

# BUILDING THE SMART SUPPLY CHAIN

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## About Nucleus Research

A technology research firm specializing in value-based research.

- > Founded in 2000, based in Boston MA
- > Similar to other firms but value is the foundation of the research approach
- > Hundreds of published ROI case studies
- > Standard, consistent, globally understood research methodology



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## Trends pushing smart supply chains

Leaders in supply chains are striving to:

- > Go beyond agile to protean
- > Run on minimal inventory to free up working capital
- > Become demand-driven
- > Set up regional supply theaters
- > Segment customers and suppliers
- > Master omnichannel commerce
- > Be proactive rather than reactive

## Protean supply chains enable market response

- > To stay on top of changing markets companies need to operate Protean Supply Chains
- > Protean Supply Chains are the next stage in the evolution of supply chain management.
- > Protean means that the shape of a supply chain can be changed in response to market conditions.
- > Software facilitates mutability as changes in process will more often be virtual rather than physical.



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## Fear of inventory

During the 2007 Great Recession companies sought to maintain minimal inventory to free up working capital and drive profits and shareholder returns. The mindset remains.





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## Demand-driven supply chains

- > Companies use demand signals rather than forecasts to drive production and replenishment
- > Accurate, granular demand data ensures rapid response to marketplace changes.
- > Supply chain partners need a single version of the truth to support a demand driven approach.
- > Challenges are master data, cost for scrubbing data, and fewer of sharing information.

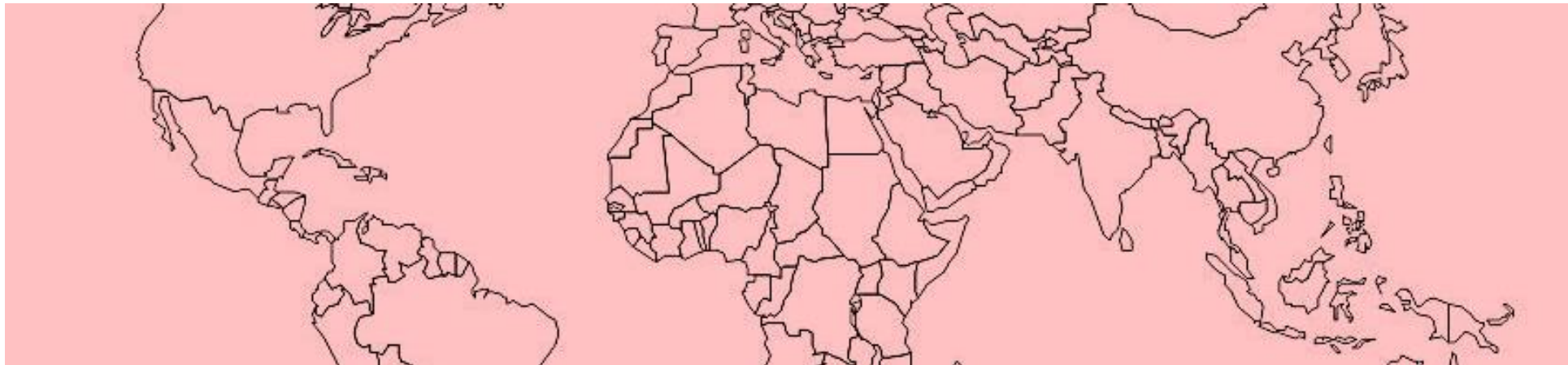




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## Regional theaters of supply

- > The 2007 spike in oil prices forced companies to reconsider extended global supply chains
- > Nearshoring and right shoring signs of Regional Supply Theaters
- > Speed to market - and the drive to minimize inventory - the key drivers behind Regional Supply Theaters.







