Supply Chain Value

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Pathway to Efficiency

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Abstract

As the United States moved into the 1900s they did so with anticipation and disdain. The advent of the industrial revolution created wealth for a new middle class and innovations were booming that would make access to new modern conveniences. New inventions such as indoor plumbing, the automobile, and electricity were bursting onto the scene, but had limited acceptance at this point. There were few paved roads at this point, monopolies amassed great fortune, and poor working conditions resulted.

Rudolph Diesel developed the diesel engine in the 1890s, but it was not manufactured until the 1920's. This was a critical invention for the supply chain since it was an efficient, slow burning, compression ignition, internal combustion engine that would be used to haul heavy freight for long distances. It's entry into the marketplace fostered the evolution of the interstate highway network (Federal-Aid Highway Act of 1944) during the 1950's that makes up the backbone of today's interstate commerce network.

The evolution of mass production had a dramatic effect of revolutionizing the way products were made. No longer were products made one by one making each item unique. This allowed a perfect item to be created, mimicked, and mass produced. Its impact of product pricing was great; products could be made quicker, cheaper, and more efficiently.

Retail is going through a similar evolution as we move into the 21st century. New ways to reach customers are being devised which is putting a strain on the supporting systems. As we move to adjust, we need to anchor on the things we know to lead us into the things we do not know. We need to adapt our traditional ways of doing things like our forefathers did at the turn of the 20th century, to drive efficiency through all processes.

In the ensuing discussion, we take a journey of understanding how to map our current processes in a way that helps identify gaps in our understanding. It will help us organize our current processes in a way that encourages clarification and discovery. New processes must be created to meet our new challenges. This construct not only plans for it, it encourages its quest.

Purpose

The face of retail is changing every day and will look nothing like it did at the turn of the century. Gone are the days when shoppers flocked to the mall to see the latest fashions.

Customers are no longer bound by what is traded in their region. They can see all offerings from around the world, as soon as they are available. They can shop 24 hours a day, seven days a week, and from the comfort of their own homes. They can have items shipped to them to try and return items without cost.

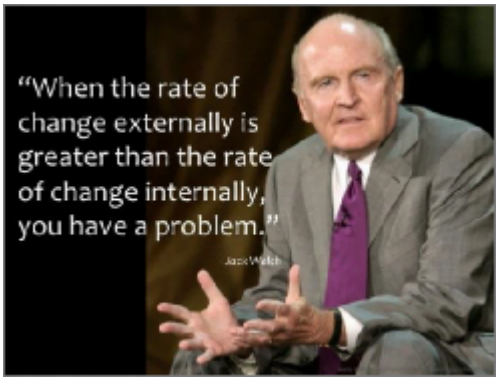
As the face of retail changes, so are the supply chain processes that support it. The supply chain teams are being asked to do more, with less time, and less money. More than ever, the supply chain is being leaned on as a competitive asset rather than a necessary evil.

While merchandising is always king, the ability to deliver to customers is just as important.

As companies (i.e. manufacturing, distribution, and retail) digest these new requirements, there are many different activities that must be navigated. We provide a framework to understand the nature and complexity of the current supply chain activities. We recognize that innovation will be required to meet tomorrow's needs. Therefore, having gaps in the logic to accommodate what we expect is the next evolution of supply chain processes.

We hope that this construct provides a roadmap of discovery. It will help uncover new, unique processes that stretch the supply chain in ways it has not been stretched before. We expect to uncover new ideas, new processes, and new ways that the supply chain can add value.

We hope to spark an industry dialogue on supply chain initiatives. We offer the structure to converse using a common language so new discovery can be documented and fully appreciated.



Everyone is dealing with the rapidly changing face of retail. Going back to the 1400s and 1500s scientific method was heavily applied in the understanding of the underlying chemical make-up of things. Theories and postulates were made and discoveries completed to help break down the most complex of chemical compounds into a set of base elements that helps us to create new polymers.

The early quest of these scientists smartly left gaps

in their understanding where they could not explain things. These gaps proved to be pivotal in really understanding things. How well do you understand your supply chain? Do you have knowledge gaps in your understanding of how the supply chain should optimally work to optimize your business opportunities?

1.0 Historical Perspective

In attacking the unknown of the underlying principles of base commodities, scientists developed a construct to catalogue and manage what they knew. Understanding how they attacked their problem may help us in detailing the fundamental principles at work in the supply chain. If successfully applied, it may unlock gaps in our understanding that could lead to new approach breakthroughs.

1.1 Periodic Table

The first collection of the base elements took place in 1789 when Antoine Lavoisier published a collection of 33 chemical elements into groups gasses, metals, nonmetals, and earths. As these rules were applied, gaps emerged and the quest to understand the true underlying behavior of the base elements continued. In 1869, Russian chemist Dmitri Medeleev published the concept of the periodic table being based on two critical concepts:

1. Using the atomic weight of an element to define it

2. Arranging items based on their characteristics

When applying the described construct, he quickly recognized there were gaps in the current discovery. Elements had not yet been discovered that fully completed the grid.

With today’s scientific developments, there is a lot of debate concerning the position of the base elements within the periodic table. As an example, the position of hydrogen is often debated because its chemical properties are not very close to the other alkali metals within the same periodic table stack.

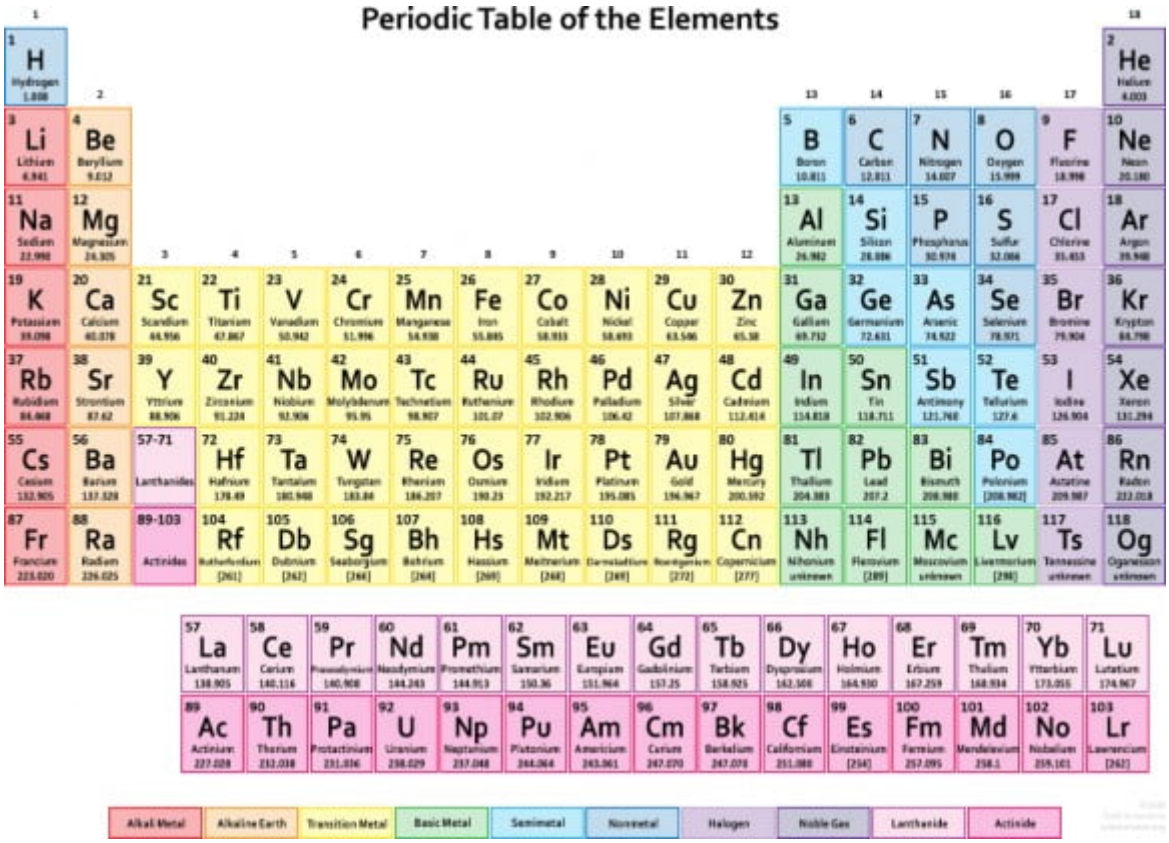


Figure 1: Today's Generally Accepted Periodic Table

In the end, the collection of elements within the periodic table uses the collective science to arrange elements combining the atomic weight and the original groupings. The columns and rows arrange these elements into digestible alignments to explain their behavior.

1.2 Element Characteristics

While the final collective periodic table precisely aligns like elements neatly into a form, each element's general behavior arranges each component based on their fundamental behavior. To the laymen, there are four fundamental attributes used to align the elements:

- **Ionization Energy**

  The energy required to remove one electron. Sharing or moving an electron is critical in two chemicals reacting with each other. Without an interaction, two elements exist in a steady state with each other and fail to mix.

- **Electron Affinity**

  The amount of energy spent/released when an electron is introduced to a neutral atom. This is an indication of how well two elements naturally interact with each other. More energy required means they do not wish to naturally interact.

- **Atomic Radius**

  The literal size of the radius of the atom, measuring how big or small it is.

- **Metallic Characteristics**

  Metallic character refers to the level of reactivity of the atom. Metals tend to lose electrons in chemical reactions and are connected directly in the same behavior of low ionization energy. Metal atoms have relatively low attraction for electrons.

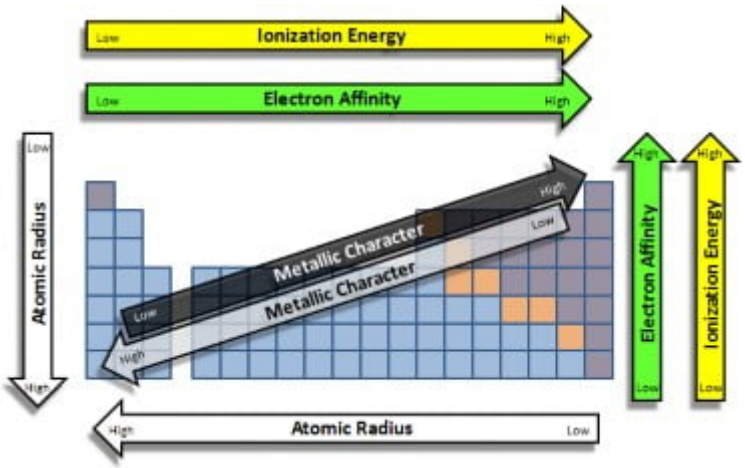


Figure 2: Periodic Table Guiding Attributes

Metals are characterized by their ability to be deformed without breaking. These elements are characterized by the ability of electrons to move freely and as a result are good for conducting heat and electrical charges.

a. Malleability is the ability of a metal to be hammered into shapes.

b. Ductility is the ability of a metal to be drawn into wire.

Non-Metals are the antithesis of a metal. Non-metals are brittle, not malleable, or ductile and tend to gain electrons in chemical reactions. A liquid is the best example of a non-metal.

With this foundational understanding, we can apply a similar approach into the discovery of supply chain initiatives, providing a structured review of the supply chain elements will help us identify gaps in our supply chain knowledge.

2.0 Periodic Table Structure

Using what we have learned from science as our base, we want to provide a similar logic to supply chain activity modeling. The first step in the process was to define a high-level construct by which to evaluate each activity. As an atom and the atomic weight of a particle defines the structure of a compound, span of control, and/or impact, business has a similar impact on an organization.

In our periodic table, the elements are fundamental business processes/activities that one must manage. We have attempted to limit the initiatives to supply chain centric activities and left other functions that are required to run the business out of the periodic table.

2.1 Supply Chain

To effectively limit activities to those being addressed, it is imperative that we first define the term supply chain.

For our analysis, we have included the processes vendor selection through customer fulfillment. We have stayed away from activities related to factory sourcing, quality management, and product styling. We consider product standardization to reduce costs and promote product substitution, but stay away from merchant processes in deciphering next generation products and market trends for products/services.

We focus on the processes to manage the physical planning, movement, and control of inventory. We touch upon the planning aspect of the processes only to ensure that we fully manage the size and scope of the required network.

2.2 Fundamental Elements

The periodic table of elements defines four basic factors categorizing elements.

