
AVEVAWORLD

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APRIL 9, 2025

Global MES Deployment Journey

INVISTA + Q-mation

AVEVA

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Global MES Deployment Journey

AVEVA World Conference 2025

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A Closer Look at Our Business

INVISTA NYLON

- Nylon 6,6 Polymer
- Nylon 6,6 Intermediates
- Nylon 6,6 Specialties
- Fibers

INVISTA PROPYLENE

- Propylene
- Polypropylene

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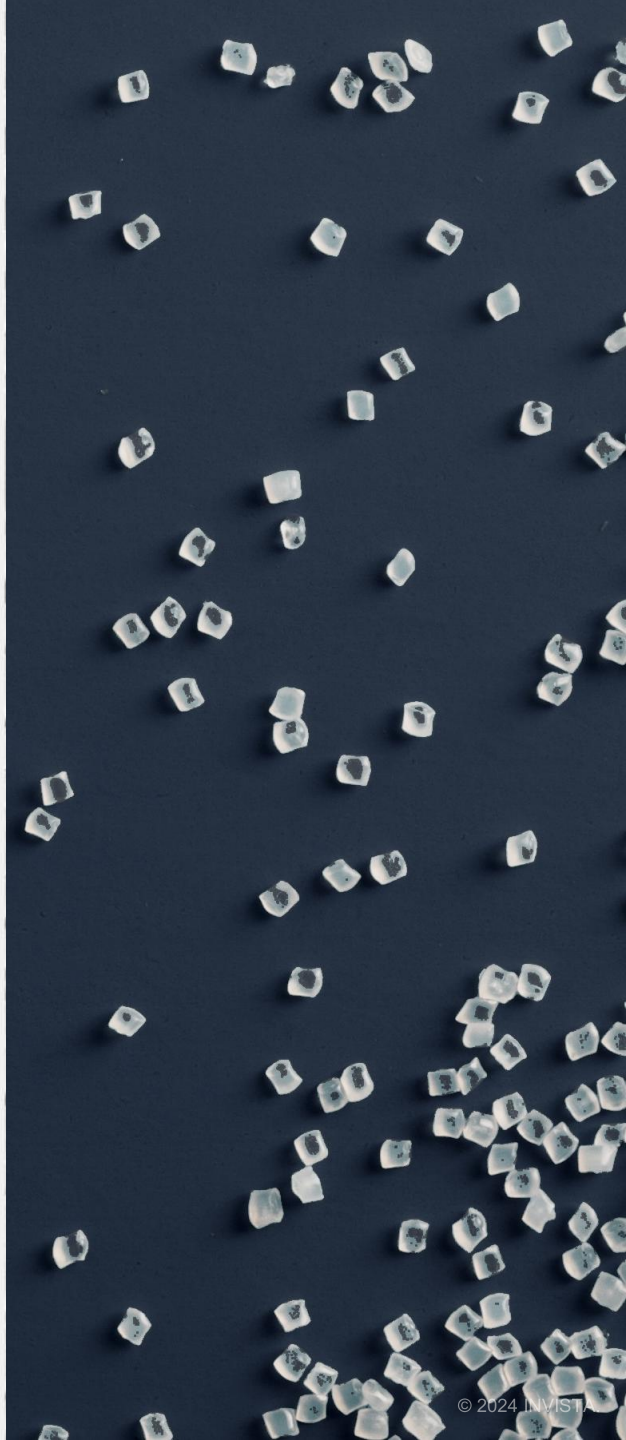
INVISTA Nylon

Intermediate chemicals, polymers and specialty materials

Critical ingredient materials for INVISTA’s other products:

Expansive product applications
Plastic components, appliances, clothing, airbag fiber, electrical connectors, automotive parts, polyurethanes, coatings, adhesives, foundry binder, agricultural and pharmaceutical intermediates, cleaning solutions

Technology
Through innovative research efforts at the leading edge of science, INVISTA is developing advantaged process and product technologies to bring long-term value to its customers



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INVISTA Nylon

Key end-use segments:

- Automotive
- Consumer electronics
- Bedding products
- Airbags
- Military and tactical
- Active and outdoor
- Workwear
- Backpacks, bags and luggage

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INVISTA Propylene

Propylene is the world’s second largest basic chemical building block, consumed to make plastics, intermediate chemicals, solvents and coatings.