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## Segmentation linked to profits

- > Not all customers yield the same profit level
- > Segmentation allows companies to have different sourcing, manufacturing, inventory, fulfillment and allocation policies for different customers
- > Few companies do this because segmentation analysis is complex and time consuming.
- > Most segmentation studies done using cost-to-serve methods



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## The challenge of omnichannel

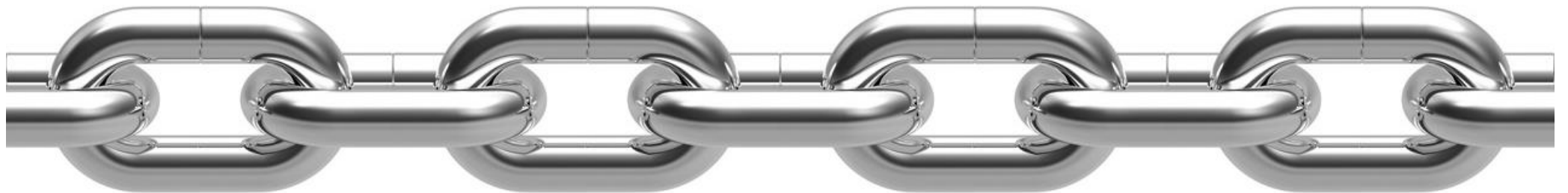
- > Omnichannel commerce is a response by retailers to the existential threat posed by online merchants like Amazon and Alibaba
- > Most retailers buy into the notion of a common pool of inventory for stores and DCs
- > Merchants hampered by lack of store inventory visibility for online order fulfillment
- > The need for dedicated team of pickers in the retail store
- > Each fulfillment is labor intensive and the ultimate solution - robots - in development
- > DC and store throughput key obstacle for heightened delivery



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## What types of software enable smart supply chains?

- > Inventory optimization
- > Supply chain design
- > Control towers
- > Advanced analytics



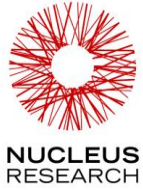


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## Inventory optimization software balances demand with supply



MEIO applications minimize stock holdings while maintaining  
fill rates and customer service levels  
Works in conjunction with Demand Planning Software



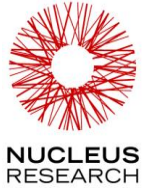
## Features to look for in IO software

- > Granular inventory settings
- > Stock mix optimization
- > The ability for line fill rate as well as piece rate
- > Machine intelligence and genetic algorithms