Factor		Definition	
Chemical	Supply Chain	Chemical	Supply Chain
Ionization Energy	Organizational Inertia	The energy required to remove one electron.	The organizational effort one must expend to elicit support for an initiative.
Electron Affinity	Change Energy	The amount of energy spent/released when an electron is introduced to a neutral atom.	The organizational energy spent/released to unveiled to a receptive organization.
Atomic Radius	Span of Control/ Impact	The literal size of the radius of the atom.	The size/span of control/impact of the process. Unlike an atoms where you can use precise science to measure the atomic radius, in the supply chain you have to evaluate the size of the team to deliver on the initiative.
Metallic Characteristics	Type of Initiative (Strategic vs. Tactical)	Ability to attract give electrons and react to other atoms. Metals are more solid in nature and freely give of electrons. Non-metals are more liquid and consume electrons.	The ability of the initiative to focus energy versus consume cross functional energy. Tactical initiatives attract others in the organization because the process owner takes ownership. Strategic initiatives are like non-metals because they are not rigid and they consume energy of others in the business versus give it off.

Figure 3: Supply Chain Initiative Evaluation Criteria

In many ways, an organization displays a lot of the same principles as a chemical element. The energy an initiative can take or give in a business is very similar to the energy an element can give in a chemical reaction. Providing the right stimulus to the optimal

chemical mixture is like the impact an initiative is analogous to having the right players within an organization to stimulate interaction.

Organizational Inertia

Initiating change is a difficult thing in any application. To get chemicals/people to respond to an initiative requires the right mix of players, needs, and environment. Failure to bring the right combination of all three will render the initiative useless.

Change Energy

When a stimulus can react to a receptive environment, the energy spent/released is the benefit/struggle of the reaction. When the stimulus is aligned in the right environment, just introducing the stimulus garners support and energy. This is typically an initiative where the team believes it is the right thing, but management pushes back.

Conversely, when a stimulus is injected into an environment where it is not receptive, there must be additional energy/pressure applied to make the change happen. An example of this in business terms is the need to reduce headcount/budget to sustain the business. In this example, it is very hard to reduce your team and let people go. The stimulus/pressure that the business may not survive/you will lose your job if you do not complete the task.

Span of Control/Impact

In a chemical reaction, the larger the radius of the atom, the more reactive it is. Similarly, the larger the span of control of the business, the more impact or action it causes in the business. While smaller initiatives are easier to control, they have less impact typically on a business. An example of this would streamline the accounts receivable process in a business.

Conversely, the larger the initiative/span of control the more sophisticated the impact/reaction and the greater the end impact. It will take more effort to control, but at the end of the day it will deliver more value/impact.

Initiative Type (Strategic vs. Tactical)

The final element characteristic was the rigidity or strength of the stimulus and whether it gives off electrons or consumes them. In chemical terms, the term metallic is used, characteristics which equates to a tactical initiative in business terms. These stimuli give off energy and provide strength in the interaction.

Conversely, non-metallic stimuli are liquid in nature and provide minimal support or rigidity. When applied in a reaction, a non-metallic stimulus consumes energy in the reaction. Strategic initiatives in a business application are consumers of energy and are typically theoretical in nature. As a result, they require a lot of energy and thought leadership and are typically nebulous in description.

This construct collectively provides a solid framework for analyzing supply chain activities. It helps structure the conversation and aids in the identification of knowledge gaps. By doing so, we can structure the analysis of future processes to help unravel their potential.

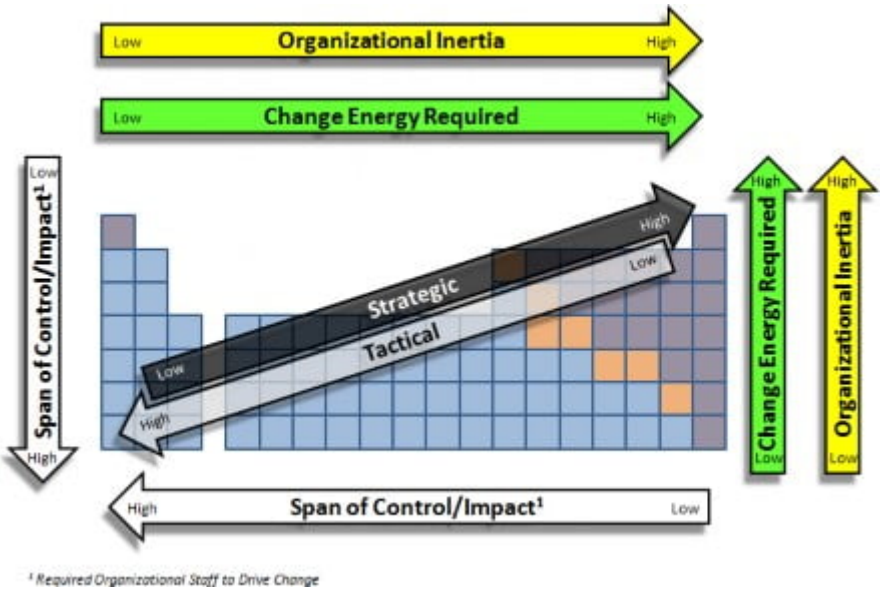


Figure 4: High Level Initiative Construct

2.3 Periodic Table Stacks

We defined the building block initiative into Focus Stacks. This helps group like activities together to help in collecting individual tasks. The chemical periodic table columns are called Groups and are based on the electron configuration. Our Focus Stacks are based on the organizational configuration as defined below:

Stack	Description
Cost Management	The most tactical of all stacks, these items focus on the management of the physical network. Initiatives include facility design, transportation management, and KPI reporting.
Expense Control	This stack focuses on the use of the infrastructure and the staffing required to run the network.
Complexity	As a business grows, it will increase the diversity of product to reach into new markets. Often, the focus in on adding new items and rarely in exhausting unproductive one. This stack recognize the diversity of good and highlights initiatives to reduce uniqueness.
Customer Interaction	How goods are presented to the customer and the effort to keep a storefront "full" is a part of this stack.
Information Management	Managing and using the data captured in a business is paramount to a learning business. Understanding the need to benchmark yourself to the industry and maintain a competitive advantage through IT is contemplated in this stack.
Capital Efficiency	Managing the deployment of capital is contemplated in this tack. For the supply chain, this focuses heavily on the procurement processes and inventory investment.
Profit Management	Driving profit is a balance between offering what makes money and those that drive traffic and may lose money. In this stack, the initiatives to manage this balancing act is contemplated.
Strategy Development	The most strategica of the stacks, these items focus on the direction of the busines and positioning for the long term. All of your Planning activities and risk management activities fall oin this stack.

Figure 5: Focus Stacks (Columns) in the Periodic Table

We have collected our tasks based on the way we understand each business process today. We fully expect that changes in businesses practices (i.e. distribution methods, planning

method, etc.) will move each item between our Focus Stacks or up and down each row.

We have purposefully left gaps in the table for these changes.

Like the historical evolution of the chemical periodic table, our view of this would have been very different 20 years ago. Tasks that we now rely on (e.g. automated forecasting methodology) would have been near impossible when done by hand. Advancements in tools and approach makes very difficult Tasks of today into much easier Tasks for tomorrow.

The fundamental and underlying business processes and human interactions to complete the processes have remained relatively the same, time after time. The business struggles to overcome the business inertia and change the course of decision making also continues. Like our chemical partners, understanding the underlying “rules of nature” helps to define the right combination of elements for the reaction.

2.4 Elements

The first stage in creating the periodic table is to identify the base elements. We reviewed many activities in the supply chain through consolidation and landed on the following fundamental processes. In a later section, we will define the processes that make up each element. In this discussion, we merely present the elements.

A unique and standard element name is provided in referencing each business process. This helps in referencing the detailed process using a shortened code. This is like the periodic table where a standard code is defined.

Code	Stack	Business Process
O	Cost Management	Change Organizational Boundaries
ES	Cost Management	Engineered Standards
FD	Cost Management	Facility Design
DE	Cost Management	End User Demand Engineering
CM	Cost Management	Cost Management
TM	Cost Management	Transportation Management
RL	Cost Management	Reverse Cost Management
3PL	Cost Management	Third Party Service Management
PK	Cost Management	Package Elimination
MH	Cost Management	Material Handling Costs
KPI	Cost Management	Reporting/ Metrics/ KPI's (Cycle Count)
FTE	Japanese control	Staffing Profile (Schedule, Skills, Type)
BEN	Japanese control	Operational Benchmarking (Market Share, Fulfillment)
PRO	Japanese control	Staff Productivity
TA	Japanese control	Traffic Analysis
STD	Complexity	Product Standardization
OC	Complexity	Omni-Channel
PD	Complexity	Product Design to Cost
CR	Complexity	Complexity Reduction (Sku Rings, Handling, etc.)
eC	Complexity	e-Commerce
PS	Complexity	Product Substitution
RC	Complexity	Regulatory Compliance

Code	Stack	Business Process
FP	Customer Interaction	Finished/ Future Planning
RP	Customer Interaction	Replenishment Planning
PR	Customer Interaction	Product Rebalancing
IM	Customer Interaction	Inventory Management
IS	Information Management	Information Superiority
MI	Information Management	Market Intelligence
TX	Information Management	Next Generation Technology
CC	Information Management	Competitive Companions
PM	Capital Efficiency	Procurement Management
IP	Capital Efficiency	Inventory Planning
ND	Capital Efficiency	Network Design
DP	Capital Efficiency	Demand Planning
CAM	Capital Efficiency	Capital Asset Management
EM	Capital Efficiency	Event Management
SLM	Capital Efficiency	Service Level Modelling
V	Capital Efficiency	Vendor Collaboration
LC	Capital Efficiency	Landed Cost Management

Code	Stack	Business Process
AR	Profit Management	Assortment Rationalization (Planning)
MP	Profit Management	Merchandise Planning
LL	Profit Management	Loss Leader Management
$P	Profit Management	Profit Planning
T$	Profit Management	Target Pricing
S$	Profit Management	Selling Price Management (Competitive)
T	Profit Management	Price/ Positioning Testing
SP	Strategy Development	Strategic Planning
$F	Strategy Development	Cash Flow Management
PP	Strategy Development	Business Profit Planning
IBP	Strategy Development	Integrated Business Planning
SCR	Strategy Development	Supply Chain Risk Assessment
G2M	Strategy Development	Go To Market Strategy
SOP	Strategy Development	S&OP Planning
CD	Strategy Development	Competitive Differentiation
CE	Strategy Development	Customer Expectation Management
OP	Strategy Development	Tactical Operational Plans
RM	Strategy Development	Product Age/Risk Management

Figure 6: Base Business Elements for the Supply Chain Table

2.5 Element Factors

In arranging each element on each row, we have used two factors: 1) Change Energy 2) Organizational Inertia. Each business process was rated on these factors using a 10point scale where one was the most difficult and 10 is the easiest.

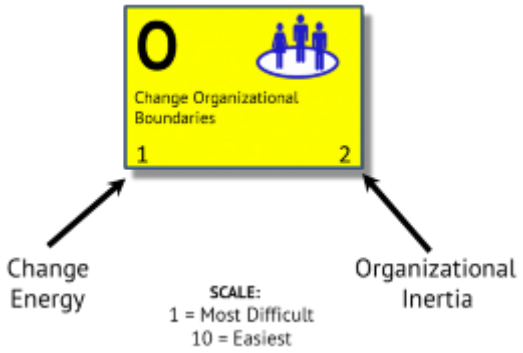


Figure 7: Supply Chain Element Analysis Factors

The evaluation of each element is based on the current North American business culture and the tools readily available today. While some businesses are more receptive to change than others, the scores provided reflect our collective evaluation of all businesses we have completed consulting assignments with.

3.0 Periodic Table Structure

We have worked to identify the fundamental business elements within the supply chain. Our goal is to spark others to help evolve this learning to establish the fundamental building blocks that collectively and precisely define the drivers of the supply chain.

By the pure definition of the words supply and chain, providing the right level of inventory to satisfy customer demand requires a collective effort across the business. Starting with an understanding of the demand, moving into the purchase and flow of product for a selling effort, and finishing with the customer sale, our view of the supply chain serves to manage the information, physical process, and internal planning required to meet customer needs. The defined groupings are intended to capture the detailed tactical processes that need to be completed within the process.

The resulting periodic table arranges the initiatives by the content of the work. It does not align them by the typical player of each work element since each organization may choose to combine functions as they believe to provide a strategic advantage. The most likely player is highlighted (by color code) on the table.

