



Caterpillar Case study

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# Caterpillar (CAT) Case Study

## Outline of this review

- A Quick Introduction to CAT
- A Global Supply Chain (Risk Overview)
- Supply Chain Network (Inbound Logistics, Distribution Channels)
- Supply Chain 'Evolution' in Action
- Technology and Data Integration to Build an Effective Supply Chain Management
- Wrap-up



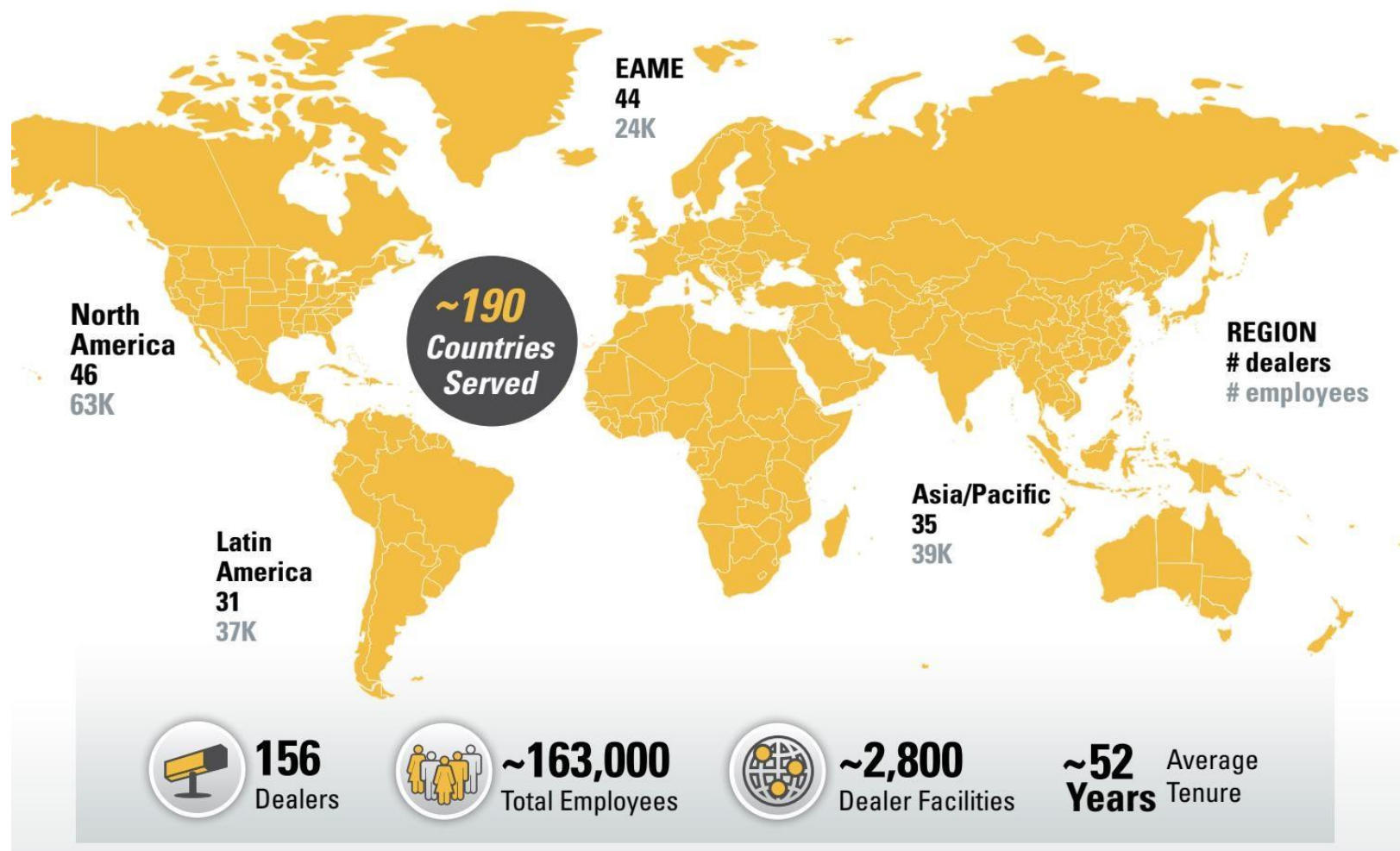
Sources: CAT investor presentation 2022





# A Global Company

## Caterpillar Dealer Network – 2023





# A Global Company



**HINDUSTAN**





# Supply Chain Strategy

## Global Manufacturing Strategy:

- Caterpillar's production strategy emphasizes local manufacturing to meet regional demand, reducing lead times and shipping costs.
- However, specialized products are produced in centralized locations due to high capital investment needs.

