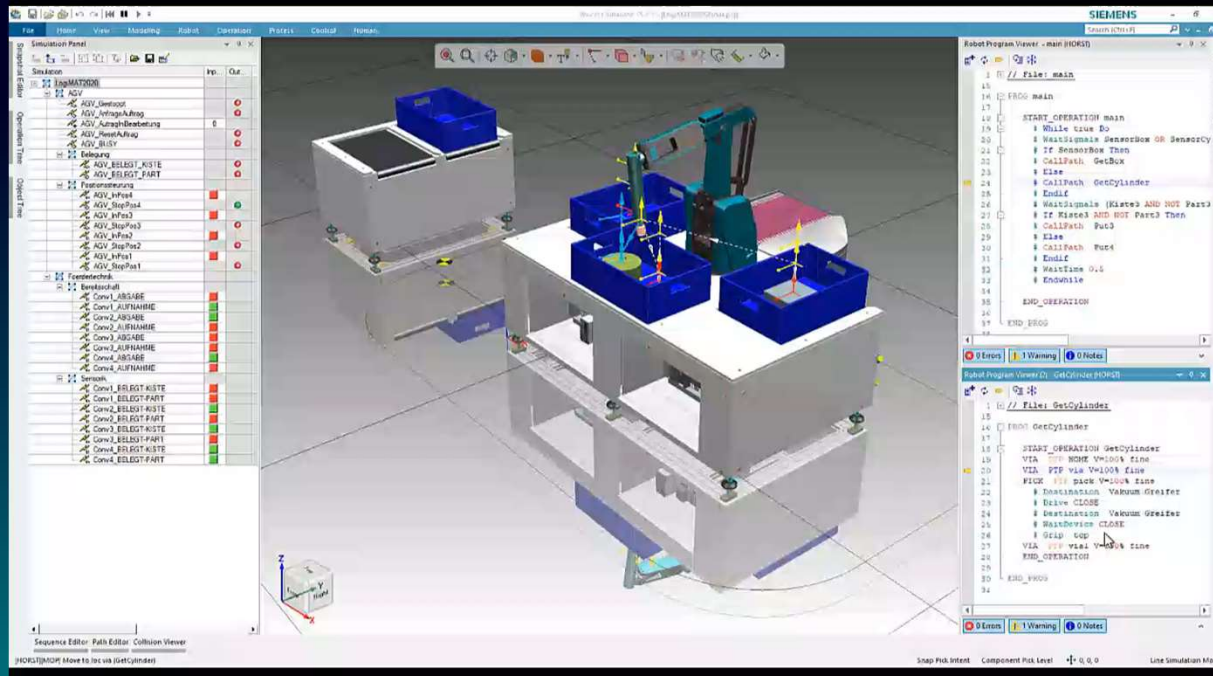


Flexible drive system for centralized and decentralized implementation with different mounting options and functions

Future-proof **automation systems** for **all demands on performance and complexity** with most reliable and flexible **Safety Integrated**

Integrated industrial identification systems for seamless tracking of material flow

AI-driven Piece Picking Robots – simply enabled and integrated with SIMATIC



Design and assess complete robotics working station

Simulate and integrate robotic operation paths

Validation of robot behavior

Test of what-if scenario which is dangerous to test in real life

Motion planning and simulation

The pouch sorter system offers a flexible solution for the challenges of e-commerce in fashion and general retail

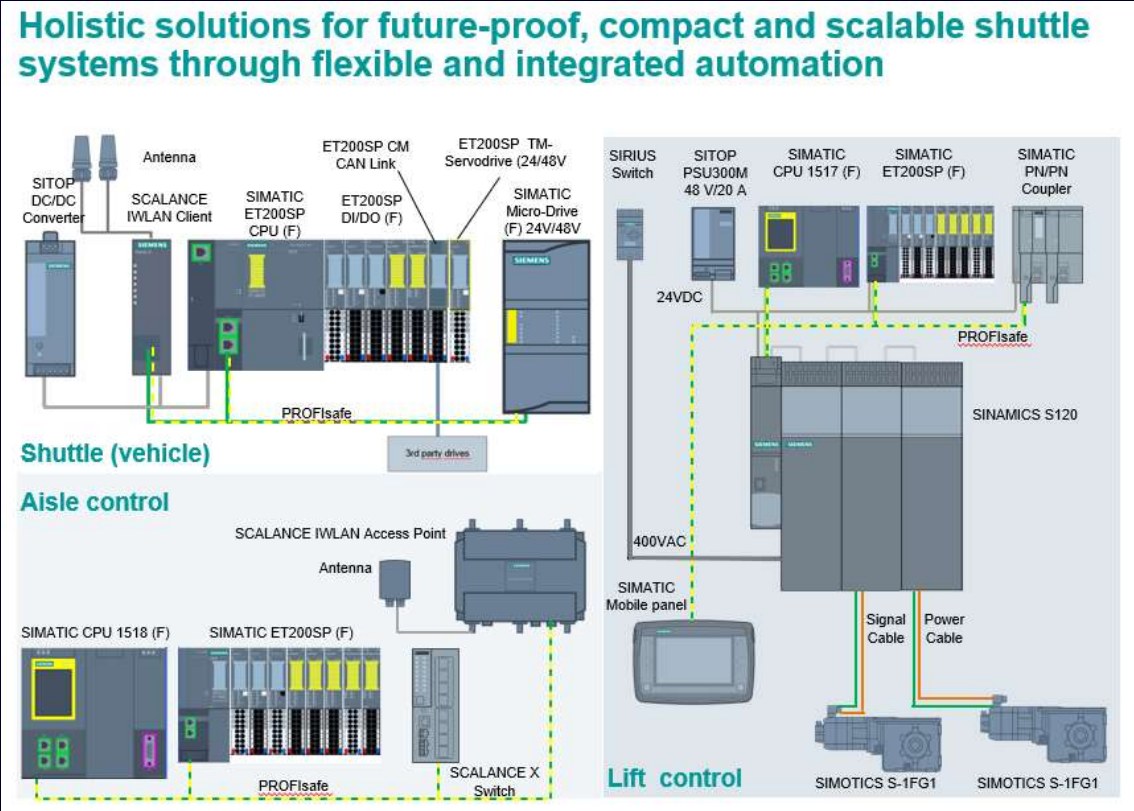


Flexible drive system for centralized and decentralized implementation with different mounting options and functions

Future-proof **automation systems** for **all demands on performance and complexity** with most reliable and flexible **Safety Integrated**

Integrated industrial identification systems for seamless tracking of material flow

Fully automated storage systems achieve highest flexibility, speed, efficiency and throughput



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