Polypropylene key end-use segments:

- Healthcare & pharmaceutical
- Beauty & cosmetics
- Food packaging
- Caps & closures
- Consumer products
- Appliances
- Durable goods
- Building & construction

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INVISTA MES Program

3

REGIONS

Globally distributed manufacturing sites *(Regions: North America, Europe, and Asia)*

3

MANUFACTURING PROCESSES

- Continuous and batch manufacturing processes
- Fiber spinning process

30

YEARS OF INSTITUTIONAL KNOWLEDGE

Highly tenured operations and technology stakeholders in legacy systems *(~30 years of knowledge)*

80

LEGACY SYSTEMS & PROCCESSES

Over 80 legacy systems and processes being replaced, some over 30 years old and running on very old platforms *(i.e VAX)*

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INVISTA MES Program Vision & Objectives

METRO Manufacturing Execution: Transform, Rationalize, Optimize

MANUFACTURING EXECUTION

• Implementation of planned processes to manufacture INVISTA high quality product

TRANSFORM

• Make a thorough or dramatic change in the form, appearance, or implementation of all aspects of the shop floor system

RATIONALIZE

• Improve the process to be more efficient, especially by dispensing with superfluous procedures, personnel or equipment.

OPTIMIZE

• Make the best or most effective use of resources, opportunity and future state

Vision:

Transform and continuously optimize global manufacturing execution processes, data, and technology. This will enable a competitive advantage of higher product quality, shortened product lifecycles, and flexible product output to maximize value creation and be a preferred partner for our customers.

Objectives:

1. Operations Transformation and Operations Excellence
2. Quality Excellence
3. Support Transformation
4. Flexibility
5. Technology Transformation
6. Scalability

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INVISTA MES Technologies

MES

- Single data repository
- Production & quality planning
- Production & packaging operations

System Platform

- Integration with control systems & devices
- Monitor process events
- Trigger notifications & downgrades

Work Tasks

- Mobile notification and tracking of product samples
- Web-based supervisor tasks

Event Bus

- Modern pub/sub architecture
- Loose coupling between components
- Standardized messaging format
- Operator visibility and access to data integration issues

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INVISTA MES Modular Design

Value:

- Isolate development and support
- Focused module leads and stakeholders
- Efficient development
- Reduced impact of development turnover
- Easier to replace/integrate pieces vs the entire ecosystem

