

SOLVE FOR X.

Designing the Ideal Supply Chain Network for the Future

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Design of the Supply Chain in the Future Must Balance Internal and External Factors

-  Greater Customer Demands
-  Competition Positioning and Evolution
-  Transportation Cost and Availability
-  Tax and Duty Changes (Especially International)
-  Raw Material Availability and Cost Fluctuations
-  Greater Focus and Opportunity in Emerging Markets
-  Political Upheaval
-  Labor Laws and Agreements
-  Weather Disruptions

Design of the Supply Chain in the Future Must Balance Internal and External Factors



SKU Proliferation



Shortened Product Lifecycles



Evolving Business Channels
(Growth of Ecommerce,
Desire for Omni-channel)



Procurement Changes
(On/Off Shoring, Order Qty.)



Aging Infrastructure



Fulfillment Strategy or
Inventory Deployment
Initiatives



Change in Other Business
Strategy



Mergers and Acquisitions



Spinoffs



MHI.

THE INDUSTRY THAT MAKES SUPPLY CHAINS WORK®

Following is Details Behind the “10 Tips from the Experts for Success in Supply Chain Design”



- Co-developed by Nick Banich (Miebach) and Carlos Valderrama (LLamasoft)
- Has been widely circulated throughout the supply chain design community as a benchmark for setting-up new projects

Tip 1: Standardize the Processes

- Having a set and consistent methodology, approach, and toolset for all supply chain design projects will drastically simplify your process and ensure consistent results.
- It keeps you from getting mired in details that will lead you off course.



Tip 2: Prioritize questions to address

- Modeling tools on the market enable a multitude of diverse questions to be addressed.
- A common mistake is to have one model answer all questions, this leads to complexity in delivery and dissecting results
- It's important at the start of the project to list all questions the team wants to address and prioritize them against the objectives of the project.



Tip 3: Aggregate Where Possible

- Teams tend to want to model on the most granular details.
- Current software and hardware have limitations, and there is a risk that the models will not run, become unstable, or be too complex to understand the results.
- Critical drivers becomes buried in the complexity of the results



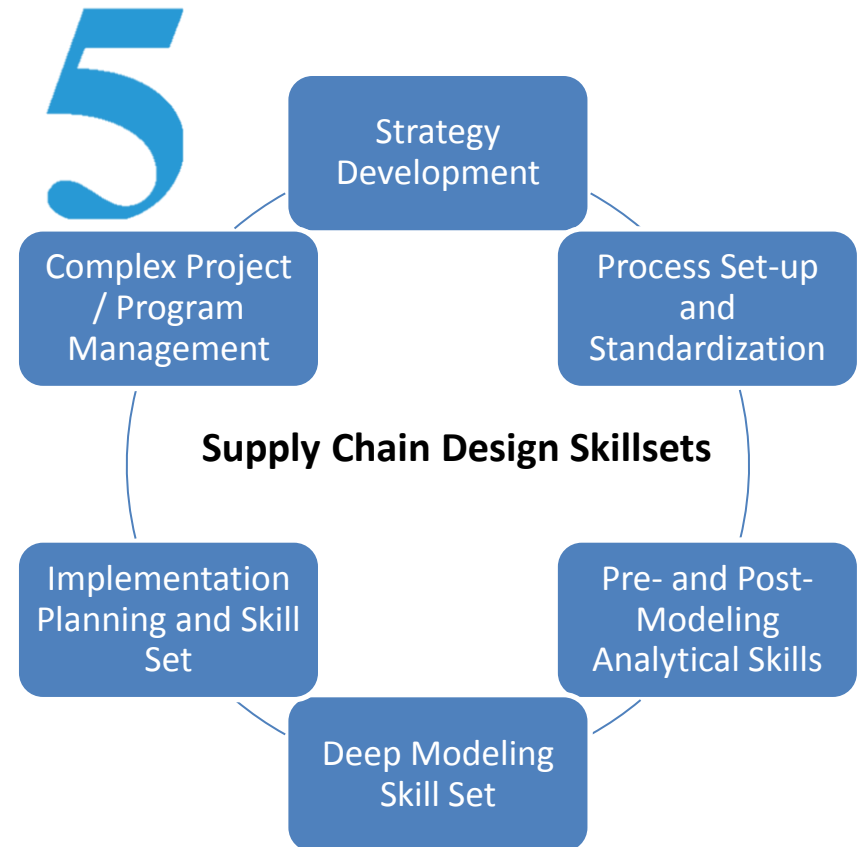
Tip 4: Make Sure You Have the Right Data

- 80% of Value Comes from 20% of the Data
- Ask Yourself:
 - Is it Accurate?
 - Is it Current?
 - Is it Related to the Questions?
 - Is It Valuable Enough to Mine?
 - Is it Worth the Timeline?
 - Does it Reflect the Future?



