

Digitalizing Global Manufacturing Supply Chains with Digital Twins

Powered by OpenUSD

S62613

AGENDA



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The Constant Challenge

Factory Enablement,
Expansion and
Efficiencies (The 3E's)

3

Global Operations Challenge

Omniverse
an Operational Hub

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Factory Execution Challenge

Driving Operational
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From Zero to Factory

Initial Concept to
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Vision and Next Steps

The roadmap ahead
is ambitious and
transformative

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Q&A

Open Floor for
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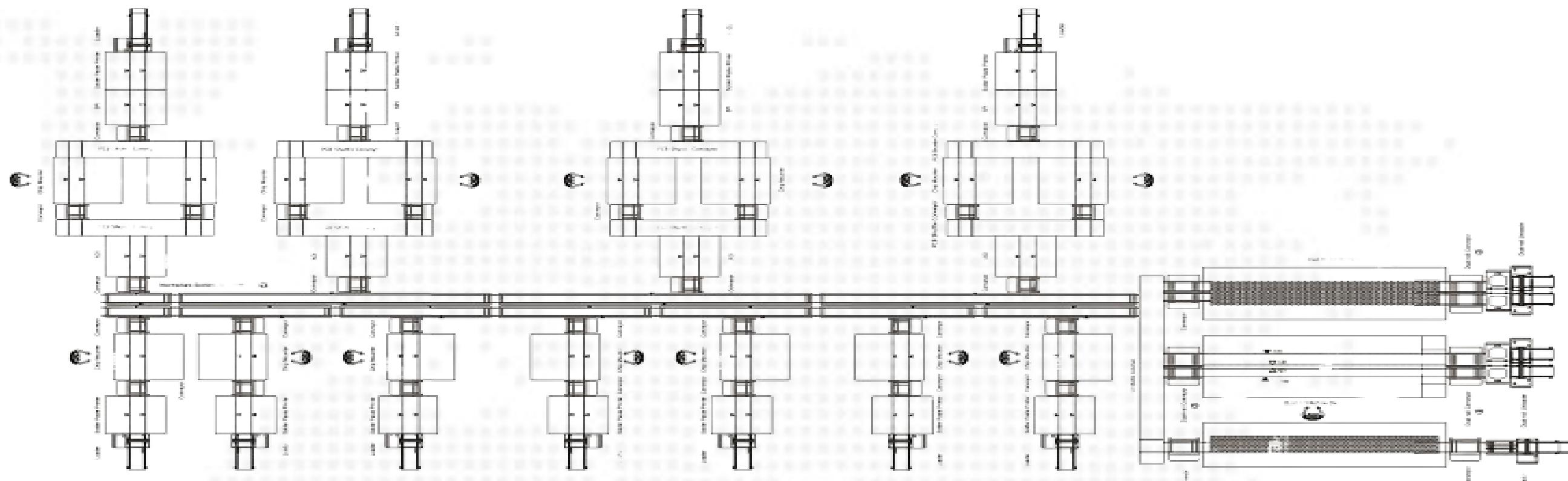
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INTRODUCTION