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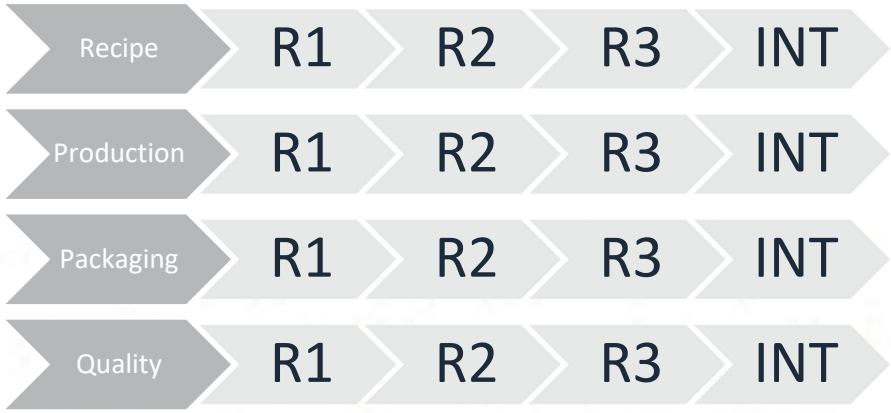
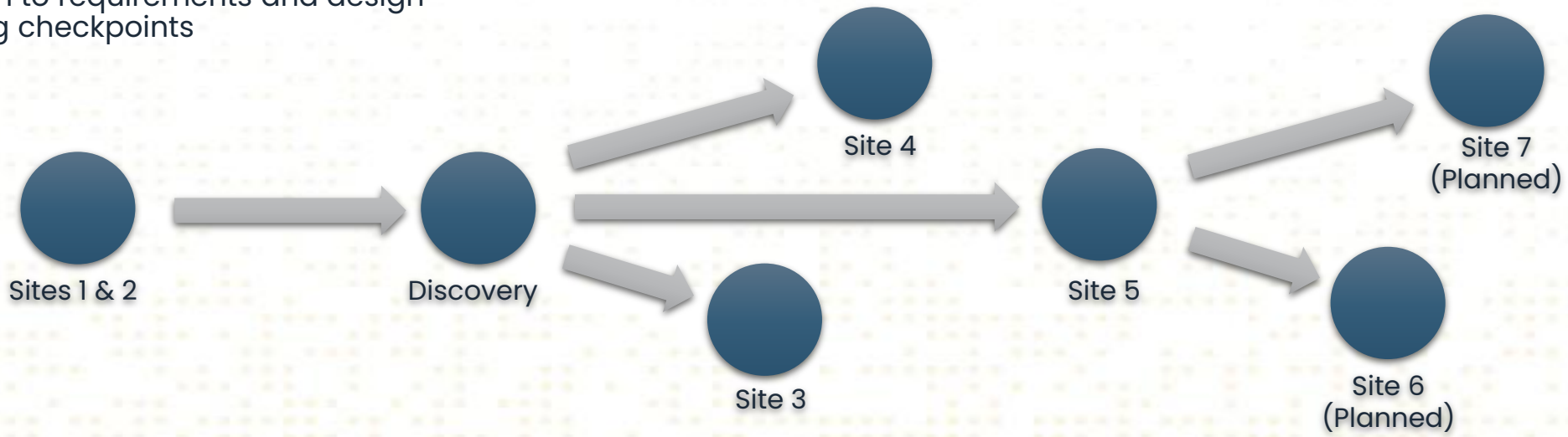
INVISTA MES Delivery Approach

- **6 Year Journey**
  - **First 3 years of the journey:**
    - Deployed sites 1 by 1 and were not leveraging global components, starting from scratch at each deployment
  - **Last 3 years of the journey**
    - Developed a global model at 1 site to prove out the value and then deployed global model to multiple sites at once
    - Could run in parallel as we would go through a discovery phase and identify requirements and differences from global model and when previous site deployment live, ready to develop next site
- Team consists of INVISTA, Q-mation, and global partners
- Project broken into modules with a lead, analysts, and developers
- Agile approach consisting of discrete releases *(planning for next release in current release so it's an efficient transition between releases)*
- Iterative approach to requirements and design
- Integration testing checkpoints





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INVISTA MES Program Progress

- 4 site *(batch and continuous polymer, staple fibers)* live solutions currently generating business value and results
- First deployment for the new global process in 2024
- Agile delivery approach underway across 3 additional sites & business processes *(continuous polymer and airbag spinning)*
- INVISTA knowledge and ownership *(partnership of Operations/OT and IT)* of the MES ecosystem to self-serve, sustain, and transform

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INVISTA Leverages AVEVA Software to Transform and Optimize its Global Manufacturing Execution Processes, Data and Technology

Goal and Challenges

- INVISTA had a critical need to replace scores of legacy systems, prevent the loss of crucial institutional knowledge, and improve visibility to actionable manufacturing data and processes across an enterprise spanning three global regions and multiple product lines.

Solution

- AVEVA MES, Work Tasks and System Platform in combination with INVISTA specific components like Event Bus *(modern sub/pub integration architecture)* were used to create a broad yet modular solution approach to upgrading their legacy production systems and optimizing their manufacturing processes.

Results

- A modular, agile approach has allowed INVISTA to deploy optimized solutions in a flexible manner across several sites while continuing to evolve the design and propagate it further across the enterprise.

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