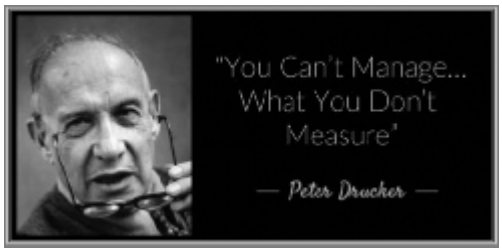
In this discussion, we will define the activities included within each activity.

Figure 8: Supply Chain Periodic Table

3.1 Cost Management

In recent years, most organizations have focused on optimizing costs to drive profits. As a

result, the initiatives in this stack are the most tactical in nature and focus on reducing the business expenses. These are the most tangible andeasily managed factors.



Peter Ducker said, "You can't manage what you don't measure." Cost is one of the most readily measured set of variables within any business. Driving these initiatives is fundamental to the business and comes very natural.

Change Organizational Boundaries

In a Harvard Business Review (Corkindale, 2011) article they found many firms, "find it increasingly difficult to operate within outdated or dysfunctional structures." It goes on to state, "When organizational strategy changes, structures, roles, and functions should be realigned with the new objectives. This doesn't always happen, with the result that responsibilities can be overlooked, staffing can be inappropriate, and people – and even functions – can work against each other."

Failing to recognize the need to effectively align your organizational boundaries can result in:

- Low Staff Morale (e.g. High Stress, Team Burn-Out, Complexity, etc.)
- Role Confusion (Staff Conflicted and Bewildered)
- Disconnected/Siloed Functions/Activities
- Teams Optimizing their Activity without Regard to their Partners
- Failure to Share Ideas
- Slow Decision-Making
- Customer Frustrations

Setting the team up for success is the most fundamental activity a manager can do. However, it often comes with a lot of organizational resistance. The entire team must partner together to address the job of developing a lean, robust business positioned for change.

The strongest businesses today work collaboratively and openly to solve their business issues. By doing so, the team works as a single, connected unit with every link working in unison.

Facility Design

Defining a facility's requirements is predicated on a thorough understanding of the items it supports, the material handling requirements of the product, and the throughput required to meet its customers' needs. It is a planning exercise that requires a lot of calculation, lay-out design, and physical flow planning. Planned properly, the facility can provide a strategic asset for driving growth and competitive positioning.

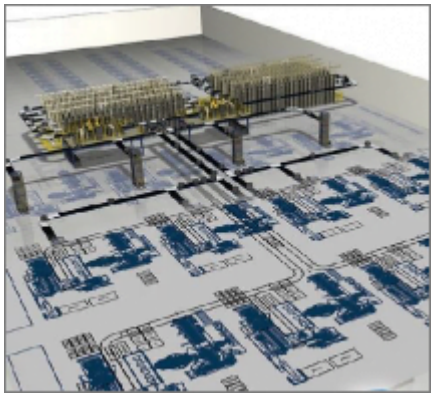
At the highest level, a facility design should include and respond to four high level parameters:

- Flow: Defined as the logical sequence of operations to eliminate travel distance and/or wasted delay. The goal of an efficient facility is to provide a controlled and uninterrupted movement of materials, people, and traffic to minimize inventory handling and storage.

- Master Pack: This is a procurement activity of ordering product in increments that reduces handling and match flow requirements.

- Space: The end space required is a collective of active space (e.g. processing areas), passive space (e.g. bulk storage), and administrative space (e.g. offices, receiving dock, etc.). Based on the types of equipment and throughput required, non-active space can either be large or small.

Typical elements not considered when defining spatial needs:



- Support Configuration: Understanding the type of structure and the location of support beams in relation to racking, conveyor, processing areas, and loading/receiving areas.

- Storage Device: Not all means of storage are the same. One should understand the quantity and cube of each item to define the right means of storage/picking for each item. Do not assume that pallet racking is the best way to store and pick product.

- Accessibility: Planning for traffic and peak periods is imperative to ensuring that the facility is not designed with flow pinch points that will minimize capacity during peak periods. One should always be aware of the peak demand and the seasonal variabilities of product demand.

- Throughput: This term defines the number of units one needs to move each day. It must account for the following product characteristic:

    - Handling Characteristics: The dimension, weight, and fragility of an item.

    -

Figure 8: Frederick Taylor, The Father of Time and Motion Study

Unique Characteristics: The unique product handling requirements that require you to isolate and manage it with care (e.g. hazard, value, security, etc.).

- Demand Surges: You must understand if demand is consistent or comes in surges. Often, people look at the daily demand without understand if it comes from a single order or multiple orders.

- Trend: Make sure you understand the business trends. Do not get caught designing for yesterday's business and get shocked that the facility cannot handle the needs for today and tomorrow.

Facility design incorporates a detailed and tactical understanding of the operation and formulates a long-term strategy for your future spatial and operational needs. It takes a trained eye and one that can combine a fundamental understanding of material handling methods, facility flow, and efficient process flows.

Engineered Standards

An engineered standard is most frequently tied to a labor standard. Under this context, the following parameters are considered:

- Based on a Trained Worker
- Recognized and Acceptable Pace for a Worker
- Assumes the Team is being Effectively Managed
- Factors in a Normal Fatigue and Delay Factor
- Requires a Standard Set of Definable and Repeatable Work Tasks
- Requires Work to be Delivered to a Specified Quality Standard

Setting a standard requires a lot of work to not only define the standard work, but collect

the data to define the standard.

Ryan Holmes, a Canadian internet entrepreneur, said, “Workflow and usability are not afterthoughts; they impact the core of any project and dictate how it should be engineered.” Success does not just happen, it is planned and engineered.

In a recent publication, Goldman Sachs took on the admirable task of reviewing their fundamental business standards. “Our Business Principles were codified 30 years ago and define our fundamental expectations for the way we should interact with our clients, manage our business and attract, retain and motivate our employees.” They went on to define the critical cultural value that they wanted their go forward practice to be based upon.

The concept of engineered standards can be broadly applied to nearly all major activities within a business. The principles and concepts of engineered standards require the business to rethink their operational norms and define work content and service expectations that teams can depend upon.

End User Demand Engineering

In this context, end user is referring to the consumer of your product or service.

There is both an art and a science to determining the timing of customer demand, as well as the items that the customer will desire. Developing an organizational center of excellence on managing end user demand projections is fundamental to optimizing the business.

The University of Cambridge best described demand engineering as, “Removing preconceptions about the size of a market based on historic sales and focuses the mind on the potential market for a product or service. It can be difficult to make estimates when there is little experience of the market.” Understanding true market potential is based on understanding your optimal customer and what they are interested in.

When describing the issues of this topic, Tyler Cowen, George Mason Professor of Economics, once said, “Managing demand is a product of supply and demand, so try to figure out where the supplies are fresh, the suppliers are creative, and the demanders are informed.” Developing a process that effectively drives this process takes structure,

diligence, and strategic thinking.

Cost Management

In its fundamental form, cost management is the review and control of project/organizational expenses to meet a budget. In this context, we are using this term to include all costs (e.g. payroll, consultants, space, etc.) incurred by the business in completing the designed mission.

At a high level, this topic can be broken into four major categories:

- Resource Planning: This is the first phase of the work break down structure where you define the resources, time, labor, and equipment to complete the initiative.

- Cost Estimating: With a clear understanding of the required project scope and deliverables, you can quickly move to estimate the project total cost. This step uses the output from the above process and puts projected costs against each element.

- Cost Budgeting: Once you share the project plan and initial estimate, the reality of staff availability and expected delays/limitations (i.e. reality) sets in. In this phase, you move from the optimal project cost to a realistic project cost given the organizational deficiencies (e.g. skills, availability, background) and limitations (e.g. staff size, scope of everyday work, etc.).

- Cost Control: Once a project baseline is agreed to and the project is underway, it is critical that the project manager review the actual contract costs compared to the baseline to call-out project risks. This is a critical project task that is required to keep senior management informed on the status of the project progress versus cost.

As a fundamental process to controlling organizational use of assets, cost management focuses on the specific use of cash.

Transportation Management

Getting your goods/services to the end consumer in a timely manner, at the lowest available rate is the key to effective transportation management. Well planned transportation teams are keenly aware of the market lanes usage and design partnerships to protect their loads to support critical business needs. With strategic and tactical components, one must plan and be in tune with the market to understand critical network pain points. Major process components include:

- Sourcing: This is the process of developing your requirements, tendering offers, defining vendor reporting management, and managing your provider relationship.

- Rating: This process centralizes and standardizes transportation rates across modes, routes, carriers, and geographies. The result of this process is selection criteria based on internal business rules, services being offered, and carrier availability.

- Planning: Reducing transportation spend is based on planning your loads across the network and utilizing cost effective lanes that deliver your required service level.

- Tendering: This is the process of making your load available to your carrier community and scheduling deliveries using the lowest rate. Pre-planned commitments and locked rates helps you better control spend.

- Freight Payment and Audit: Developing a close partnership with your partners ensures that loads are paid quickly, discounts are applied, and disputes are resolved amicably, fairly, and efficiently.

Best in breed solutions deploy a Transportation Management System (TMS) to automate and control many of the processes. These solutions manage the costs and lane times on the network to help deliver your loads as required to meet customer needs at the lowest cost. Further, a TMS can manage adherence to transportation rules and automatically generate charge backs they are due.

A TMS can deliver a lot of value to a business including:

- Enhanced Customer Service: By understanding the cost-service trade-off, the business is better positioned to determine the cost of delivering to meet customer demands.

- Warehouse Efficiency: By letting a TMS do the heavy lifting of managing outbound freight, the team can refocus their energy on warehouse management.

- Consolidation Visibility: By using a TMS solution, you can see opportunities to consolidate loads and reduce transportation costs.

- Reduced Inventory: By having better coordinated facility flow, you can better plan for your needs, and reduce tied up inventory for staged shipments.

- Improved Cash Flow: By closely managing your spend, you will be able to manage your costs more precisely, chargeback when available, and ensure there are no duplicate billings.

In a market where rates are rising and driver availability is waning, managing your transportation needs holistically is critical in maintaining your competitive position. Robin Chase, Founder of Buzzcar and Zipcar, said, “Transportation is the center of the world! It is the glue of our daily lives. When it goes well, we don’t see it. When it goes wrong, it negatively colors our day, makes us feel angry and impotent, and curtails our possibilities.”

Reverse Cost Management

An often-neglected part of the business, the reverse supply chain, deals with all the returns, damages, and product recall processes for the business. Most do not realize how much money is tied up in this product which directly drains the business.

If you make 10 points of margin on an item when sold new and you only can recoup 30% of the original cost when you resell returns/damages, you would have to sell three units for every item just to break even. If you sell 100 units originally and receive 10% back, that means you must sell 30 units at full price to break even. This is a heavy burden on the business.

In a recent report provided by the National Retail Federation (NRF), they reported some startling statistics:

- Size of Shrink: The average retail business experienced 1.4% shrink in 2015 which equated to $4.5B annually.

- Trend: 48% of all reporting retailer experienced increase shrink in 2015.

- Fraudulent Returns: Retailer reported fraudulent returns equated to $9.1B in 2015 with total returns being 8% of total sales.

- Holiday: During the holiday, returns increases to 10% of total sales or $3.5B in 2015.

- Fraud Driver: The largest amount of fraudulent returns (92%) comes from the return of stolen goods.

Developing the right business controls is critical for eliminating reverse logistics costs. Further, developing a robust process to harvest the value from returned good is critical in reducing the impact.

Third Party Service Management

Levi Strauss, the legendary Bavarian denim maker, said, “An expert knows all the answers – if you ask the right questions.” In this vain, working with an expert in their discipline helps deliver the best solution and a lot of the time at a lower price.

Concerning the supply chain organization, third party services typically focus on distribution and fulfillment activities. Often, a firm will rely on a third party to manage a facility to ship goods on their behalf to their customers. While it initially sounds like a hand-off activity, getting maximum value out of this relationship occurs when the company can communicate clearly and succinctly the performance required of the operation.

In this type of relationship, the third party takes over the day to day management of the team. They do not, however, take on the strategy of the operation and the value it adds to the business. The company’s internal supply chain team is responsible to define the needs and drive to the corporate objectives.

In a recent Industry Week (Patrick D. Warren and R. Michael Varney, 2014) article they defined the risks of using a third party including:

- Regulatory and Legal Violations: Contracting organizations are now being held for the domestic and international actions of their partners. As a result, you must be aware of the total activities of your partners to ensure you are not responsible for their actions.