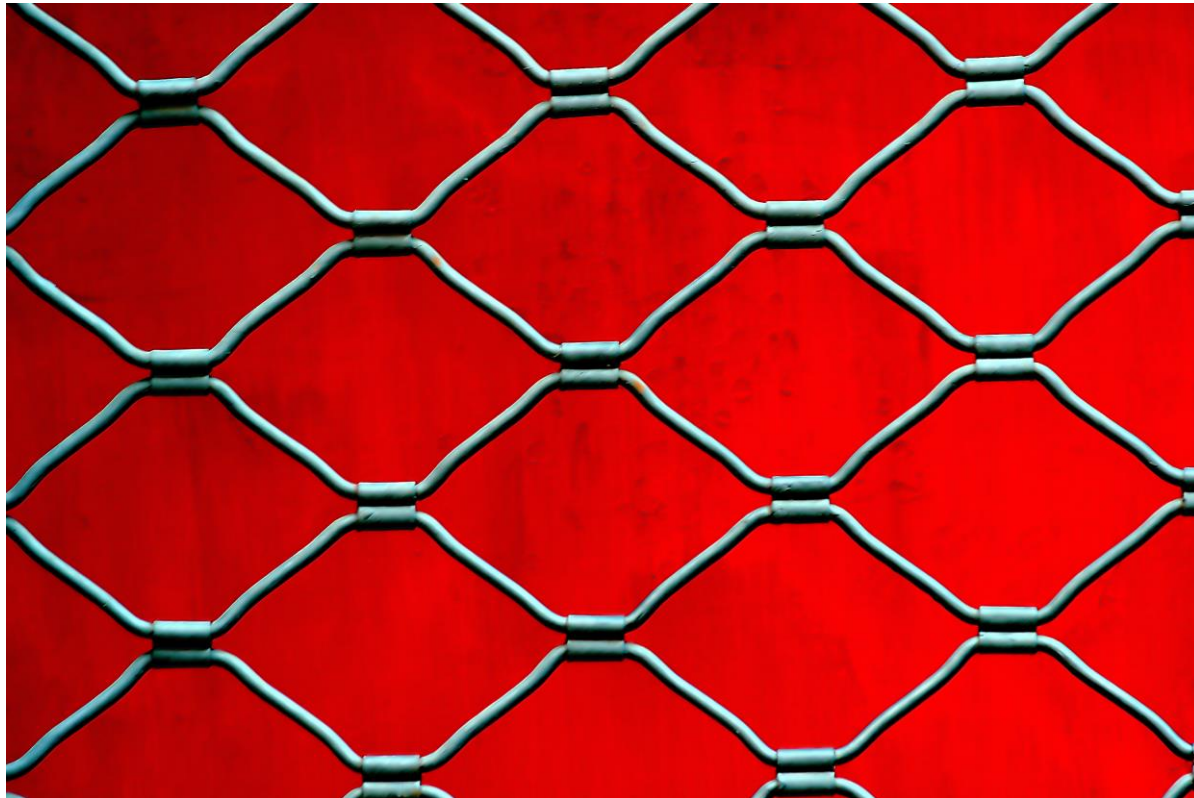
## Benefits of IO software

- > Increased stock availability to support sales
- > Improved service levels with less inventory
- > Discipline over warehouse and plant operations
- > 10 to 30 percent inventory reduction



## SC design supports mutability

- > This application allows companies to analyze the shape of the supply chain to maximize production and minimize transportation costs





## McCormick Spices uses SC Design for:

- > Regular network evaluations
- > Weigh financial impact of new DCs and plants
- > Analyze acquisition costs
- > Support overall business growth strategy







## Features to look for in SC Design

- > Easy-to-use interface
- > Cloud delivery
- > Rapid scenario modeling
- > Simulation as well as optimization



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## A ready tool for omnichannel modeling

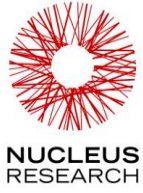
Retailers can use SC Design to examine:

- > Home Delivery options
- > Flexing capacity in DCs
- > Performance for Hybrid DCs
- > Dark store conversions



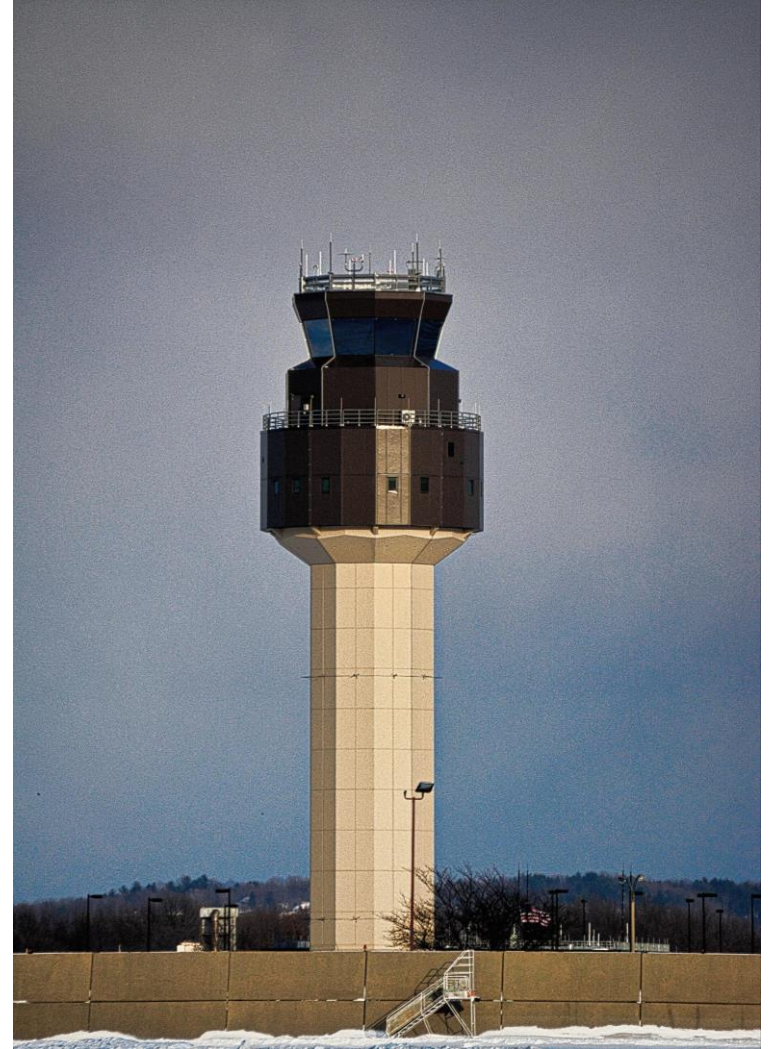
## Benefits of SC Design software

- > Lower inbound and outbound transportation costs
- > Cost avoidance for new DCs and plants
- > Minimize overall inventory holdings



