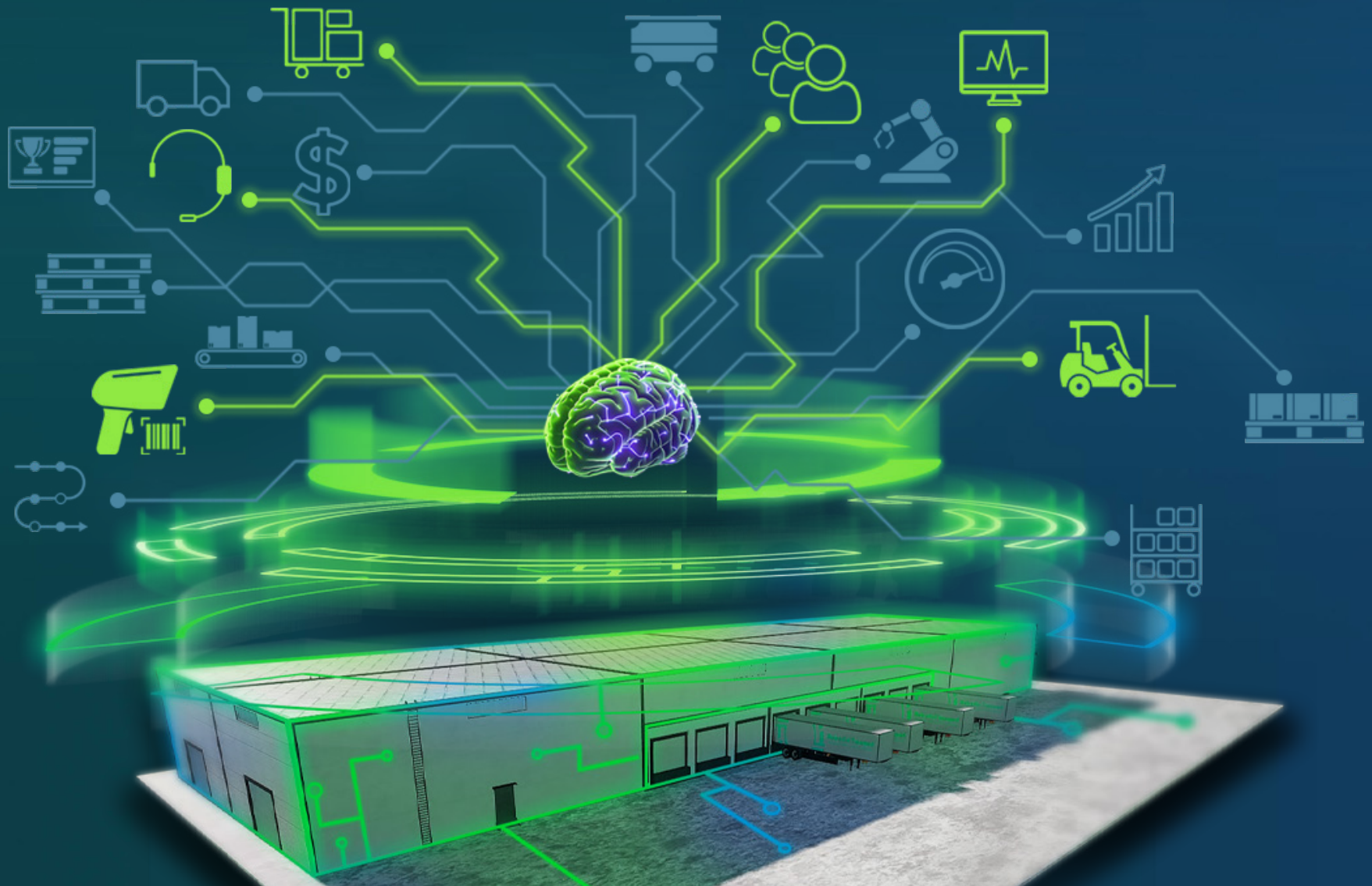




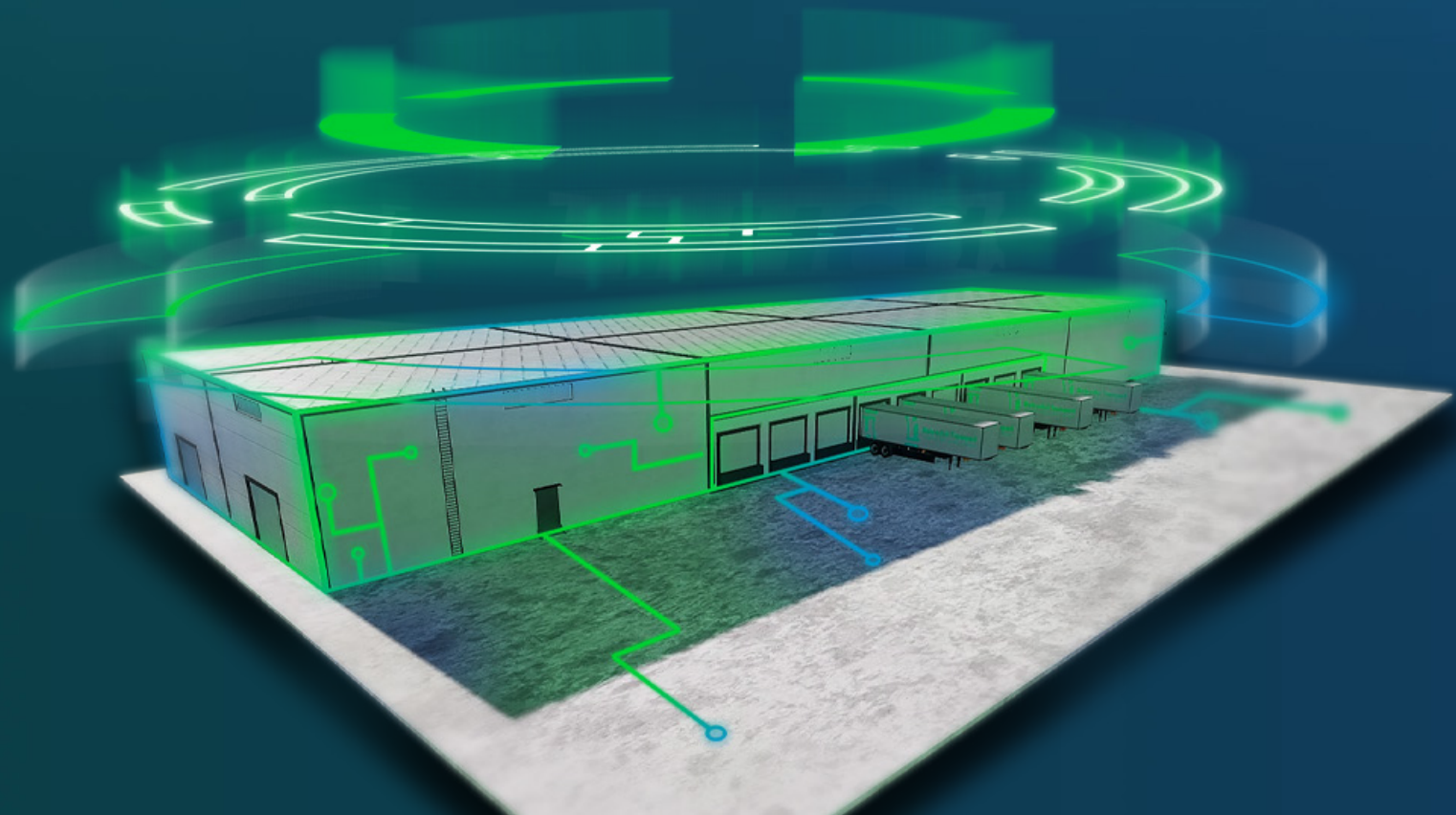
THE TRANSFORMATIONAL PROMISE OF THE DYNAMIC WAREHOUSE



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Today's logistics have become so complex, that for warehouses to be successful, a transformation must take place. This transformation requires the use of powerful technologies, but an even more meaningful change must focus on the warehouse's ability to be agile. No matter where you are in the warehouse maturity continuum, there are steps that you can take to make your operations more resilient and sustainable.