## Supply Chain Integration s Management:

- Emphasizes on supply chain management as a strategic component for competitive advantage.
- The company maintains a large inventory to ensure quick response and high service levels for parts and components.
- Implementation of an Integrated Supply Chain (ISC) strategy to move from siloed processes to an optimized, company-wide approach.
- Strategically Managed Inventory (SMI) for efficient inventory placement and flow.



# Supply Chain Risks Strategy

Risk	Description	Strategy
Supplier Dependency	Reliance on limited suppliers for critical components.	Diversify suppliers and implement supplier development programs.
Logistical Challenges s Long Lead Times	High shipping costs and delays due to product size and global distribution.	Maintain a rapid response supply chain and use real-time logistics monitoring.
Demand Forecasting s Inventory Management	Inaccurate demand forecasts can lead to excess inventory or stockouts.	Use advanced forecasting tools and segment inventory based on demand.
Supply Chain Complexity s Integration	Coordination challenges across a global and diverse supply chain.	Implement an Integrated Supply Chain (ISC) strategy and foster collaboration.
Supplier Relationship Management	Poor communication leading to delays and quality issues.	Regular communication and robust performance monitoring with suppliers.
Economic s Geopolitical Risks	Disruptions from trade policies, tariffs, and geopolitical tensions.	Geographical diversification and flexible sourcing/production strategies.



# Supply chain Network (1)

## Global Production Strategy

- Focuses on producing in the regions where products will be sold,
- Coordination between regional production centers to maintain efficiency.
- Minimize logistics costs and lead time,

## Strategically Managed Inventory (SMI)

- Inventory are placed close to facilities to minimize in-transit stock,
- Suppliers hold inventory unit
- Improves flexibility and reduces the need for large on-site inventories.

## Forecasting and Flexibility

- Accurate demand forecasting is critical due to high costs of overstocking
- Utilizes dealer networks and advanced demand forecasting tools
- Ensures customer needs are met without holding excess inventory

## Specialized Product Challenges

- Certain products are made in one or two specialized locations
- Single source production for large capital-intensive equipment adds complexity to the logistics



## Supply chain Network (2)

### Logistics and Distribution Channels

- Caterpillar leverages regional production centers for efficient distribution,
- Control towers manage logistics operations in real-time for optimization,
- Strategic partnerships with providers like DHL for streamlined transportation and delivery.

### Supplier Network and Component Sourcing

- Close relationships with key suppliers for critical component availability,
- Vertical Integration when necessary to ensure quality and reduce risks,
- Global sourcing of components from specialized suppliers.

### Product Distribution Centers (PDCs)

- Built in strategic locations to improve delivery times to regional markets
- Efficient in storing and distributing finished products

### Third-Party Logistics

- 3PL providers to optimize delivery times and inventory levels
- Leverages expertise of logistics partners to enhance overall supply chain efficiency