- Breaches of Systems and Data: While your business may have robust controls and protections from hackers, your partners are often granted preferential access to sensitive data. You must ensure that your partners have the same protections that you do to ensure hackers cannot access your systems through your partners.

- Reputation Damage: Recognize that the reputation of your partners directly impacts your own reputation.

- Financial Dependence: When you create a partnership with a third party, you are developing a strategic relationship. When doing so, you become dependent on their ability to continue.

- Systemic Events: The nature of the services being offered is typically systems expertise (e.g. WMS, TMS, etc.), as well as trained people resources. When you contract with a third party you are developing a reliance on their expertise on multiple levels.

- Geopolitical Events: Many third-party relationships include overseas operations. In doing so, you become at risk to be impacted by the political unrest that may occur around the world.

In selecting a third-party partner, you should follow the following steps:

- Partner Vetting and Selection: Success in this process requires operational engagement to evaluate the business processes being deployed. Do not allow this to be relegated by the procurement team. Heavy involvement by a knowledgeable team to evaluate the risks and capabilities of a provider is critical to selecting the right partner.

- Requirements Documentation: Start with the end goal in mind and document your roadmap of what is expected and where you want to be. Minimizing risks by documenting clearly and concisely what is required and developing playbooks that can be referenced to document requirements. Often, these relationships are so robust that they manage KPI's and other metrics.

- Training and Ongoing Education: The third party plays a critical role in training the team on the best and latest methods for handling your goods. Further, they are responsible to ensure the team not only understands, but complies with all state and local requirements related to safety and materials control.

- Performance Measurement: Developing a robust scorecard of performance will ensure a balanced operational output. Make sure that as you measure the performance of the third party, that you create a balanced scorecard so the overall performance is optimized. A robust scorecard should start with your customer and their evaluation of the third party's performance. Work your way back up the supply chain process using tools like perfect order fulfillment and accuracy of operational performance. The process should then work its way back into the operational areas and the cost of completing the activities required. This leads to an evaluation of the throughput of

each operational area and the creation of standards of productivity expected.

- Issue/Conflict/Risk Resolution: Dealing with issues/concerns immediately is critical to a strong relationship. One should not turn a blind eye to glaring issues and assume they will go away. Whether you acknowledge issues or not, you are responsible for any action/legality/affect from things not being done correctly. To protect the business if issues are not addressed appropriately, one should always have a contingency plan. This may include moving to another facility managed by the third party, contracting for contingency space, or consolidating volume into a secondary operation.

Make sure your team proactively follows industry trends. Read the latest industry news and be aware of activities and risks that others are experiencing.

Utilizing a third party puts a lot of burden on the organization to understand the potential risks they bring to the business. Selecting the right provider goes beyond a team's capabilities and must include an assessment of the legal, capital, and operational risks.

Package Elimination

There has been a growing effort around the world concerning minimizing the environmental impact of an organization. This plays well in the supply chain because many times we can use this to drive product package elimination/simplification. Driven from the most senior of level, it energizes the business to focus on its environmental footprint and reduce corrugated and plastics to showcase and protect products.

While, many align with the effort to deal with the size of packaging, more robust programs go on to review the nature of the packaging materials. As a result, many have moved from non-biodegradable components (e.g. Styrofoam, plastics, etc.) to more biodegradable components (e.g. paper, popcorn, etc.). Being a good corporate steward of the environment is a necessary part of business culture today.

As teams work to lean the organization and drive costs out, reducing packaging is a great way to find savings.

Material Handling Costs

Material handling and the associated costs includes the following activities within a retail, distribution, or manufacturing business:

- Movement

- Bulk Materials (e.g. fork truck)

- Pick/Pack (e.g. flow rack, pick to light, put to light, etc.)
- General Flow (e.g. conveyor, unmanned devices, etc.)
- Protection
- Storage
- Inventory control

When working to reduce material handling costs, there are several task/focus areas to consider:

1. Touch Labor: The best way to reduce cost is to reduce the number of times a human must touch a product. Product handling does not add value and adds a lot of cost.

2. Material Flow: We all know the shortest distance between two points, a straight line. You want your material to flow through a facility as quickly and efficiently as possible. When additional steps are required to complete a job, you want the flow to be as direct and linear as possible.

3. Damage/Loss Elimination: Any loss or damage created within an operation, flows 100% to the bottom line. One should ensure the environment in which the goods are stored meet the right temperature, humidity, lighting, and vibration controls to minimize loss.

4. Storage Density: The product flow should do all it can to reduce the amount of time items spend in storage. Product requirements will dictate the right storage means and every amount of space should be used to take advantage of the building cube capacity. Many times, people plan to use the floor space as efficiently as possible, but fail to recognize all the air space not being utilized. Further, many fail to recognize the space above dock doors and along office walls as potential storage cubes for products.

5. Equipment Deployment: The cube and product velocity will help guide you to defining the right storage equipment for each product. Use automation where economically feasible to manage product movement and human interaction. This

helps ensure consistent performance and eliminates any process fatigue experienced when people complete the activity.

While these parameters are a part of the initial facility design, the methods used should be reviewed periodically for savings opportunities. As the mix of your business changes, so does the optimal material handling methods by which to distribute them.

In recent years, there has been a real movement to smaller, more frequent shipments. The evolution of the size and scope of the eCommerce business has driven a real shift in customer orders. As a result, one should review the material handling methods and resulting costs for opportunities to make the operation more efficient.

Reporting/ Metrics/ KPI's (Cycle Count)

The supply chain is a connection of a lot of processes across the organization. Whether it is procurement or distribution, planning or transportation management, the team will deliver to the level you define. Make sure you define a robust list of performance measurements that help hold the organization responsible to deliver.

Developing the right list of performance measurements is dependent on the type of process you are managing. There are different levels of deployment. Whether for strategic reason or tactical reasons, every process within the supply chain should be regularly measured.

Here is a list of potential measurements:

Strategy

- Perfect Order Management: The most robust of measurements, it is the view of the supply chain performance from your customer's perspective. Under this approach, you either get full credit for completion or no credit for completion if an order is not received exactly as ordered. This means a miss by any factor (e.g. on-time, right quantity, right invoiced price, etc.) that is missed will render the whole experience as missed.

- Cash Collection Cycle: Simply computed as the order placement date versus the customer receipt date, it shows how quickly you convert your orders to include revenue. You should make this cycle as short as possible.

- Order Cycle Time: Total time from when the order was placed to delivery.

- Fill Rate: It is the percentage of the order (or order line) that is first shipped compared to the total amount ordered.

- Supply Chain Cycle Time: Designed as a measure of how robust the supply chain is, it computes the time it takes when you are out of stock to receive the items and satisfy a customer order. This includes the time from when the system recognizes there is no inventory, until the time it is in-house and available.

Tactical

- Days of Supply: This gives an indication of how many days of inventory is available to support the business, given the current run rate. It will fail to consider any planned or unplanned events. It is a measure of everyday business volume against the on-hand inventory.

- Inventory Turns: This is a financial metric that helps understand how well we are using the funds tied up in inventory. It is an annual measurement and compares the cost of goods sold versus the average inventory dollars in the warehouse.

- Freight Cost Per Unit: Simply computed as the total freight cost (accessorial and all) divided by the number of units shipped. It helps understand lanes that are costlier, to help drive transportation analysis and planning.

-

  Days of Outstanding Sales: This metric helps define how quickly we can convert our sales into revenue. It is simply computed by dividing the outstanding revenues by the period sales and multiplying this result times days in the period.

- On-Time Shipping Rate: It is a weighted average of the percent of items that were shipped that arrived on-time. In this metric, arriving early is considered on-time. To compute it, you simply divide the number of units on-time by the total number of units shipped.

Individual process areas will of course manage their own productivity standards. This is helpful in managing performance of each associate for re-training issues.

3.2 Expense Control

In this stack, we use the detailed functional performance management to drive financial impact operational decisions. Often these activities include the finance or accounting teams. As we start moving to the right on the periodic table, the scope of impact gets larger and increases, the change energy increases, and the scope of impact increases.

Still in the tactical zone, these initiatives are typically managed within a functional silo, but impact the performance of the greater team.

Staffing Profile (Scheduling, Skills, Type)

This is the most strategic of the expense control tasks, this initiative consumes the other factors in this stack to develop a strategic people plan for the function/team. It requires a linear model/program to aid in the consumption of demand and the understanding of seasonality variations, and recognition of the productivity of each associate in completing their tasks to define the appropriate staffing levels.

Many times, this activity is reduced to a workload versus productivity analysis to determine the full-time equivalents (FTE's) required to staff a function/role. Often, this evaluation requires that a different staffing profile and/or current staff re-training is required.

Make sure in completing this analysis that you have a vision of this role for the future. Associates with the right skills will help the function/role naturally migrate to a more efficient and effective process without requiring outside/change management assistance.

Effective management foresees the true needs of a function/role and provides the operational direction/guidance to react to the requirements and naturally change.

High on the strategic meter, understanding the right staff profile requires a clear understanding of the organizational needs, a clear understanding of the correct number of people, and a vision for the role/function the team seamlessly integrates with the rest of the organization.

Operational Benchmarking (Perfect Order Fulfillment)

Many teams struggle to define the right operational metrics by which to manage the effectiveness of the supply chain. Many times, the metrics they land on focus on the productivity and performance of things they can easily measure (e.g. DC cost per unit, inventory turns, cost per hundred weights, etc.). In doing so, we fail to view our performance from the customers point of view and instead focus on metrics we can manage and adjust.

In recent years, teams have begun to use Perfect Order Fulfillment (POF) as the operating benchmark for how successfully their supply chain is operating. This customer centric metric views the performance of the operation in terms of success or failure. There is no

middle ground in this metric, no partial credit for effort.

Key parameters in POF include metrics managing the delivering of products:

- To the right place
- The right product
- On time (early is unacceptable)
- In the right condition
- In the right package
- The right quantity
- With correct documentation
- To the right customer

Under this approach, you get 100% complete and 0% if there is an error of any type is viewed by your customer.

POF views supply chain performance from a more strategic perspective, providing guidance on where to further investigate a function/role within the supply chain. It does not, however, in and of itself specify the output of a single player/team that enables immediate change. The result of the information gained provides analysis input for the lean six activities and analysis.

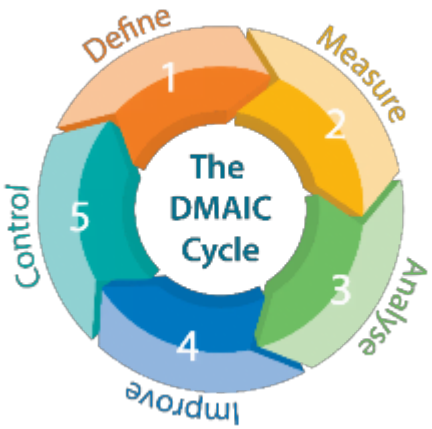
The benefits from POF include:

1. Team Focus: Teams manage the metrics senior management defines as critical. Incorporating customer centric measurements turns the teams focus externally. A desired result is the elimination of functional/activity silos.

2. Lead Times: The team begins to understand the impacts of lead times (DC to customer) in terms of missed delivery dates and any impact on perish ability. Teams

begin to work from the customer backward to recognize acceptable performance windows. Cycle time management becomes a critical topic of the team and mapping each step and interconnected linkages to ensure no time is wasted.

3. System Interfaces: Many times, teams create their own operational databases and solutions to manage their activities. By reviewing cycle time and delays, you begin to understand system interfaces and pinch points that may hinder/delay flow. Teams begin to evaluate the critical need for these solutions and work to streamline system interactions. In the end, teams move away from customized solutions and migrate to the core system solutions.

4. 

   Single Metric: Teams begin to recognize that performance must be an everyday expectation and develop robust solutions that can handle any volume or season.

   Through POF, every order has equal weight. Teams work to streamline activities to operations to meet any volume or need.

5. KPI Measurement: Teams will naturally migrate within their team to metrics that align with the customer. They will look for ways to ensure that their performance leads to POF success. By doing so, cross team metrics become important.

In the end, with the team streamlining their operation you eliminate excess, which delivers value and reduced operating costs for the business.

Staff Productivity

Much more tactical in nature, this initiative requires the capture of workload and throughput to define the team's productivity. With this result, the team can review the work process flows and process techniques to determine change in the way it is completed to increase the team's productivity. What starts out as a straight forward data collection effort, quickly migrates into lean approaches to better define work content and approaches.