We call this the **DYNAMIC WAREHOUSE**. And it is the future.



SMART WAREHOUSING, DYNAMIC SUCCESS



A DYNAMIC WAREHOUSE OUTPERFORMS STATIC OPERATIONS BY LEVERAGING SMART SOFTWARE, HARDWARE, REAL-TIME DATA, AND ADAPTABLE DECISION-MAKING TECHNOLOGY TO:

- Be self-optimizing - make real time optimized decisions on work execution, priorities, and labor assignments
- Enable managers to quickly implement changes upon learning new insights
- Efficiently optimize the use of warehouse resources including the workforce
- Allow new automation such as robotics to be introduced seamlessly
- Cost efficiently adapt to changes in demand profiles, supply disruption, and resource availability

DON'T GET STUCK WITH ONLY STATIC AUTOMATION

AUTOMATED STORAGE AND RETRIEVAL SYSTEMS (AS/RS)

These systems are often designed for specific storage layouts and item types. If product sizes or order patterns change, the system may require significant reconfiguration, making it less adaptable to new demands.

CONVEYOR SYSTEMS

While conveyors are excellent for moving goods along fixed routes, they lack flexibility in dynamic environments. Changes in warehouse layout or product flow may require costly modifications to the conveyor system.

FIXED ROBOT ARMS

These robotic systems are designed for repetitive tasks like picking or packing from a specific location. They struggle with changes in task complexity, product variety, or layout adjustments, limiting their ability to adapt to different workflows.

AUTOMATED GUIDED VEHICLES (AGVS)

AGVs often follow pre-determined paths using fixed infrastructure like magnetic strips or sensors. Altering these paths or adapting to unexpected obstacles can be difficult, limiting their flexibility in evolving warehouse environments.

"It's important to initiate and follow concepts of agility that can derisk your operations and allow you to plan and reorg quickly."

- Ron May, Senior Solutions Executive, Lucas Systems

KEY ELEMENTS OF CREATING THE DYNAMIC WAREHOUSE



ADAPTIVE OPERATIONS

Real-time prioritization is a pillar of becoming dynamic

- Smartly reprioritize work based on in the moment order mix to meet service levels
- Optimize labor availability to meet customer demands
- Self-learning systems that recognize patterns and adjust operational priorities



BUSINESS GROWTH

Expand and deliver greater volumes while improving customer service levels

- Self-optimization maximizes output at the most efficient costs
- Innovate and differentiate with new customer service level offerings
- Provide real-time fulfillment information to customers and suppliers



MAKE EMPOWERED TEAMS AND COST RESILIENCE PART OF YOUR STRATEGY



EMPOWERED WORKFORCE

Provide the workforce (managers, supervisors, and on floor workers) with critical performance and decision-making information