# Technology & Integration to Underpin the Supply Chain Performance

Drivers	Technology	Description	Benefits
“Customer facing technologies”	<ul style="list-style-type: none"> <li>Seamless integrating data sharing</li> <li>EDI</li> </ul>	<ul style="list-style-type: none"> <li>Help to use equipment more productively</li> <li>More technical information to dealer technicians in the field</li> </ul>	<ul style="list-style-type: none"> <li>Reduces the Gap between customer and CAT</li> <li>Accurate data sharing</li> </ul>
Control Tower and Supply Chain Visibility	GT Nexus visibility solution, Control towers in the Americas, Asia, and Europe	<ul style="list-style-type: none"> <li>Tracks carrier performance and transportation costs globally</li> </ul>	<ul style="list-style-type: none"> <li>Lower variability in transportation, reducing inventory needs, Better pre-booking and ocean capacity with no dwell times</li> </ul>
Interface with suppliers Group O case study	<ul style="list-style-type: none"> <li>EDI solution (“electronic data interchange”)</li> </ul>	<ul style="list-style-type: none"> <li>Web portal</li> <li>600 suppliers</li> <li>3500 products and parts</li> </ul>	<ul style="list-style-type: none"> <li>On time delivery: from 30% to 90%</li> </ul>
Transportation Cost Reduction	<ul style="list-style-type: none"> <li>Air and ocean trans-shipment hubs</li> </ul>	<ul style="list-style-type: none"> <li>Hub-to-hub shipping to maximize cube and lower costs</li> </ul>	<ul style="list-style-type: none"> <li>Achieves lower product costs through reduced transportation spend</li> </ul>
Internal logistics GTOC-A case study “Ground Transportation Operations Centre - Americas”	<ul style="list-style-type: none"> <li>Ground shipping optimization in the USA</li> <li>Dashboards for CAT</li> </ul>	<ul style="list-style-type: none"> <li>Dynamic load planning</li> <li>Optimal transportation mode</li> <li>Consolidation transportation movement</li> </ul>	<ul style="list-style-type: none"> <li>Transportation spend reduction between 6% and 10%</li> <li>Improved trailer utilisation</li> </ul>
Recycling s Sustainability	<ul style="list-style-type: none"> <li>Remanufacturing of used equipment</li> </ul>	<ul style="list-style-type: none"> <li>Reusing equipment parts through remanufacturing helps reduce environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>Lower CO2 emissions, Reduced transportation costs</li> </ul>

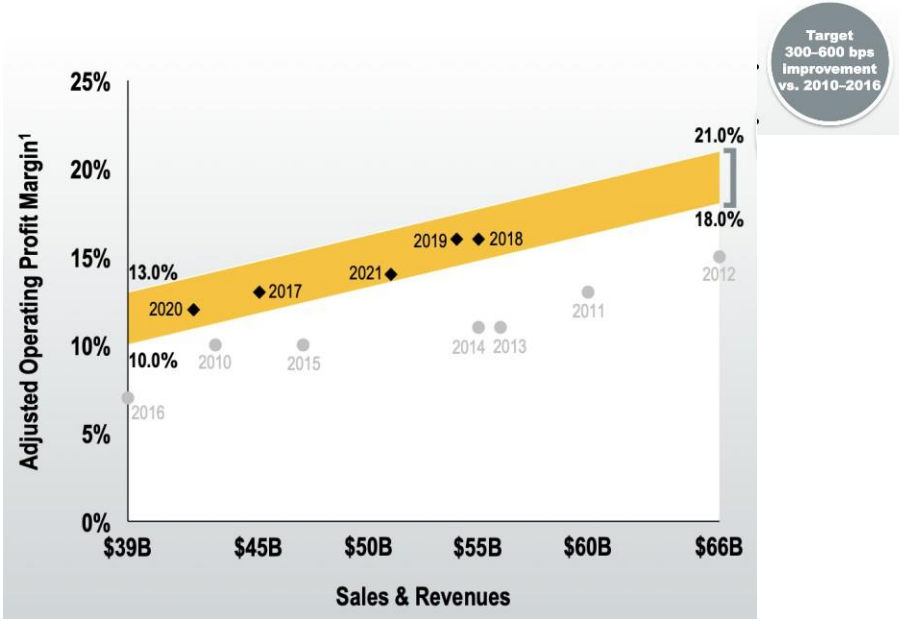


Strong competition ( Regional C Global )



A Fierce Competition  
&  
Performance is  
Challenging

Financial Performance since 2011



Sources: CAT investor presentation 2022



# A Smart Supply Chain is a Competitive Advantage

## A global player with a complicated supply chain

- CAT is a **global** supplier serving both **local** and **global** customers
- It operates in a **very competitive** market (increasing competition from Asia)
- **Supply chain** management seen as a **key competitive advantage**
- **Technology** is at the heart of it across the entire supply / value chain

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Cat® Products  
at Work Around  
the World\*\*

\*\* Includes discontinued products.



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Equipment



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Diesel & Natural  
Gas Engines



Industrial Gas  
Turbines



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Locomotives