While the DMAIC's (Define, Measure, Analyze, Improve, and Control) process defines a robust toolkit of techniques for this process, the following techniques are the fundamental approaches most heavily utilized:

- Five Why's: The easiest of the techniques, it helps to unearth process design flaws that lead to efficiency gains. This technique works best for functions/processes/role heavily completed by people interaction.

- Fishbone Diagram: Known in the industry as "Cause and Effect" diagrams, the primary tool used in organizational brainstorming and helps structure the causes of process inefficiencies.

- Histogram: It is the simplest tool for graphically demonstrating the frequency of an issue's occurrence. Often, the visual nature of the data helps others to understand the issues and simplifies the digestion of information.

- Regression Analysis: A more advanced technique, regression analysis deploys statistical processes to review data and define the relationships between process aspects (i.e. stimuli) and the results. While many use correlation analysis, this technique is not as robust as regression analysis because correlation analysis does not affirm causation.

- Process Diagrams: Simply showing the work step, how they are sequenced, the player interfaces, and the resulting delays help the team to see the current inefficiencies and empowers the team to remove process flaws.

By using these techniques, the team can truly understand the factors that impact productivity.

Any measurement of productivity without the balancing measurement of quality of performance, fails to manage the balance of the two. Many times, teams measure throughput without ensuring there are no defects. Make sure your expectations of productivity allow for time to ensure that the resulting activity deliver an acceptable defect rate.

Traffic Analysis

At the lowest level of the periodic table, this is the most tactical of the initiatives. This activity reviews the actual function/role use from a traffic/throughput standpoint to use in the higher-level initiatives to justify staffing. In its most fundamental form, it is the number of people/units per hour.

This is critical information in defining staffing requirements and facility design needs.

3.3 Complexity

The word complex comes from the Latin word complexes meaning “to embrace”, both a noun and a verb. As a noun, complex is “an intricate or complicated association or assemblage of related things, parts, units, etc.” (Webster Dictionary, 2017). As a verb, the definition is “composed of many interconnected parts; compound; composite” (Webster Dictionary, 2017).

In our context, we are using the term to define the complication of unique product feature/attributes that distinguishes one item from another. This could be as simple as color or as sophisticated as a unique quality level of a component or feature. It is often done to find pricing opportunities to increase the margin.

From a supply chain perspective, complexity means cost. The more products we have, the more activities we need to manage them. The more similar the products are, the greater the likelihood of a pick/process error. On many levels, creating a higher sale price comes with greater organizational costs that may erode the margin.

Product Standardization

At a high level, product standardization is the process of creating a single view of a product so you can procure it from a multitude of sources. It focuses on the form, fit, and function. It ensures that the need of the customer is met with a uniformly available product. The greater the standardization effort, the better the supply chain will be at leaning out costs.

To meet localized needs, many firms have used product adaptation/customization. They do this to meet language requirements, differentiate products for competitor customers, and use it to target a specific market. This customization comes at a supply chain cost that is often overlooked or undefined.

On a more fundamental level, we have come a long way in the past 50 years at standardizing the controls of products we can purchase. Through governmental leadership, the products we use daily are of greater quality and are being provided with a greater social conscience.

Consumer Protection

In 1962, United States President John F. Kennedy declared four basic consumer rights:

1. The right to safety
2. The right to be informed
3. The right to choose
4. The right to be heard

This was later expanded by the United Nations to include these four additional consumer rights:

1. The right to satisfaction of basic needs
2. The right to redress
3. The right to education
4. The right to a healthy environment

With this backdrop, consumer's through standard requirements now expect the following product attributes:

- Protection of safety and health
- Fitness for purpose (performance)
- Environmental protection
- Ease of use

- Quality and reliability
- Compatibility between products (interoperability)
- Transparency of product information and labeling
- Protection from false or misleading claims
- Fair competition, hence choice among goods and services and competitive pricing
- Systems of redress, such as complaints handling and processing of claims
- Consistency in the delivery of services
- Suitability of products for vulnerable populations (such as children, persons with disabilities, and the elderly)
- Management of customer satisfaction
- Sustainable consumption
- Accessible design
- Personal data protection and privacy issues
- Societal security
- Social responsibility
- Ethical production practices and “values-based” labeling schemes

Consumer Benefit

Because of product standardization, consumers have realized the following benefits:

- 3.3.1.2.1 Child Proof Packaging Social Responsibility Standards (labor laws, environmental impact, etc.)

- 3.3.1.2.2 Water Usage Food Safety and Labeling

- 3.3.1.2.3 Manufacturing/Warehouse Worker Safety

- 3.3.1.2.4 Better Products

Just as consumers receive benefits from the governmental standardization, the evolution of this control provides a good backdrop into why we need supply chain standardization.

Teams should do everything they can to eliminate customer unique offerings. By doing so, you make the inventory you carry more flexible.

By eliminating product customization, we eliminate the process variations that are required to deliver the unique product. Many times, product differentiation happens by adding a ticket, label, box, or color differentiating sleeve. Even these smallest of activities add product handling, coordination, and management of the product differentiating element.

Further, a bulk processing area now must be designed to accommodate the special handling activities. As a result, facility size is increased, methods to accomplish the tasks increase, and as a result inefficiencies increase. The greater the process standardization, the better the associate training, and the more flexible the process is to respond to spikes in demand/throughput.

Getting the organization aligned to complete this activity is difficult. Opportunity for the sales/marketing team's result in complication and cost to manufacturing/distribution teams. Getting these teams to partner to find a solution takes a lot of organizational energy. As defined, the span of players that must be included is large and inclusive of the most senior of players.

Omnichannel

Deploying an Omnichannel solution requires all players that manage inventory to work together to meet customer demands. This approach maximizes your inventory investment and ensures inventory will turn as quickly as possible.

A customer at a store in City A wants a shirt in a size and color that is out of stock in City A. It is available in City B and on their website. The store manager in City A will do all they can to sell them another color or shirt to save the sale. If the store manager had the customer's best interest in mind, he would find it somewhere in the company and get it to him/her in hours.

Managing these cross functional processes requires not only organizational alignment, but systemic alignment to provide visibility and selling capabilities anywhere to anyone. The nature of this interconnectivity retraces steps taken over the past 10-15 years of separating each business focus so they “protected” their product to ensure high in-stocks and fill rates of “their business”.

Product Design to Cost

As a business works to find their place in the market, they often create or procure unique items. During this process, one should design with the cost of the components in mind, to ensure that the product being offered delivers the required margin. Failing to consider costs while designing goods, leads to disappointment when the resulting products cannot deliver the expected profits.

- It’s a Supply Chain Thing: The supply chain is best suited to understand the complete end to end costs imbedded within a product. Rather than managing first cost, the supply chain team can manage labor, parts costs, transportation, handling, and other organizational costs to fully understand the product costing.

- Focus Accountability: As needs drive up demand, place product costing as an engineering initiative to ensure they manage materials, packaging, and special handling to deliver acceptable solutions.

- Corrective Plan to Manage True Cost: Frequently initial estimates for costs materialize into much higher real costs once a product evolves. Ensure you develop a flexible design process to quickly and effectively respond to cost realities.

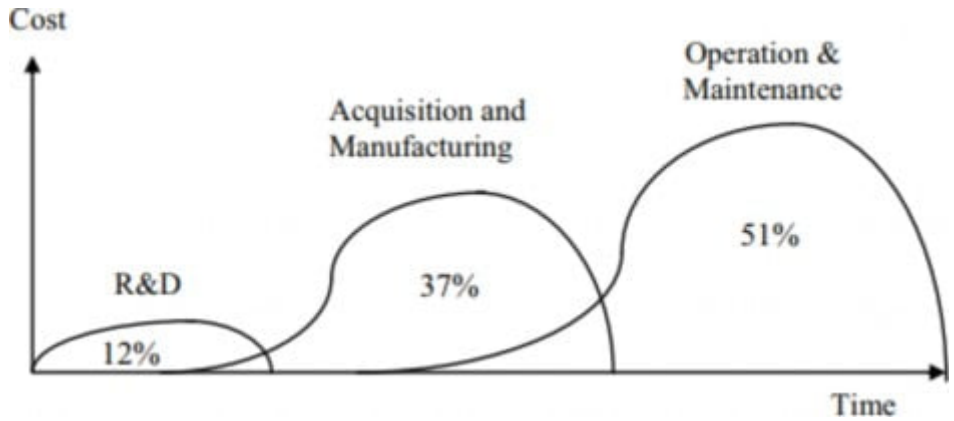


Figure 9: Life Cycle Cost Paradigm

- Customer Desires: Designing cost out of a product you must recognize and understand attributes and product elements that customers value. The process should include a customer review to ensure the product developed, meets the initial need defined.

Developing a Product Design to Cost program requires keen leadership, discipline, and a firm understanding of component and labor expenses. The leader of this type of initiative must be strategically aligned with the market, able to navigate the politics within the business, and have substantial political clout to coordinate the teams that are impacted.

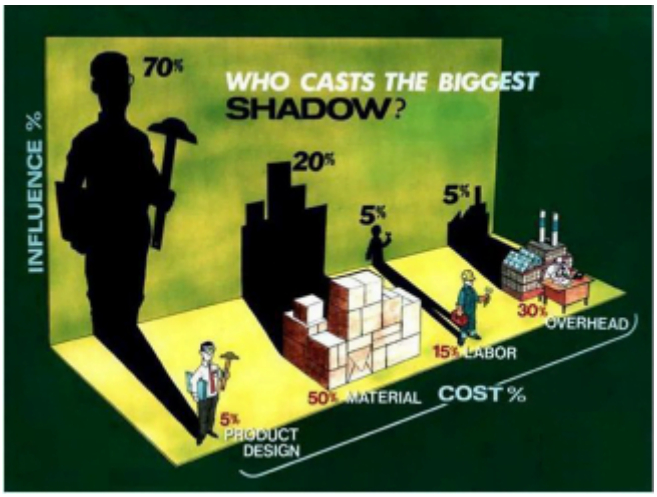


Figure 10: Actors Impacting Product Cost[1]

[1] *Munro and Associates, 1989*

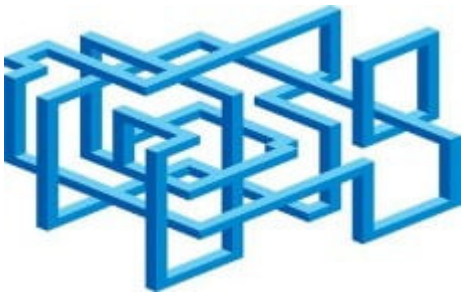
$$EOQ = \sqrt{2DS / C}$$

D = Annual Demand
C = Carrying Cost
A = Ordering Cost

It has been estimated that 70% of the product costs are locked in during product design. Others have estimated that as much as 80% of quality costs are attributed to the product design. Recognizing the impact of product design, one cannot overstate the need to engineer total cost from the beginning.

Complexity Reduction (2nd Stage, Handling, etc.)

Within the organization, complexity comes in many forms. While the supply chain works to provide insight and updates on product flow to the business, all players must work in tandem to respond to daily business needs. Reducing business complexity is integral to reducing costs and delays.



The supply chain is the collection of companies working together to design, produce, distribute, and service products. By design, supply chain management works to reduce complexity. While supply chain team members understand the need to streamline flow, they are often required to incorporate product elements that make them inefficient.

Let's review the most realized topics impacting supply chain complexity:

- Network Complexity: As supply chains work to reduce costs, this often leads to the management of a complex international network of suppliers. When incorporating more diverse players, supply chains should realize the total cost in managing these complex networks.

- Process Complexity: As the supply chain manages the movement of products in support of customer demands, processes are often bolted onto the supply chain to ensure they are completed. While, at first appearing efficient, these "bolt-on" processes further complicate the supply chain process, possibly leading to flow being hindered.

- Product Complexity: Supply chain teams should remind the business on the costs and complications with product uniqueness/differentiation (e.g. color, label, tags, etc.) that can reduce flow, lead to excess inventory, and increase organizational costs.

- Design Complexity: Products that are designed with the latest or most high-tech features hinder the ability to manage an efficient supply chain. Product design should minimize "proprietary" features and when including them incorporate it uniformly to reduce supply chain impacts.

- Customer Complexity: The business must understand that providing customers with unique supply chain attributes results in a return that warrants the expense and complication. Too often, teams "offer" supply chain solutions that are costly, but do not receive the ROI to make it appropriate for the business.

- Supplier Complexity: There is a balancing act between minimizing supplier risk (e.g. out of stock) and supplier complexity. Developing a firm and complete risk register is paramount in managing supplier risks.

