



**ThermoFisher**  
S C I E N T I F I C

# Integrated Supply Chain Solutions

September 2018

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## Bioproduction Process Supply Chain Journey

- Industry Drivers
- The Journey: from raw material supplier to biopharma manufacturing suite
- Pain Points

2

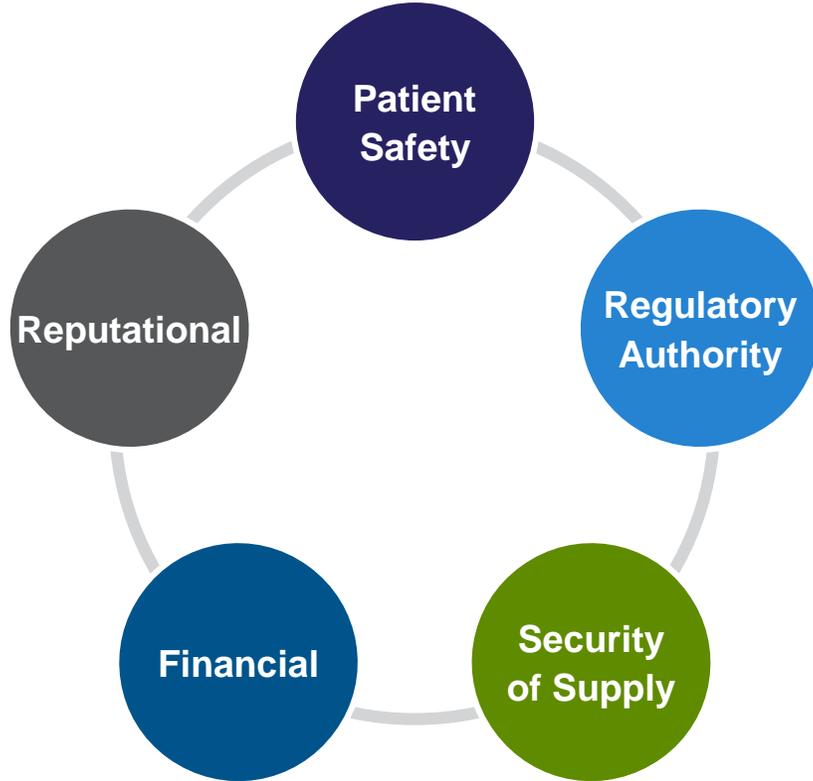
## Thermo Fisher Integrated Supply Chain Solutions

- Programs to Alleviate Pain Points
- Examples
- Pricing Options

3

## Summary and Next Steps

# Importance of Supply Chain in Bioproduction Process



Today, customers and governing bodies expect products to be available on demand and to be **100% safe and effective**

## Supply Chain Priorities

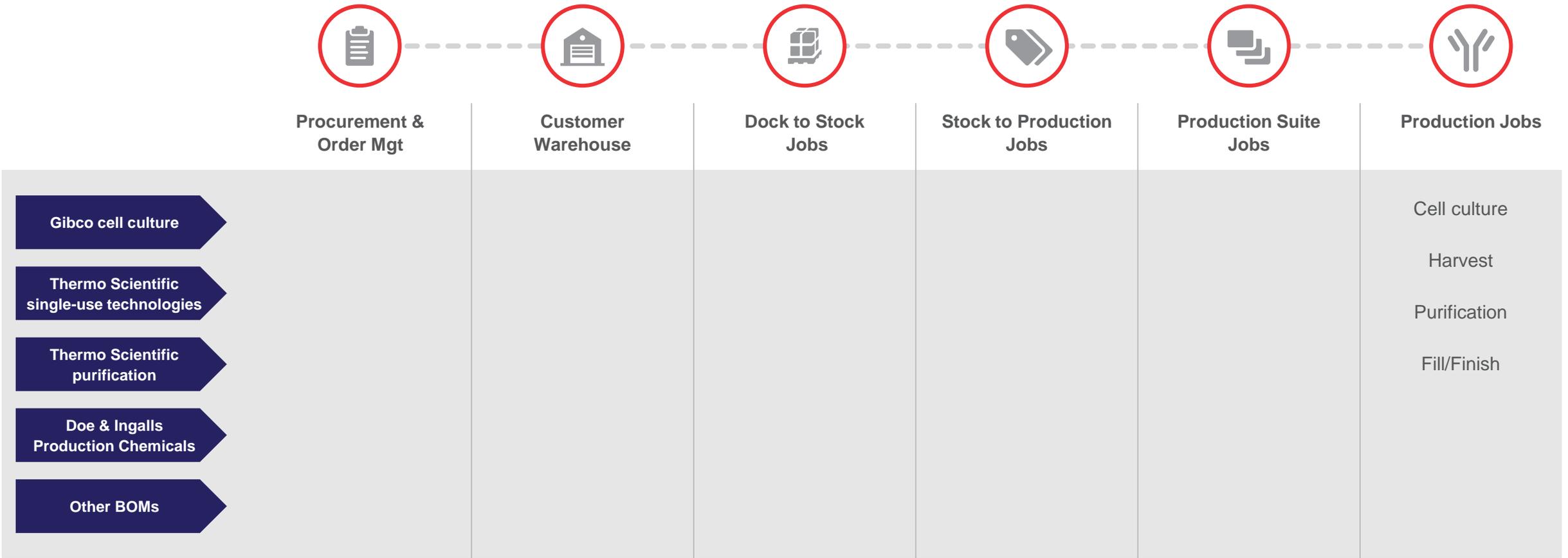
- ✓ Protect patients' interests
- ✓ Comply with increasing, tighter regulations and guidelines for drug manufacturers; now extended to supply partners
- ✓ Minimize risk through systems and processes that identify and mitigate events that impact the supply chain
- ✓ Minimize raw material total cost of ownership to maximize competitive position
- ✓ Elevate reputation with patients and industry regulators