## Control towers critical to real-time response

- > A control tower is an information hub that provides visibility over inventory and shipments in real time
- > It supports corrective action of supply chain flows
- > It will enable omnichannel retailers to work with suppliers





## EMG of Agilent Technologies (now Keystone) control tower

- > Visibility into factory and supplier inventory
- > Assessed commitments for make-to-order production
- > During the 2011 Thailand Floods the control tower allowed EMG to find alternative parts and adopt redesigns to maintain order commitments





UNRA Every call counts

100% 100% 100% 100% 100%



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## Dell's service parts command center

Uses predictive and prescriptive analytics for event response



Photo courtesy of Dell



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## Features to look for SC towers

- > Oversight of supply chain planning and execution software
- > End to end SKU visibility
- > Cloud solution with in-memory processing
- > Advanced analytics





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## Benefits of Supply Chain Control towers

- > Increased asset utilization
- > Increased sales
- > Improved margins

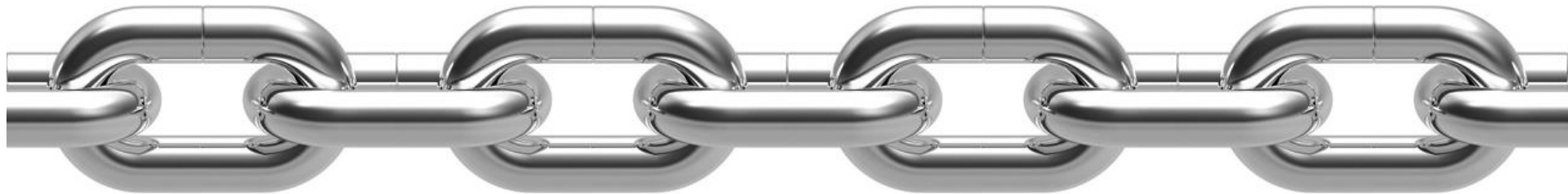


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## Advanced analytics essential

Companies must go beyond descriptive analytics in running smart supply chains.

- > Predictive analytics lets you peek into the future
- > Prescriptive analytics recommends courses of action





## Companies still hesitant on BI

2015 Nucleus Research study of supply chain execs found:

- > 59% of participants not using analytics
- > Companies using BI mostly use descriptive
- > 65% using BI do so for inventory management
- > When asked why they are not using analytics, 39 percent cited lack of staff resources



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## Features to look for in BI

- > Visualization of data
- > Embedded analytics
- > Mobility
- > Dark cockpit presentation



## Benefits of analytics

- > Root-cause analysis to identify operational bottlenecks
- > Prioritize supply chain investments
- > Nucleus Research: \$13.01 for every \$1 spent



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## **Forget big data - It's fast data that counts**

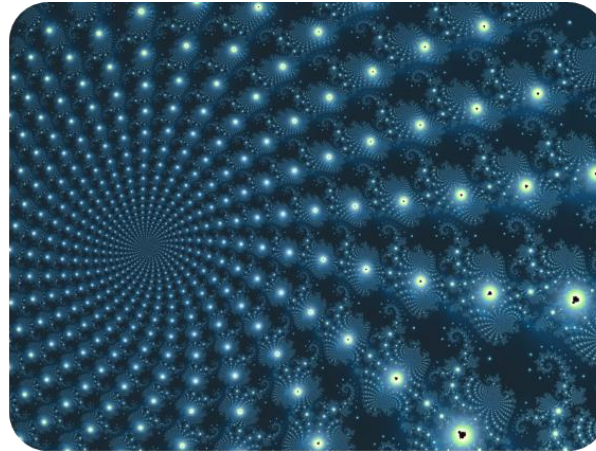
- > Demand-driven supply chains must process information from multiple systems in real time
- > In-memory technology for rapid data processing
- > Business Intelligence for quick decisions and quick course corrections





The future belongs to the smart

Become proactive today



and run smart supply chains to drive revenue



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# Any Questions?

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