- Organizational Complexity: Each business must understand their true customer and design the organization to support and protect these customers. They should resist the tendency to make a complicated organizational structure and ensure the organization makes customer interaction straight forward, practical, and logical.

- Information Complexity: Teams should develop information management and reporting easily available to manage the business for internal and external purposes. Systems used to manage the business should facilitate collaboration, be seamless, and ensure all players see the world in the same pane (i.e. real- time updates).

Reducing supply complexity can deliver 5%-10% increased profits to your business. Hindering product flow through increased product handling leads to increased inventory, a need for more suppliers, and increased organizational costs.

eCommerce

Selling products over the internet has exploded. Growing at a rate of nearly 10% per year, the size and geographical dispersion of these orders has put a real strain on the supply chain.

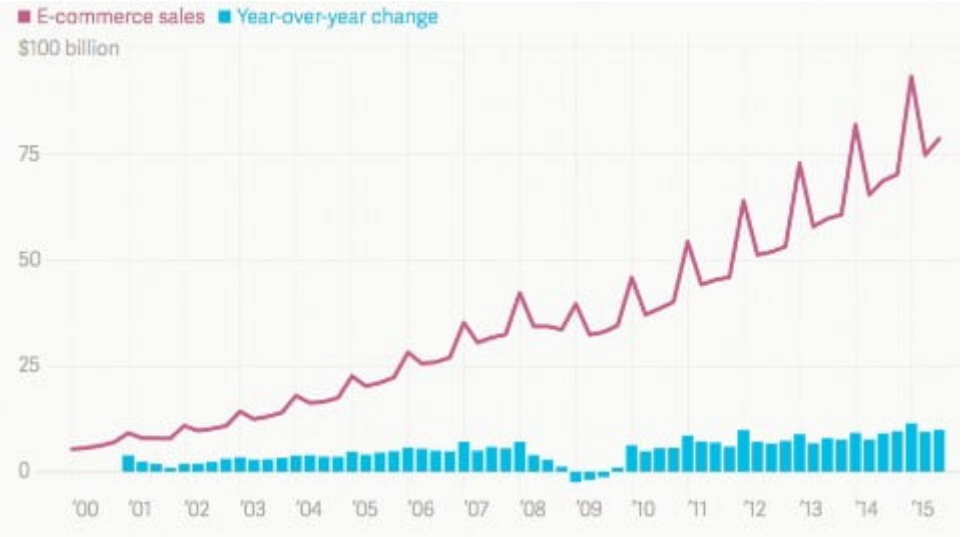


Figure 11: US Quarterly eCommerce Trends

The NRF has projected eCommerce to increase 8%-12% in 2017, which is three times greater than the industry overall. eCommerce continues to increase market share (which is currently dominated by brick and mortar retailers) and is projected to reach $436B in 2017. The more startling projection is that this sale sector will increase to $632B by 2020.

While the United States eCommerce market is strong, the China eCommerce market is even stronger. Retailers wanting to tap into this market will need a strong supply chain approach to meet the expectations of consumers.

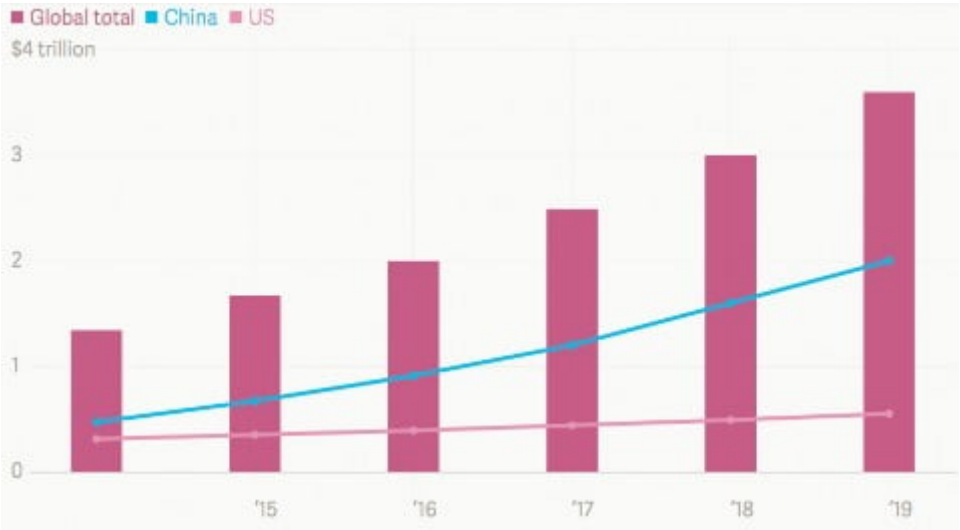


Figure 12: Project China eCommerce Trends

eCommerce is using “Free Shipping” as an incentive to attract consumers; selling firms are looking for ways to reduce these costs. Traditional brick and mortar uses in-store fulfillment as a response. With smaller orders being handled to a more diverse geographical set, eCommerce solutions must blend central management for slow moving items with forward positioning for heavily demand, quick response items.

Developing the appropriate eCommerce strategy requires sale coordination and planning with a sound distribution strategy. It is supply chain planning in a microcosm.

Product Substitution

Substitute goods are goods that may be replaced with another “similar” good. More technically, a substitute good has a positive cross elasticity of demand with similar or competitor goods. As an example, a substitute good’s demand will increase when a substitute good’s price is increased in response to the higher price and substitute good availability.

In everyday life, we are accustomed to this phenomenon. When we go to the store to buy a soft drink, Coke and Pepsi are substitute goods for many. The dynamic between price and quantity consumed is played out below.

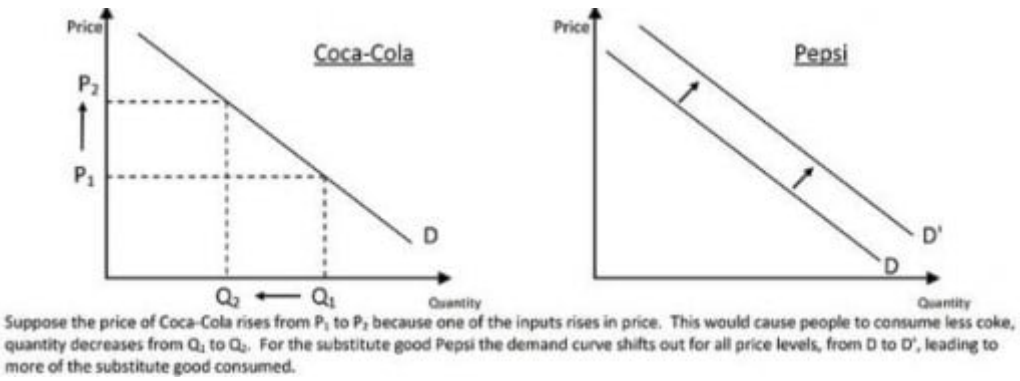


Figure 13: Coke-Pepsi Product Substitution Example

Developing a supply chain solution that understands and responds to this will help ensure that products are available to support customer needs. Developing an inventory replenishment process to respond to these occurrences is imperative to “maintaining your customer base.”

The threats of product substitution are:

- Consumer Cost to Switch: Very low which enables the consumer to take advantage of price and availability.

- Competition Sets a Price Ceiling: Because the consumer is not invested in the product and will substitute it when the economics make sense, the competitive

  nature of the product puts a ceiling on that one can charge. This is an advantage to the consumer but a disadvantage for the manufacturer and/or retailer.

- Quality can be a Distinguishing Factor: If quality, price, and availability are the same design quality and consistency of performance, will separate you.

- Create Uniqueness: All factors being equal, the only way to differentiate products is through features or quality as articulated above.

Understanding these attributes of substitute products will help you manage assortment planning more effectively and finds opportunities to drive profits.

One could argue that this initiative should move up within this stack, but since it falls within the overall strategy and facility plans, the initiatives under this initiative are execution and approach refinements.

Regulatory Compliance

Developing an organization that understands its role in managing and adhering to regularity requirements ensures that your organization is compliant. It is best completed when this understanding is a part of the business culture and is regularly monitored and discussed. Teams must understand that fulfilling their role is more than distributing products at the lowest cost. It must also include complying with laws, regulations, guidelines, and specifications defined by country, state, and/or local requirements.

Violations of compliance regulations often results in legal punishment, including federal fines.

There are many organizational that one must understand:

- United States Customs and Border Protection’s (CBP)
    - Automated Commercial Environment (ACE) system: Establish one portal through which information on imported goods can electronically flow from businesses to the government agencies.
    - International Trade Data System (ITDS).
- United States Department of Transportation
    - Pipeline and Hazardous Materials Safety Administration (PHMSA): Amended the Hazardous Materials Regulations to harmonize with international standards.
    - International Maritime Dangerous Goods (IMDG) Code.
    - International Civil Aviation Organization’s Technical Instructions (ICAO TI): Safe transport of dangerous goods by air.
    - United Nations Recommendations on the Transport of Dangerous Goods (UN Model Regulations).
    - The Food and Drug Administration (FDA).
    - Sanitary Transport Rule: Rule tightening legislation around food sanitation; requiring companies to ensure food safety.
- United States Securities and Exchange Commission (SEC): Product requirements
    - Transparency on Trafficking and Slavery Act.
    - The International Maritime Organization’s (IMO).
    - Safety of Life at Sea (SOLAS) Convention: Requires containers being loaded onto a ship for export to include a verified weight that shippers are responsible for providing.

- Customs Reauthorization Bill (Trade Facilitation and Trade Enforcement Act of 2015)
    - The act simplifies and expands duty drawback (the refund of duties and taxes collected from a company when it imports goods, once it exports a similar volume of similarly classified goods).
    - The act expands the timeline within which companies can make claims from three years to five years.
    - The act provides clarity to the types of goods that qualify for duty drawback.
    - The act streamlines the investigative procedures used in anti- dumping and countervailing duties cases, while expanding the penalties.
- Union Custom Code (UCC) (EU)
    - Authorized Economic Operator (AEO): An initiative to modernize customs processes within the European Union where a member grants this status to any economic operator meeting certain criteria (customs compliance, appropriate recordkeeping, financial solvency, and where relevant, appropriate security and safety standards).
    - European Union Antifraud Agency (OLAF): This enables the creation of a centralized databases containing information on container movements and on the goods entering, leaving, and transiting the European Union.
    - REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) Reporting (EU).
    - RoHS (Restriction of Hazardous Substances) (EU): Focuses on environmental compliance and ethical sourcing across the globe.
    - Proposed Conflict Minerals Framework (EU).
    - European Chemical Agency (ECHA) (EU): Europe’s equivalent to the SEC.

- Due Diligence Guidance for Responsible Mineral Supply Chains (China)

As you can see, we have provided an abbreviated list of changes in recent years. There are many long-standing regulations related to hiring, firing, people management, and general facility controls that are over and above those listed above. Managing the sea of regulations requires a managed process and local help to ensure total compliance.

3.4 Customer Interaction

As we move across the periodic table, we have transitioned from “behind the scene” activities to the strategic and customer facing activities. This stack deals with the activities where we interface with the customer. We “learn” what the customer truly wants and needs rather than what we think they need.

These activities are focused on traditional brick and mortar activities to maximize selling opportunities. One could argue that eCommerce could be in this stack, but we have put it in the complexity stack because it is more of a supply chain (behind the scenes) solution than a customer facing activity. The initiatives included ensure the selling environment is optimized.

Floor Set/Fixture Planning

Creating the right look and feel for a brick and mortar store starts with how the products will be displayed. Traditionally, store design has been a branch of marketing and considered a part of the overall brand of the store. Effective retail store design factors the store exterior, the interior atmosphere, and the brand feeling or appeal.

What appears to be a straight forward process, quickly becomes sophisticated when you break it down into: a) store front design to attract a customer, b) visual appeal inside the store, c) the mood you created within the store (i.e. music, lighting, etc.), and d) efficient placement and flow to facilitate check-out while integrating loss prevention.

There are four key aspects of design one must incorporate:

- Visual Merchandising: The bridge between marketing, buyers, and store operations to execute the shopping vision.
    - Marketing Department: Work to ensure the weekly window design is consistent with theme of direct mailings and/or web promotions.
    - Buyers: Work to plan merchandising schedules.

    - Industry Research/Trends: Complete research to define trends in the retail niche.

    - Communication: Ability to clearly communicate ensuring store managers to execute the planned designs.

- Creative Technologist: Researching and developing new ideas and communicating the brand's story via digital platforms.