Supply partners need to mitigate and remove risk while proactively managing changing regulations and customer needs

Source: Supply Chain Mapping a Best Practice for the Biopharma Industry, BioPhorum Operations Group. 2017

# The Supply Chain Journey

## Customer Supply Chain Activities

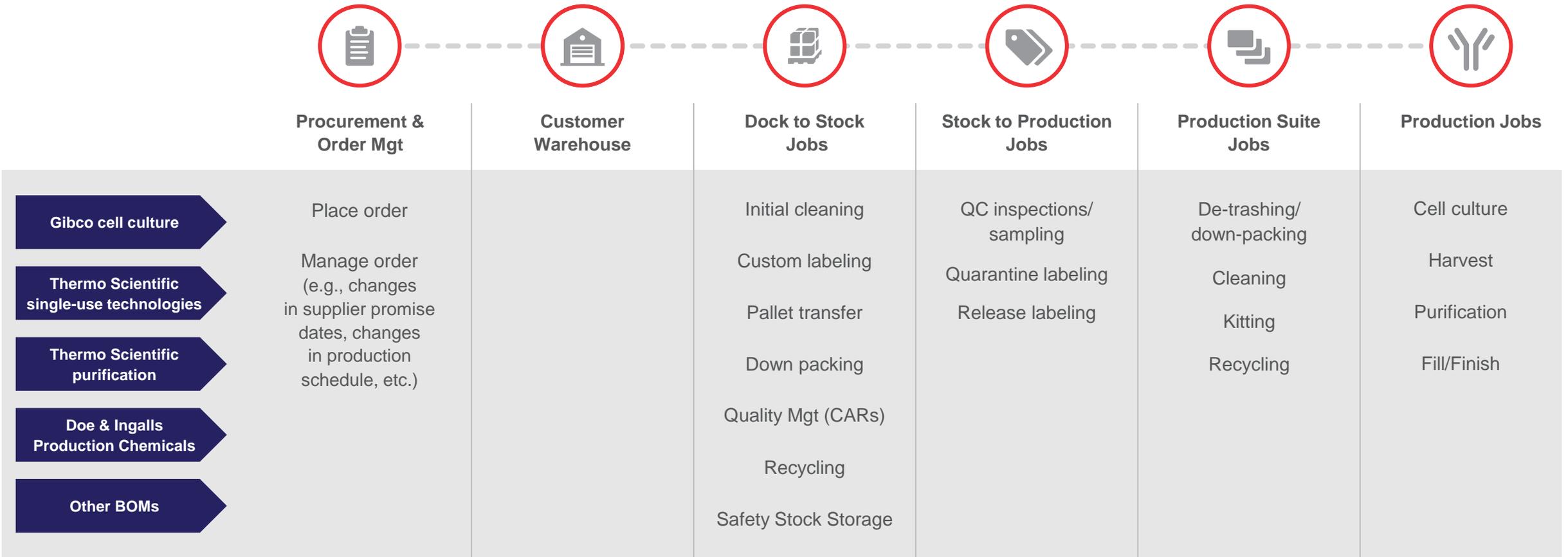


**Requires significant warehouse space and capital tied up in safety stock inventory**

 = Point of customer warehouse receiving and put-away

# The Supply Chain Journey

## Customer Supply Chain Activities



**Requires significant warehouse space and capital tied up in safety stock inventory**

 = Point of customer warehouse receiving and put-away

# Pain Points in Bioproduction Process Supply Chain

## Operational Inefficiencies

- Management of multiple suppliers
- Struggles with supply planning and inventory to meet JIT needs
- Significant resources, time, and space dedicated to supply chain and pre-production activities

## Financial Burdens

- Ongoing operating expenses due to on-site pre-production (non-core) activities
- Significant capital deployment in raw material inventory