Tip 5: Align with the Available Skills

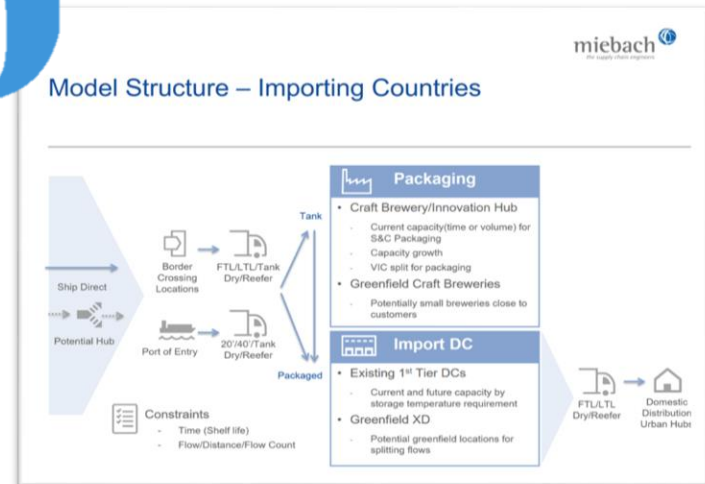
- Supply chain design and supply chain transformation engagements take a diverse mixture of resources.
- Miebach has identified 6 core skillsets needed on the team - from strategic vision to project management to analytical skills.
- Successful projects benefit from a correct mixture of each.
- Resources on the market to supplement based on the project.



Tip 6: Bring the Stakeholders Up Front

- Supply chains are complex in nature – even more so the projects to define them
- It's important to align key questions and project objectives before starting the modeling process.
- It's critical to understand the different potentials, discuss the pros and cons of each, and align on a path forward before getting into the time pressures and stress of delivery.

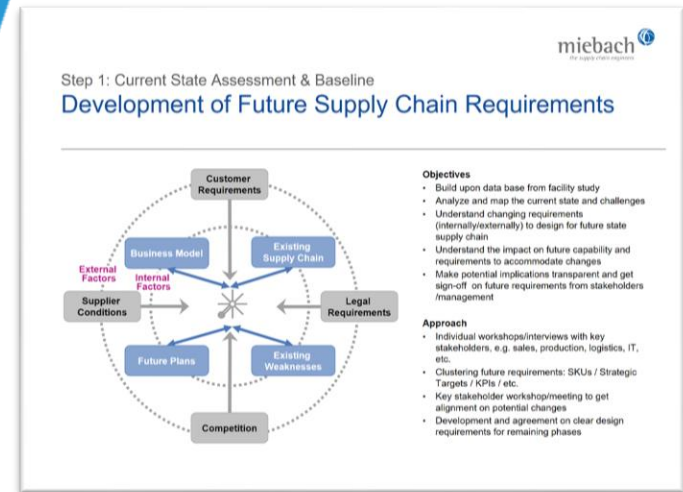
6



Tip 7: Define Specific Goals

- Supply chain design and supply chain transformation projects require looking out into a much further planning horizon and with more granularity than most organizations typically have.
- It's imperative that stakeholders take the strategic business vision and translate it into tactical supply chain requirements.

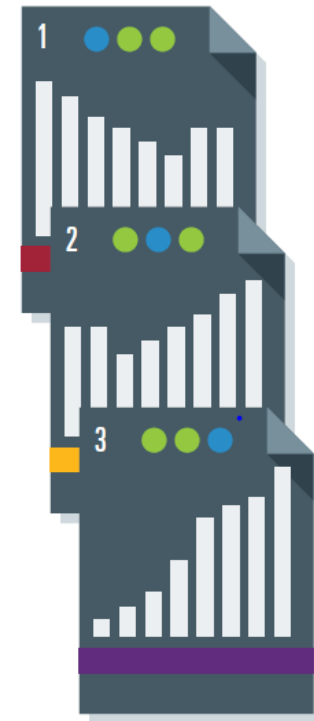
7



Tip 8: Draw the Line - Alternatives and Sensitivities

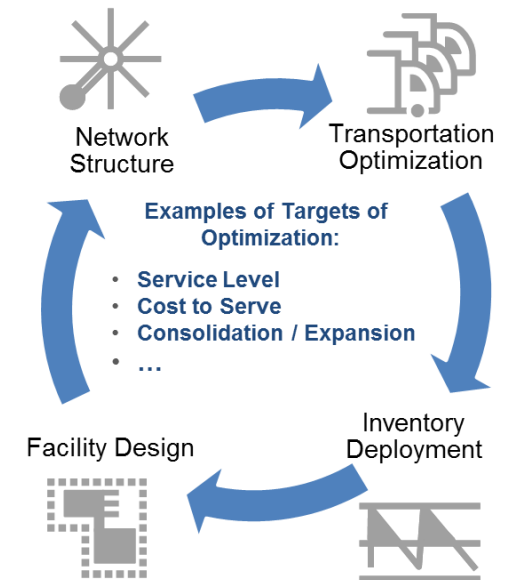
- Teams can become bogged down in wanting to explore numerous alternatives and an infinite number of sensitivities.
- This is an area where the project can fall victim to paralysis by analysis.
- The line must be drawn on how many of each scenario to run and see the bigger picture on what is actually affecting the future strategy.
- “How to best achieve this goal” vs. “What if”