- Graphic Designer: Captivate and tell the brand story through digital imagery. Performs a wide variety of job duties, such as designing for ads, store displays, websites and/or other displays.

- Architectural Design: Develop store designs considering the way in which people shop.

    - Kiosks: Integrating smaller kiosks to create multiple checkout stations throughout the store to provide localized checkout versus a large counter people stand behind.

    - Fixture Types: Designing the desired look and feel through the fixture deployed planning is a subset of this activity where you define the actual fixture the products will be displayed on. By design, the fixture should be able to handle enough demand to provide enough supply between lead times. For example, if the store gets replenished every three days and it takes a day to get received product onto the floor; the fixture should be made to handle four days' worth of supply.

Figure 14: Store Fixture Design Example

Many times, marketing or visual merchandising will increase the level of inventory to provide enough product mass to encourage customer demand by "looking like they are in

business." There is a psychological aspect of marketing where customers question a purchase when there is limited supply. There is a balance between inventory supply, operational replenishment demands, and looking like the store is in business.

When a fixture is not large enough to accommodate the defined supply, one would use a store room to stage these products. For these items, the store staff would need to restock the floor shelves on a regular basis to move these items to the floor. Many fail to understand the role of the back room and overwhelm the area with inventory.

Setting the right fixture plan is a critical step in managing the right inventory levels to support a business. Store operations, buying, and supply chain players should be a part of this process to ensure the lowest overall cost to the business.

Replenishment Planning

Replenishment planning is the active process of managing on-hand inventory levels to maintain in-stock and optimize the selling opportunity. Many firms have implemented Enterprise Resource Planning (ERP) tools to manage the desired on-hand levels/ parameters and the current and projected sales. In the end, the process consumes lead time, current on-hand inventory, projected future consumption (i.e. demand forecast), and the desired inventory level to determine how much needs to be sourced to meet the plan.

The term inventory (which replenishment planning is managing) means different things in different businesses:

- Manufacturing: Manages inventories for multiple processing steps within or between multiple locations to turn raw materials into finished goods (spare parts and finished items). Poor inventory replenishment processes hinder facility and tasks balancing, leading to higher production costs and lower throughput.

- Retail: Manages the new and end of life products at the customer facing store level to maximize sales and provide a good customer experience. Out-of-stock leads to unsatisfied customers, who will purchase the product elsewhere.

- Service Industry: Manages infrastructure capacity to provide the needed service when the customer wants it. Since services have no "shelf life" you need to plan for the demand and have the service available in the size and scope when wanted. An example of this is UPS having the capacity to ship and receive your box as needed.

Carrying an excessive amount of inventory or holding slow-moving inventory places a strain on available capital and limits the company's ability to take advantage of financial opportunities.

Figure 15: Replenishment Planning Activities

Businesses need a robust program to find the right inventory levels for all their items.

Planning on the right demand inventory, requires having a strong understanding of demand profiles,

loss profiles, product lead time, and physical space availability. The hardest part is understanding the forecast, the demand for specific items, and colors to plan effectively.

Defining a robust and repeatable planning algorithm helps drive replenishment automation.

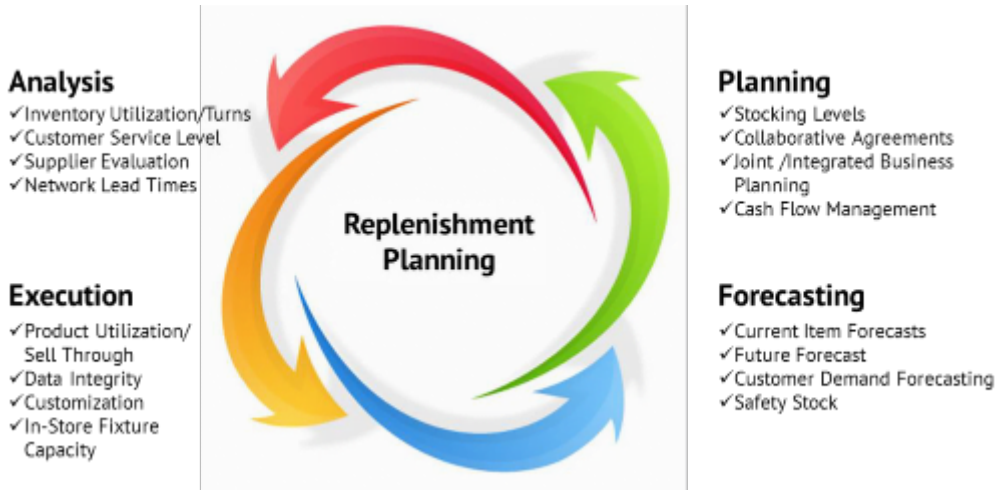


Figure 16: Replenishment Planning is an Iterative Process

A tier of inventory often overlooked is Safety Stock. This tier of inventory is designed to protect the business from outlier demand. It fundamentally provides a tier of inventory over and above the normal demand (one that can be predicted with a high degree of accuracy) to take advantage of upside opportunities. A business cannot afford to take advantage of every demand it might experience, it needs to come up with an acceptance tier of inventory to invest in.

- Min/Max Replenishment: The simplest form of replenishment planning is minimum and maximum level management. Under this technique, an order or replenishment is triggered when the on-hand inventory hits the minimum. Once triggered, inventory is replenished to the maximum. The replenishment event can be triggered either: a)

when the on-hand hits the level, or b) acknowledging the on-order and future demand parameters.

- Reorder point: A more complex method that looks at demand within a defined window of time (based on lead times) and compares the on-hand to the planned demand. Under this technique, all previously planned orders are considered and economic order quantities introduced to reduce additional ordering costs.

Techniques that include a forward view of demand ensures that the seasonality of the business is considered when managing inventory.

Product Rebalancing

Moving down within the more execution based aspect of the customer interaction stock, product rebalancing is the planned action of redistributing inventory to increase location in-stocks. Moving product from one location to another requires not only coordination, but a willingness by the sending location to let go of inventory they may need in the future. It requires a trust in the process that they will receive inventory back when they require it.

Often, taking effort away from selling within a store to help another store is viewed as wasted effort. It does not benefit the sending store. Changing the internal metrics from one of total company profit encourages this effort and makes it a required activity. It is an aspect of sales management that must be baked into the cultural fabric of the business.

To make this come to life, finance should “charge” locations for the inventory levels they hold. Getting maximize efficiency of inventory deployed frees up necessary working capital to fund the sourcing of new products. Everyone in the business should work together to deploy inventory to maximize opportunity and minimize capital.

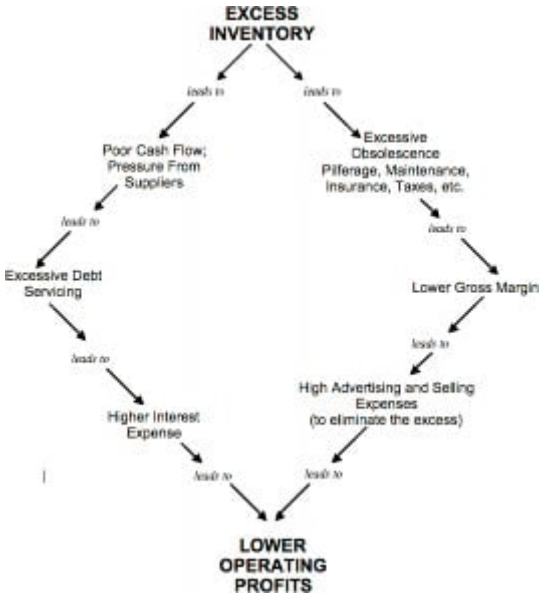


Figure 17: Excess Inventory Erodes Margin and Working Capital

Inventory Management

Having inventory available at the right place and right time is critical to optimizing the selling opportunity. While, the inventory planning process will work in tandem with the demand planning process to drive inventory into the business, ensuring the systems driving incremental inventory into the network requires accurate data. At the most tactical end of the customer interactions stack is the inventory management activity, responsible to ensure the inventory is managed and available as planned.

There are several critical initiatives that are a part of this activity including:

-

  Figure 18: Stock Accuracy Management

  Cycle counts: The process of systematically verifying the accuracy of the system on-hand levels by distributing checks equally over the year. The results of these counts provide valuable insight into additional controls that may be needed to support the business. Businesses should determine the right timing of these counts based on their historical performance and system accuracy.

- Perpetual Inventory: Inventory management systems should show real time inventory levels by which to plan and manage the business. These systems help drive inventory replenishment activities.

- Inventory Turn Review: Teams should review the days of supply and/or inventory turns to understand the potential for gap-outs (no inventory on the shelf) or too much

inventory.

- Excess Stock Management: Teams should aggressively manage end of life or discontinued items and clear valuable shelf space for profit generating items.

- Stratify the Items: Understand your highest profit drivers (A items) and slowest movers (D items). Work these items aggressively and take the appropriate action to shrink. The differences between the system definition of inventory and what is physically on the shelf, is a major issue for all businesses today.

  Whether through theft (employee or customer), damage, and short ships (when a box received has less than was expected) teams must develop programs to ensure that the physical shelf quantity matches the system values.

3.4 Information Management

Since the advent of the microcomputer and the proliferation of personal computers (PC), information sharing has become easier now than ever before. Customer site tracking and product preferences are now a part of our “normal” web activity.

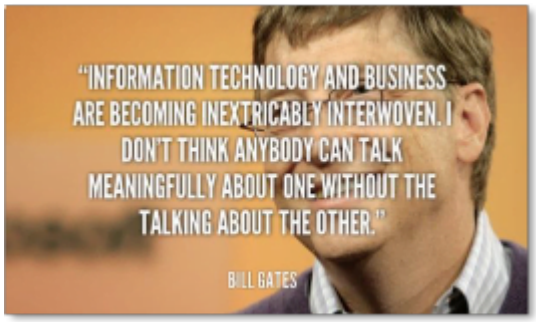
Figure 19: Critical Elements of Information Management

Information management is a cycle that starts with information acquisition, plans, and distributes to needy function/roles. This information is uses to drive the business. From a supply chain perspective, it includes customer preferences, route preferences, and understanding behaviors to better prepare for requested needs. Used to the organizations advantage, information management can help the business strategically prepare and plan for business evolution.

Information Superiority

Information superiority requires the ability to collect data, the ability to discern data, and

the ability to disseminate the data to enable action to be taken. Ingraining information seamlessly into critical decision making requires a culture of information management and not a one-time event.



Reaching this requires that information be managed with the following attributes in mind:

- Information is a Strategic Asset: Teams must receive and interpret information quickly and efficiently and use its value to drive business actions.

- Information Must be Managed: Managing information requires a vision and strategy for integration. Focusing this energy into a central owner ensures there is a common owner and that disparate systems will leverage this data seamlessly.

- Information Culture: All levels of the organization must accept and support the use of data for daily decision making. It cannot be relegated to IT staff or an analyst. Information must be the centerpiece of decision making.

- Cyber Security and Misinformation: Information must be managed to protect the accuracy of the information and ensure it comes from sources that are reputable.

- Integrated and Agile Approach: Information analysis and dissemination should be efficient and timely. The systems should be structured to share this data and consume it to help run the business.

Making information a component of decision making ensures you will achieve information superiority.

For the supply chain, information superiority manifests itself in terms of a risk register. This register captures political, sourcing, natural disaster, and any other potential risk for the business. It sets up a monitoring program to manage these risks and ensure the business has a plan to mitigate it once realized.