- Inefficient capital deployment in warehouse space

## Risk

- Struggles with on-site safety stock due to unplanned batch failures and variable needs
- Challenges with MOC from suppliers, regulations, and variable demand
- Building redundancy and secondary sources of critical materials

Supply Chain challenges can hinder your ability to focus on development and manufacturing

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## Lean State

### Full Doe & Ingalls Supply Chain Service Model



Procurement &  
Order Mgt

Dock to Stock  
Jobs

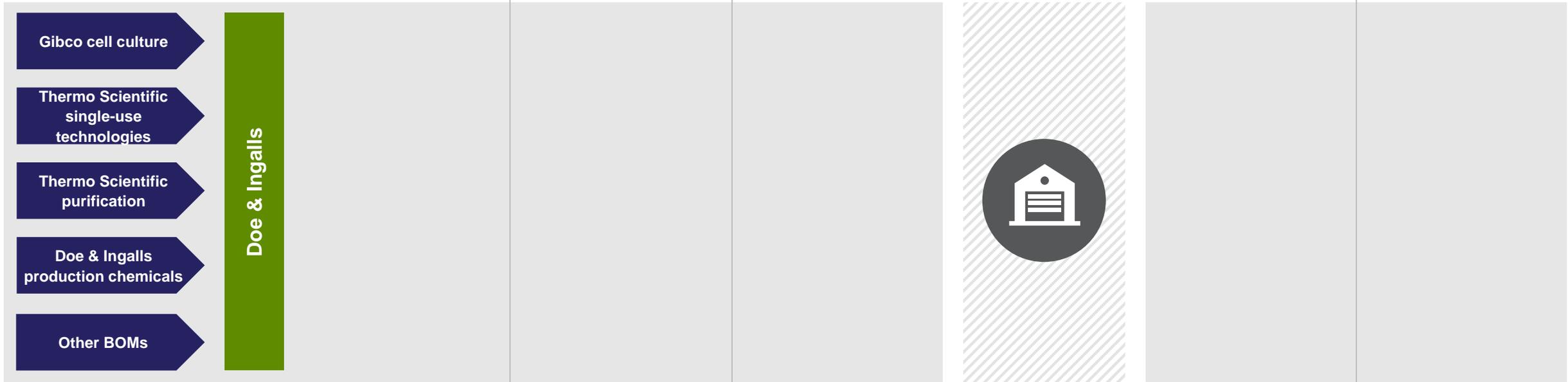
Stock to Production  
Jobs

### Customer Activities—With D&I



Production Suite  
Jobs

Production  
Jobs



Activities from Sourcing to “Production Ready”  
materials delivered to manufacturing site

Minimized WH space, capital,  
human resources

 = Point of customer warehouse receiving and put-away

# Thermo Fisher Integrated Supply Chain Solutions

## Lean State

### Full Doe & Ingalls Supply Chain Service Model



#### Procurement & Order Mgt

Place order  
Manage order (e.g., changes in supplier promise dates, changes in production schedule, etc.)