8

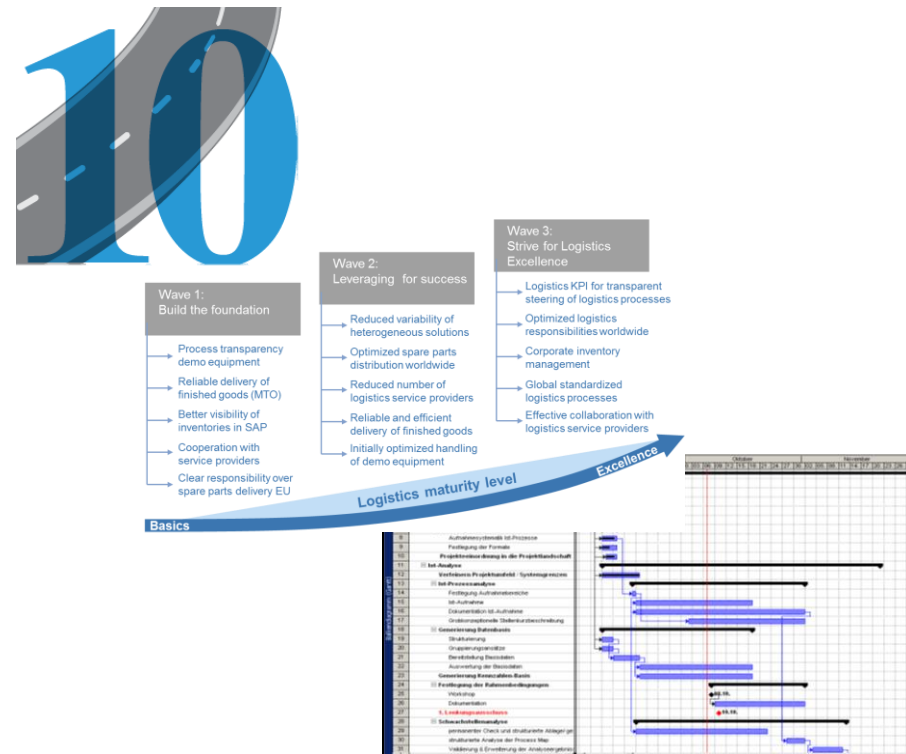


Tip 9: Execute Facility Capacity Studies

- Traditionally, the structure of the supply chain would be set and then the design of the nodes would be analyzed in a sequential step.
- For projects where the key question is how to increase capacity in the most ROI friendly way, might be better to increase levels of automation against opening up additional DCs.
- This requires a more holistic approach where facility engineering is done as an input of the network model.



- Countless times, theoretically optimized networks are proposed.
- However, very often the cost, timelines, and associated risks with the evolution to the theoretical is prohibitive.
- It is critical to develop a feasible solution and have a step by step roadmap to implementation that shows the viability of the proposed solution.



Early in the Path to Maturity – Relying on Supply Chain Design Partners Heavily

Non Software Owner

- Client: Consumer Good Manufacturer
- Objective: Redesign of Americas Distribution Network
- Collaboration Model: Miebach Driven
- Challenges:
 - Free Trade Agreements Evolving
 - Poor Utilization of Containers
 - Poor Inventory Positions
 - Inability to Meet Total Network Service Requirements

	Cost Element	Cost Behavior	Source
	Order preparation and consolidation at source	Cost reduction at source countries	→ Consolidated shipments Replenish to central stock
	Transportation costs, incl. inland at source	Overall reduction of overseas transp.*	→ Consolidated shipments to Replenish inventory
	Port operations	Probable increase in port operation fees	→ Hub means additional step For all containers
	Inventory	Overall reduction of inventory	→ Consolidated shipments, Better frequency & reliability
	Warehouse operations (Local + HUB)	Probable increase in costs	→ New Network Node
	Custom duties	Initially expect cost neutral	→ Depending on HUB location and free trade agreements
	Inland Transportation costs (Destination)	Overall reduction of costs	→ Consolidated shipments, FTL inbound
	Fill rate	Increase in product availability	→ Increase in sales
	Obsolescence	Overall cost reduction	→ Consolidated safety stock

Middle Stage of Maturity – Leverage the Experience to Reduce Risk and Quicken Delivery

New Team Utilizing the Tool in a New Way

- Client: Consumer Good Manufacturer
- Objective: Global Production Footprint and Distribution Optimization
- Collaboration Model:
 - Miebach: Strategy, Post-Modeling Analysis, Toolkit Development
 - LLamasoft: Modeling and Toolkit Development
 - Client: Review and Verify Outputs
- Challenges
 - Cost and Freshness

SUMMARY
This document intends to be a practical guide for the modification and addition of elements to the ABIN2 (Network Optimization) Global Model.