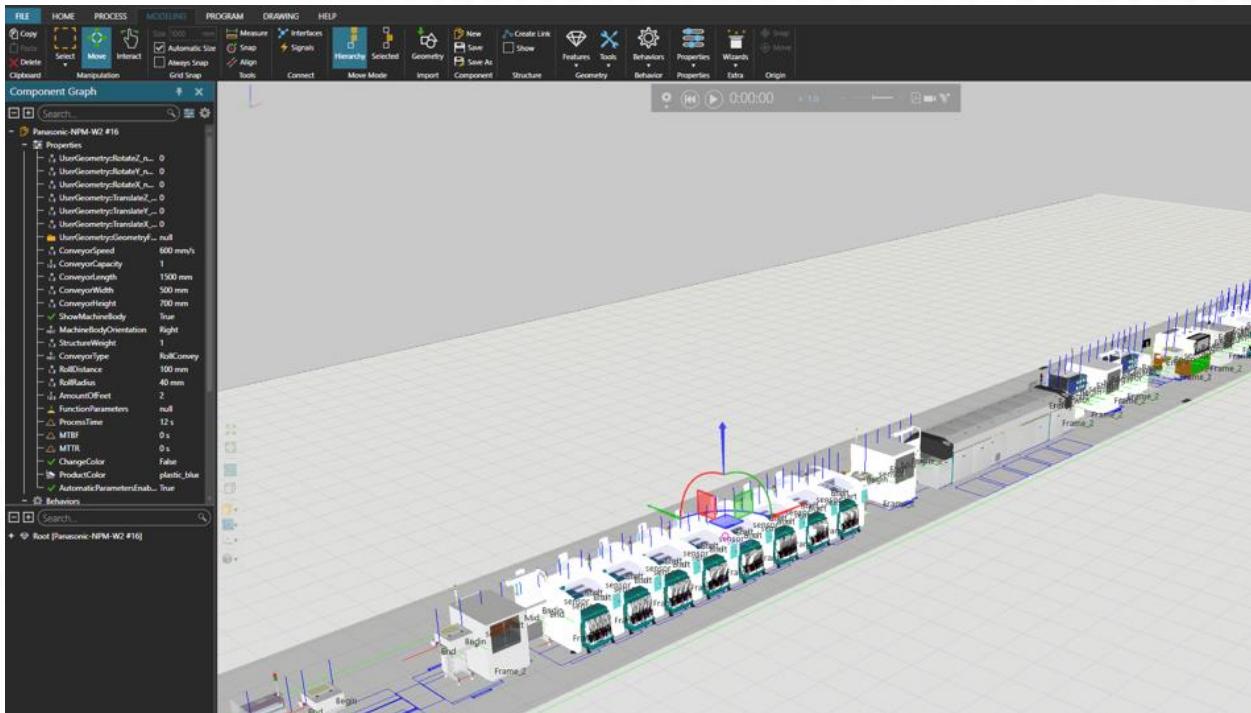


PAST



¹(ElectronicsTalk, 2024)

NOW



Production Line Assemblies



Footnote

¹ElectronicsTalk. (2024). SMT LINE The Ultimate Guide. Electronicstalk. <https://electronicstalk.com/smt-line/>

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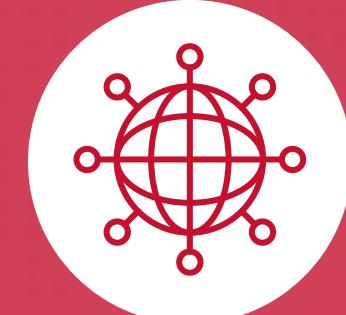
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THE CONSTANT CHALLENGE

Factory E nablement
xpansion
fficiencies



CHALLENGES



Growth Imperatives

Continuous expansion driven by evolving customer need.

Example: Nvidia expansion.



Logistical Hurdles

The coordination and setup of factories across different geographies.



Global Quality Standards

Maintaining one-experience and standard across customers & geographies.



OPPORTUNITIES



Technology Adoption

Cutting-edge technology, like Nvidia's Omniverse development platform, to enhance our digital infrastructure and smart factories.



Global Collaboration

Fostering deep collaboration within Foxconn and with partners through an IIoT-connected, 3D-rich industrial metaverse.



3 E's Catalyst

Facilitating teamwork and sharing insights across projects to drive enablement, expansion, and efficiencies.