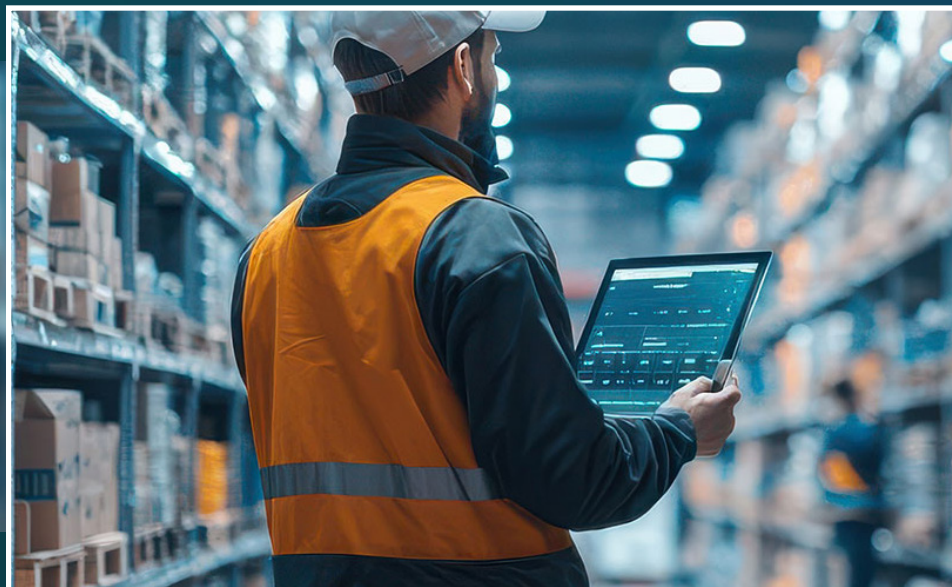
- Workers have tools to improve accuracy and reduce worker travel
- Workers can stay engaged with real time performance visibility and gamification mechanics
- On floor workers can easily communicate with supervisors on in the moment issues



COST RESILIENCY

Manage disruptions and change with least impact to cost and customer service

- Process change can be implemented quickly and efficiently
- Disruptions in supply or fulfillment can be recovered cost efficiently



EMPOWERING THE DYNAMIC WAREHOUSE - WHAT ENABLES IT?



INTELLIGENT SYSTEMS THAT OPTIMIZE AND LEARN

Warehouse automation technologies that leverage machine learning (ML) and artificial intelligence (AI) to continuously improve operations. These systems can analyze enormous amounts of data, making real-time decisions better and faster than humans can, adapting to changing conditions without human intervention if necessary.



FLEXIBLE AUTOMATION THAT CAN BE EASILY CHANGED TO MEET EVOLVING DEMANDS

“While there are multiple approaches to warehouse automation, being Dynamic means you need to look for a system with maximum flexibility and configurability,” said Kyle Franklin, Senior Solutions Consultant, Lucas Systems. These tend to be software solutions that you can “drop in and configure” to work with existing systems and processes, which can make you better wherever you are in the supply chain maturity cycle.

ACTIONABLE DATA AND TECH TO FACILITATE OBJECTIVES



Photo courtesy of Zebra Technologies



WORKFORCE TOOLS TO REDUCE STRESS, IMPROVE SPEED, ACCURACY, ENGAGEMENT, AND RETENTION

According to a Lucas Systems market study, 90% of workers believe investment in new technology will help in attracting and retaining on-floor workers. Workers also resoundingly feel that investing in tech is investing in the company's workforce (88%).



REAL TIME DATA VISIBILITY TO ENABLE SMARTER AND RAPID DECISIONS

"Data visibility is certainly integral to better operations on the warehouse floor, but even more so at the Board level," says Andrew Southgate, V.P. Business Development, EMEA, Lucas Systems.

Data from warehouse systems should and can underpin some of the robust growth projections many companies are facing.

THE DYNAMIC WAREHOUSE: ADAPT, RESPOND, ACHIEVE

In conclusion, the ability to adapt and respond quickly to changes in the warehouse and distribution industry is not just a strategic advantage—it's essential for survival. As we've explored, creating a dynamic, adaptable, and resilient warehouse is less about predicting the future and more about being prepared to meet it head-on, no matter what challenges arise. By focusing on the key enablers and embracing a software-centric infrastructure, you position your operation to stay ahead of the curve. The four pillars of a dynamic warehouse not only ensure your readiness but also empower your organization to balance people, processes, and technology effectively. As the industry continues to evolve, those who master these principles will be best equipped to thrive in an ever-changing landscape.



Lucas Systems helps companies create a dynamic warehouse, enabling distribution centers to compete more effectively under ever-changing market conditions. We harness the power of data with AI, Machine Learning, speech recognition, and optimization models to provide operational agility and improved distribution center performance. Unlike fixed or mechanical automation, Lucas delivers a flexible, software-based approach, that can adapt to future business needs cost effectively.