MAIN MODEL POINTS
Modifying Demand
The demand is split in quarters and it is registered with the beginning dates in the annual time field of the demand table.

To modify or add demand we should specify, in their respective fields:

1. The quantities which its units are heterogeneous in the Global Model.
2. The annual time which is in a date format to specified when the demand is happening
3. The product
4. And the site (customer zone) where the demand is happening

Quarter	Product	Site	Quantity	Time	Unit
Q1 2017	Product A	Site A	1000	2017-01-01	Units
Q2 2017	Product A	Site A	1000	2017-04-01	Units
Q3 2017	Product A	Site A	1000	2017-07-01	Units
Q4 2017	Product A	Site A	1000	2017-10-01	Units

Remarks for modifying or adding demand and demand table particular:
a. In the notes field we specified the city name.

Adding or modifying sites

The sites are classified for easier filtering in the following hierarchy:

- Mfg.
 - Innovation Hub
 - CoP
- DC.
 - EA
 - DDC
 - CDD
 - CDD
- CZ.

To add or modify a site we should use the sites table following the nomenclature created for the model and explained above. The purpose of the nomenclature is for way filtering. It should always use underscores between words.

Remarks:
• If we add a site we should take into consideration that we need to add, at least, the sourcing policies, inventory policies and transportation policies for the optimizer to consider the site within its options.

Navigation
Search document

Headings Pages Results

Summary

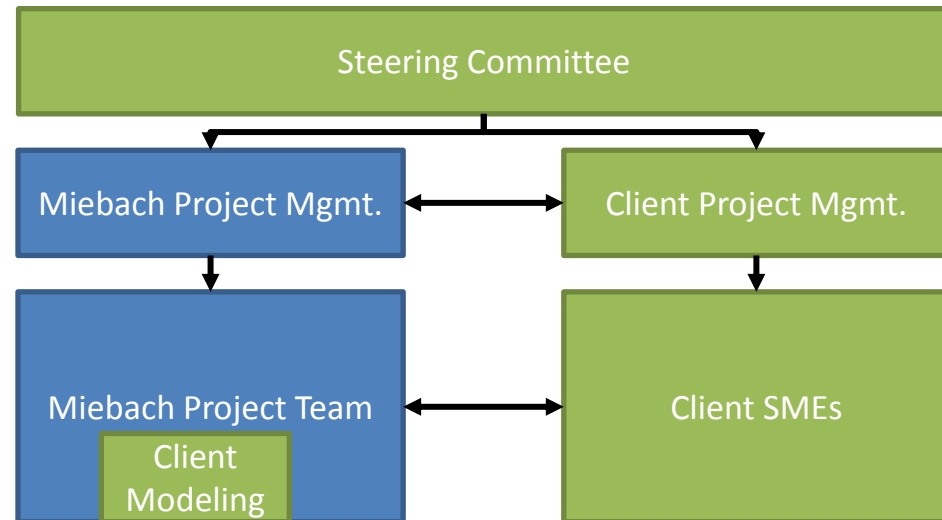
- Main model points
 - Modifying Demand
 - Adding or modifying sites
 - Adding or modifying products/bra...
 - Bill of Materials
 - Sourcing Policies
 - Transportation policies
 - Constraints
- Scenarios
 - Cross brew
 - Greenfield
 - Mixing Centre
- Approach for key changes
 - Adding new products
 - Adding new breweries
 - Adding new demand locations

Aspects	Baseline	Strategy 1
Number of DCs	1	2
Agency Locations	N/A	Doctores (Central), Xochimilco (South)
Greenfield Locations	N/A	None
Structure	Flat - All Assortment	Central - Forward Stock
% of Expedite Orders	N/A	N/A
Cut-off Time	4 Hours	4 Hours

Later Stage of Maturity – Not Every Team has Every Skill Set

Incorporating Client Modeler into the Team

- Client: Consumer Product Manufacturer
- Objective: Determine Best Manner to Increase Capacity in Network
- Collaboration Model
 - Miebach: Strategy Development and Facility Capacity Studies
 - Client: Modeling and Post Modeling Analysis
- Challenges
 - Distribution Network Over-Capacity
 - Unsure to Invest in New Nodes or Automation



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