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GLOBAL OPERATIONS CHALLENGE



Real-time Information

Essential Need for
Informed Decision making



Current Strategy

BI Control Tower for
Monitoring & Analysis



Expansion to Omniverse Development Platform

Control Tower with enhanced
Efficiency and Responsiveness



OPERATIONAL HUB CONCEPT EXPLORATION

Central Data Integration



Scenario Analysis Hub

Build Foxconn's Own Industrial Metaverse

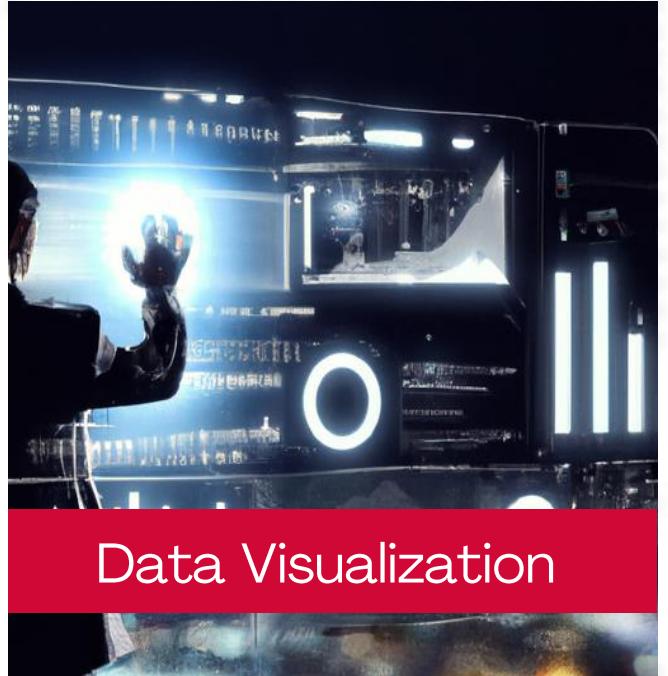
NEXT-GEN OPERATIONAL HUB

POWERED BY NVIDIA OMNIVERSE



OBJECTIVE: MANUFACTURING OPTIMIZATION

Real-time oversight through integrated data in a virtual environment.