#### Dock to Stock Jobs

Initial Cleaning  
Custom labeling  
Pallet transfer  
Down packing  
Quality Mgt (CARs)  
Recycling  
Safety stock storage

#### Stock to Production Jobs

QC inspections/sampling  
Quarantine labeling  
Release labeling



Activities from Sourcing to “Production Ready” materials delivered to manufacturing site

### Customer Activities—With D&I



#### Production Suite Jobs

De-trashing/down-packing  
Cleaning  
Kitting  
Recycling

#### Production Jobs

Cell culture  
Harvest  
Purification  
Fill / Finish

Minimized WH space, capital, human resources

- Gibco cell culture
- Thermo Scientific single-use technologies
- Thermo Scientific purification
- Doe & Ingalls production chemicals
- Other BOMs

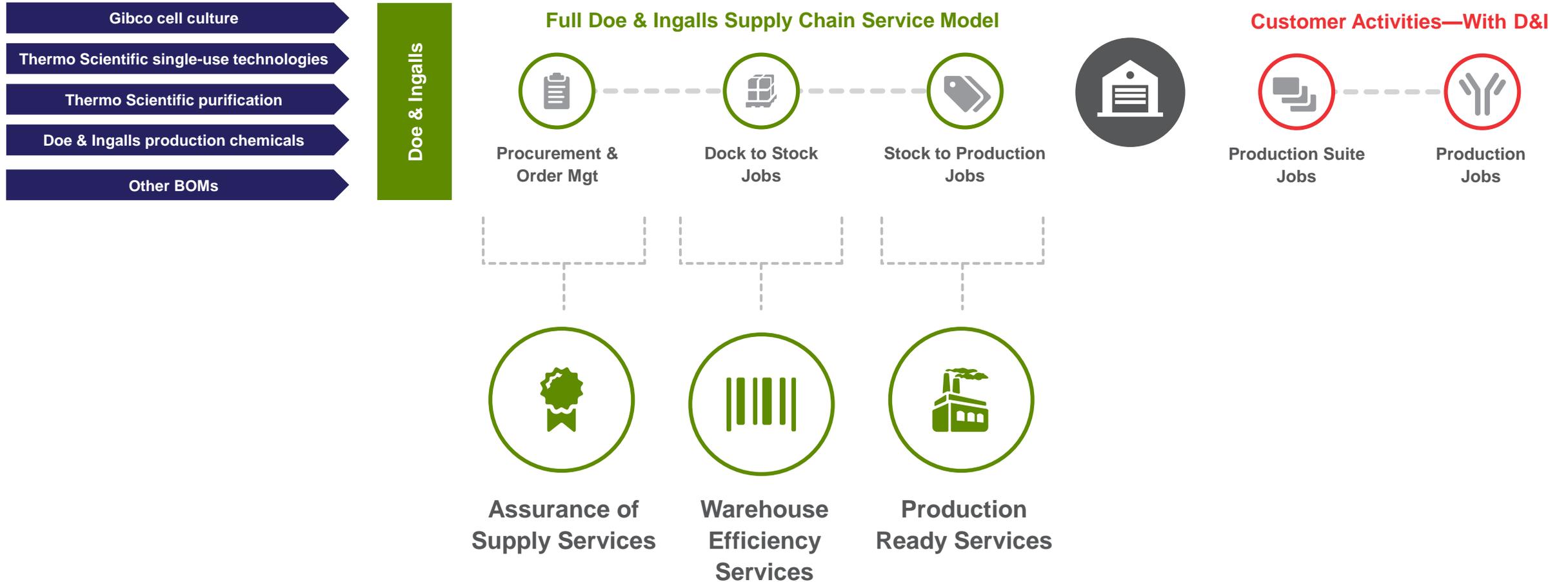
Doe & Ingalls



= Point of customer warehouse receiving and put-away

# Thermo Fisher Integrated Supply Chain Solutions

## Lean State



Enabling you to focus on development and manufacturing of life-changing drugs

# Thermo Fisher Integrated Supply Chain Solutions



## Assurance of Supply Services

- Inventory Management program
- Safety Stock program



## Warehouse Efficiency Services

- Custom Barcoding and Labeling
- Pallet Transfer
- Recycling and Green Services



## Production Ready Services

- Material Sampling
- Material QC Inspection
- Production Material Release Service



## ONE Bioproduction

- Consolidation and Management
- Suppliers
  - Orders
  - Inventory
  - Shipping

Elements

Customer Value

- Optimize OTIF(>99%) for customer stocked items
- Reduce lead time from “X” weeks to same day to 1–2 days
- Reduce capital deployment for customer on-site inventory
- Reduce warehouse space constraints with offsite storage

- Improve operational efficiencies for customer warehouse
- Simplify receiving
- Reduce waste consumption