Data Visualization



Simulation & Forecasting



Collaboration



Quicker Decision Making



Operational Efficiency



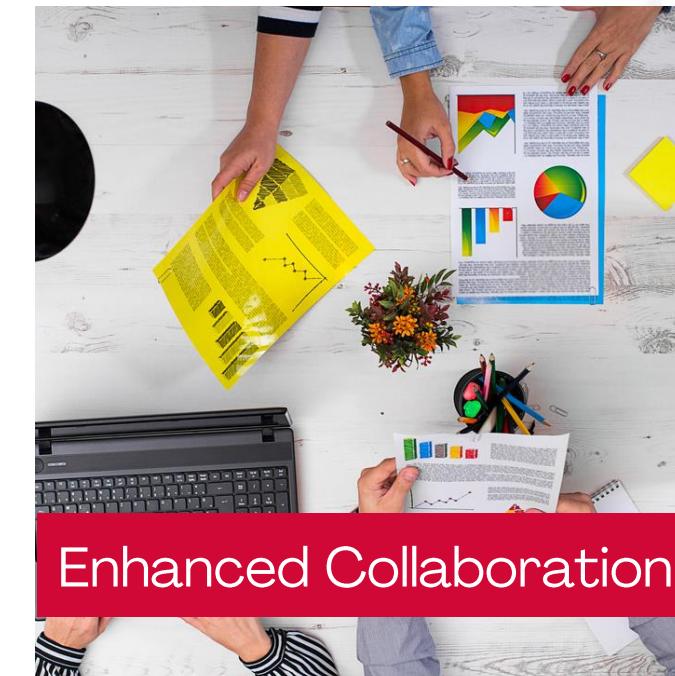
ERP/MES Integration



AI Expansion



Scenario Planning



Enhanced Collaboration



Risk Mitigation

KEY FEATURES

BENEFITS

Factory Execution Challenge



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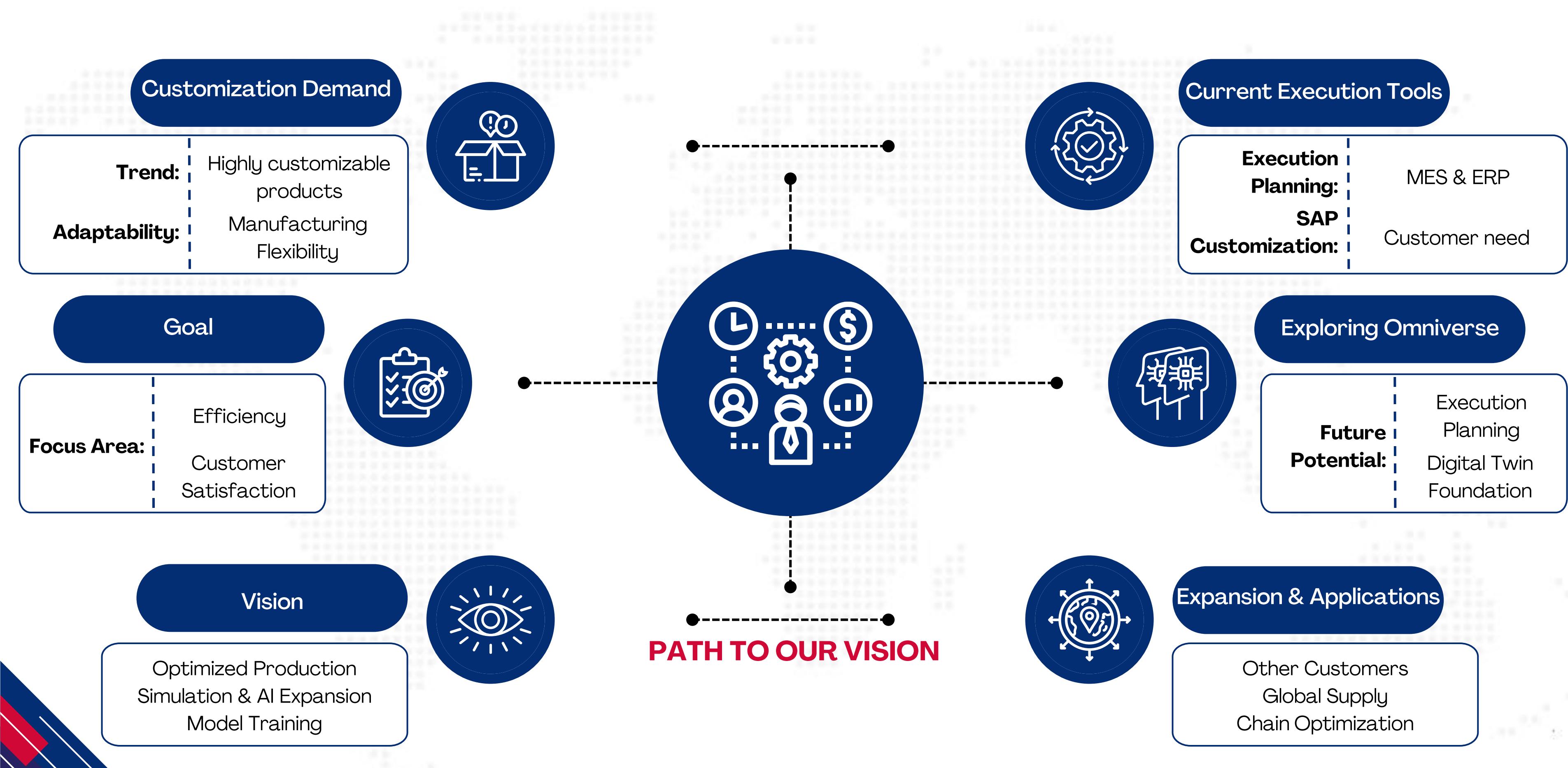
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FACTORY EXECUTION CHALLENGE



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FROM ZERO TO FACTORY : PHASES OF EVOLUTION



Initial Concept to Operational Reality

Phase 1 : Geometric Twin



Phase 2 : Active Asset Twin



Phase 3 : Production Twin



Phase 4 : Enterprise Twin



- Digital representation with 3D blocks for machine layout.
- Collaboration with third parties for digital asset development.
- Enabled global collaboration via Omniverse.
- Modular approach with a central asset library for scalability.

- Dynamic machine data integration for real-time updates.
- Continuous data streaming pipeline to Omniverse.
- Graphical representation of machine status.
- Integration of production data and IIoT sensors.

- Hierarchical organization of machines and production lines.
- Incorporation of comprehensive manufacturing data.
- Operational simulation and performance analysis.
- Simulation capabilities for virtual testing.

- Expansion to include ERP system data (Order, Planning, Supply).
- Digital overview of the supply chain.
- Identification of real-time stress points.
- Simulation of business decisions and supply chain impact.



Status: Complete



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VISION AND NEXT STEPS

1. EXPANSION BEYOND NVIDIA

 **BROADER ADOPTION IN FII**
Additional Customers

L10
+
L11  **FOCUS ON FINAL ASSEMBLY**
Towards Automation

 **INNOVATIVE USE CASES**
Applications across
Manufacturing levels

**TRANSFORM THE FUTURE OF
MANUFACTURING AND SUPPLY CHAIN
MANAGEMENT**



TECHNOLOGY

THROUGH



COLLABORATION

2. GLOBAL SUPPLY CHAIN TRANSFORMATION

 **ECOSYSTEM INTEGRATION**
Connect the entire
Supply Chain

 **CENTRAL HUB CREATION**
Simplify & Streamline
Information flow

 **TRANSPARENCY & EFFICIENCY**
Visibility & Unified
Experience



Questions and Answers



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