- Maximize operational efficiency for customer warehouse
  - Reduce time and resources conducting QC pre-production activities
  - Reduce cost with fewer samplings, larger bulk batch, and space utilization
- Increase production campaign efficiencies by outsourcing material release services
- Optimize warehouse space with inventory options and elimination of quarantined pallets

- One touch point for ordering Bioproduction Business Products
- Reduce costs associated with multiple POs, order management, multiple shipping locations and associated freight
- Improve warehouse efficiencies through consolidated shipping

# Case Study: Capacity Constraint

## Situation

- Urgent need to expand cell culture manufacturing capacity
- Current facility constrained from purchase expansion
- Decision was made to sacrifice warehouse space necessitating need to address supply chain challenges
- Customer had aggressive growth forecast that was estimated to be 5X their current state
- Reduction in lead-time of Thermo Fisher products and critical raw material was also needed

## Our response

- Assumed material management processes
- Adopted SOP's into our quality system and trained our staff to assume customer's responsibilities and procedures
- Supply QA approved raw materials directly into manufacturing and reduced lead-time by performing QA inspection and sampling activities at Thermo Fisher site
- Streamlined order process from multiple suppliers to aggregate orders

## Results



**\$5 M annual**  
capital savings



**50 % Reduction**  
critical material  
lead-time



**95% Reduction**  
Order management  
activities



**3 FTE resources**  
diverted

# Case Study: Resource Constraint

## Situation

- Customer had a identified facility deficiency for sampling flammable raw materials
- Current relation existed between Customer and Supplier
- Complexity around EHS and Quality compliance encountered
- Limited time to implement new processes

## Our response

- Assumed material management processes
- Adopted SOP's into our quality system
- Promptly trained staff
- Assumed raw material sampling activities
- Dedicated inventory of flammable solvents allowed for more efficient management and storage compliance

## Results



**\$100+ K annual**  
cash avoidance &  
capital savings



**100 % Reduction**  
critical material lead-  
time



**12 weeks**  
Company Compliance  
and execution

# Flexible Pricing Models

## Bundled price

Product + Services



\$\$\$

## Unbundled price

Product



\$

Services



\$

\$



**Our customers—our focus**  
We help accelerate innovation and enhance productivity for our customers.



1

## Diligence Meeting(s)

- Deep assessment of current supply chain challenges
- Participants:
  - Operations Management (Warehouse, Manufacturing)
  - Supply Chain (Procurement, Materials Management)
  - Quality

2

## Thermo Fisher Solution Development

- Develop solution options and forecasted value to customer

3

## Solution Review

- Review of potential solution/ service model options and customer ROI
- Agree on Implementation Plan

The background of the slide features a large, detailed image of the Earth as seen from space, showing blue oceans, white clouds, and brown/green landmasses. This globe is positioned in the lower right quadrant. The rest of the background is a dark teal color with several out-of-focus, glowing blue spheres of various sizes, creating a bokeh effect. A horizontal white band runs across the middle of the image, containing the company logo.

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## Assurance of Supply Services

### Elements

- Safety Stock program

### Values

- Optimize OTIF(>99%) for customer stocked items
- Reduce lead time from “X” weeks to same day to 1–2 days
- Reduce capital deployment for customer on-site inventory
- Reduce warehouse space constraint with offsite storage



## Warehouse Efficiency Services

### Elements

- Barcoding/Labeling
- Pallet Transfer
- Recycling and Green Services

### Values

- Improve operational efficiencies for customer warehouse
- Simplify receiving
- Reduce waste consumption



## Production Ready Services

### Elements

- Material Sampling
- Material QC Inspection
- Production Material Release Service
- Virtual Consignment

### Values

- Maximize operational efficiency for customer warehouse
  - Reduce time and resources conducting QC pre-production activities
  - Reduce cost with fewer samplings, larger bulk batch, and space utilization
- Increase production campaign efficiencies by outsourcing material release services
- Optimize warehouse space with consignment inventory options and elimination of quarantined pallets
- Reduce capital deployment with virtual consignment options



## ONE Bioproduction

### Elements

#### Consolidation and Management

- Suppliers
- Orders
- Inventory
- Shipping

### Values

- One touch point for ordering Bioproduction Business Products
- Reduce costs associated with multiple POs, order management, multiple shipping locations and associated freight
- Improve warehouse efficiencies through consolidated shipping