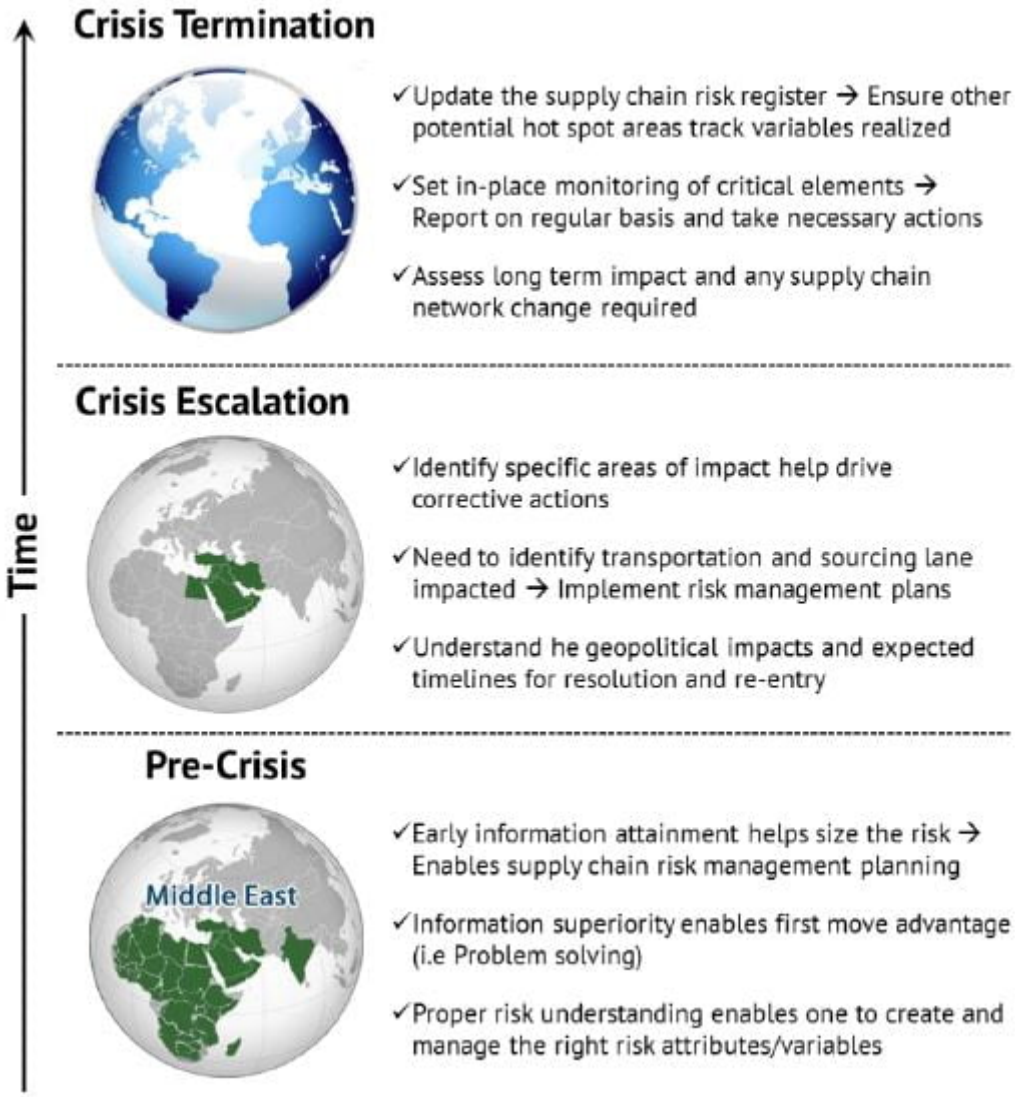


Figure 20: Information Management in Action

Market Intelligence

Often people confuse market research and market intelligence.

- Market Research: System collection and analysis of data relevant to a business marketing situation. As described, a business operates in a defined market and wants to offer a new product. Market research helps size the benefit of introducing the good/service.

- Market Intelligence: Captures all relevant market data integrating, analyzing, and interpreting the information to help evaluate all options for growth. Market intelligence integrates the four P's (Product, Promotion, Price, Place) with models to understand the interdependence and helps evaluate multiple options and risks.

As described, market intelligence is an unbiased view of the market opportunity and uses models to discern the business opportunity.

Figure 21: Market Intelligence Information Digestion Process

By understanding your competitors, your customers, and the offerings of your own company, you can discern market opportunities. Market intelligence helps you to understand the true expectations of your customers. By identifying these gaps, you can develop operational strategies to respond.

Unlike information superiority which focuses on larger network/global issues, market intelligence helps you define tactical gaps that you can exploit. From a supply chain management perspective, this could come in the form of product attributes, service level requirements, and/or customer returns accommodations, to name a few.

Next Generation Technology

The evolution of software and hardware tools to help businesses succeed is at an all-time high. Computers have a technology life of 18 months. In a recent Forbes article (Capital, 2015) , they listed four major technology factors that will revolutionize the market:

- Food Delivery 2.0: Food and Tech Are Back in Vogue: Evolution of food delivery organizations and technology. FinTech and the Unbundling of Banks: Gunning for Wall Street: The evolution of peer-to-peer lending, bundling of health and insurance programs, and new credit management algorithms.

- Open Source Origins: Give It Away: The evolution of open source programs that are developed by its users and shared openly.

- Human Economies Powered by Technology: A renewed investment in old businesses with today’s technology to reinvigorate stalled industries.

Next Generation technologies are founded on several key values.

- Data Driven: The supply chain is collecting information about order flow and timeliness on a multitude of levels. Next Generation technologies aid in the collection and visibility of this data and the ultimate consumption to drive action.

- Green: Environmental stewardship is a commonly shared business value in today's supply chain. Eliminating waste, minimizing landfills, and re-using raw materials, as much as possible have become fundamental core business values.

- Flexible: Solutions must be able to be adjusted quickly to respond to unexpected operations. Solutions cannot be "hard coded" and updated by an IT professional. They must be flexible helping to deal with unexpected issues.

- Quick Response: Customers are demanding that order to receipt times are as short as possible. They expect next day delivery, but do not want to pay for shipping. They want premium visibility and care in the pipeline. As a result, retailers are now required to have immediate replenishment of their supplies to respond to these short customer lead times.

- Global: Solutions may deal with borders seamlessly and enable business activity wherever it presents itself, cross border commerce.

- Proactive: Solutions must provide the infrastructure and foresight to deal with unexpected impacts. They must manage a risk register with responses to facilitate issue resolution.

- Optimize Inventory: Data is available for all aspects of the supply chain. Next generation solutions must digest this information, forecast future demand, and manage the inventory sizing parameters to reduce inventory.

- Customer Focused: Next generation solutions will enable efficient customer interfaces to share data to help manage their expectations.

Supply chains are evolving at an incredible rate as technology begins to trickle to automate data collection and operational management. A few next generation technology focus areas include:

- Design Engineering: Technology will collect information to better design products, considering the manufacturing and repair processes.

- Total Cost of Ownership: Technology will consume the total cost of ownership and the initial cost of acquisition in designing component parts.

- Production Control: New information systems, sensor networks, intelligent controls, and a range of computer-based tools are creating opportunities for real time and more precise control of product flow through multiple tiers of the supply chain.

- Robotics: Technology is quickly evolving in creating mobile robots to complete repetitive tasks consistently and efficiently without human delays and fatigue.

If processes are automated, the business should document the current process in the event the technology fails. This provides a contingency plan. This should be managed and updated to ensure that the technology does not impede business if there is a technical glitch. Further, this documentation can become critical in training the team on the activities that they are completing, therefore the knowledge is not lost.

Competitive Comparisons

The first step in completing a competitive comparison is clearly defining your competitors. With the advent of eCommerce, what was once not a competitor is now a direct competitor.

How do you identify competitors? Here are a few criteria to use in this exercise:

- Direct: Any provider selling the same or a substitute product within the same geographical boundary.

- Primary: Focus on repeat customers that are loyal.

- Secondary: Casual customer that buys your product, but will substitute it with a competitor if the price is better. Figure 22: Competitive Comparison for e-Commerce

- Indirect: Any provider selling dissimilar products are considered as indirect competitors. In determining if the products offered are dissimilar, you need to understand the customer's perspective, not a pure content or manufacturer's perspective.

- Evolving: We are introducing a new category of competitors which include preferences based on the latest technology and/or research. When new technology is introduced, items that once were indirect competitors can quickly become a direct competitor.

- Opportunistic: There is a group of products that customers will use if: a) the price is right and b) the desired product is unavailable. An example would be buying a generic of a name brand product you would normally buy.

Here are the key steps in completing a competitive analysis:

- Competitors: Identify your competitors. Collect them as primary, secondary, or tertiary.

- Products: Evaluate your competitor offerings and pricing. Understand their leaders, their go to market strategy, and their product assortment. Identify how your products can compete.

- Services: Understand the service levels being offered and the impact to the supply chain. This may be free shipping, returns policy, or customer interaction.

- Competitive Position: Define what they are really offering. Determine how you can differentiate yourself to your competitors.

- Social Media: Find them on social media, how do they connect with their customers? Read their customers' feedback and understand their experiences. See if their strategy is working.

- Improvement: Identify areas of improvement for your organization and how you can respond to the competitive pressure.

- Hiring: See the types of roles they are hiring. It may give insight into new strategic initiatives.

This is the tactical process to identify gaps in your offerings and shore up your position. This is a process that should be completed regularly and must result in operational changes to reposition your team for success.

3.5 Capital Efficiency

Capital efficiency is the relationship between expenses incurred by a business vs. how much

money is spent on a given service or product. This simple metric makes it clear if ventures are generating a modest profit, if the operation is approaching a point where profitability will be realized once expenditures are decreased, or if there is no real value in continuing to fund the venture.

Capital efficiency evaluation must be put in context of the invested dollars ability to deliver on the promised value. For example, at the start-up of a new operation, the capital efficiency is low because you have made a large investment. As functions/roles compete for the precious business capital, using the capital efficiency metric helps highlight the best use of funds.

Procurement Management

Many confuse the term procurement with purchasing. Purchasing is the management of the procure-to pay process. It is execution in nature and is a subset of the procurement process. A purchasing manager will facilitate the purchase order and manage any business issues resulting from the transaction.

The procurement process is more strategic in nature. Procurement involves the process of selecting vendors, establishing payment terms, strategic vetting, strategic selection, and the negotiation of contracts and actual purchase orders. When developing the procurement strategy, one must consider:

- Company Image: Your sourcing partners are an extension of your organization; therefore, they must uphold your values to their suppliers.

- Risk Management: One must evaluate the solvency of a supplier and the geographic, political, and diversification risks a supplier adds to the supply chain. Often, one fails to review the likelihood of a natural disaster (e.g. flood, hurricane, tornado, etc.) when introducing a new partner.

- Supplier Optimization: There is a balance of having too many suppliers and not having a diversity of suppliers. Procurement should balance the complications of managing many players and use their buying scale to their advantage. This drives terms and service parameters that help efficiency and reduces costs.

- Total Quality Methods (TQM): These methods require a supplier to monitor and raise quality through their production processes. TQM relies heavily on the Lean Six Sigma techniques, creating cost savings and more responsive networks.

- Global Sourcing: Often, getting the best price and service may require the introduction of international partners. By elongating the supply chain, you need to increase the

coordination with federal, state, and local governments for goods to grow without delay.

- Vendor Development: There are times when you may require a product that is new to the market or not offered by a known supplier. In this instance, the purchasing entity may help establish a vendor you can rely on. In doing so, you will receive products to your specifications and delivery requirements.

- Green Values: More and more companies are becoming environmentally conscious and as a result requiring suppliers to manage waste effectively. Controls on recycling efforts and scrap disposition are becoming more and more important.

Developing a robust procurement strategy requires a strategic view of your supply chain network and integration of supplier activities that allow them to deliver to your required service parameters. Topics like purchase-to-pay and source-to-settle become strategic planning initiatives to foster efficiency and optimization. The most effective procurement strategies digest the supply chain risks and provide a tactical solution to resolve them.

Inventory Planning

The position of inventory planning compared to network design is interesting. It is placed above network design in our periodic table because it requires the consumption of the network design results, to define the lead times which directly impacts the inventory planned.

Fundamentally, inventory planning is designed to ensure that your customer can procure goods when they want, where they want, and at a price they want. It must consider all the steps in the supply chain. Due to the expense to carry inventory, there is a balance between having too much and too little.

Figure 23: View of Supply Chain and Inventory Flow

As the above flow demonstrates, inventory ownership and associated costs is a negotiated concern. Integrating this concept into your procurement strategy is important in minimizing

the funds tied up in inventory. Many times, there is a trade-off between the network costs (e.g. customs, transportation, etc.) and the capital used to fund the inventory.

At a very high level, there are three basic types of ordering processes:

- Economic Order Quantity (EOQ): The mathematical construct that balances ordering costs, inventory carrying costs, and service levels to define the optimal inventory levels.

- Continuous Ordering: A process where a fixed order quantity is triggered when the inventory level reaches a predetermined level (safety stock plus base stock).

- Periodic System Ordering: A process where a set order amount is placed at a set cadence whether inventory is needed or not. Typically, utilized for base or standard stock where demand is consistent.

In determining the right inventory level, one must evaluate the following costs:

- Inventory Carrying Cost: This includes all costs associated with the owning inventory (e.g. storage, insurance, obsolescence, shrink, interest on funds, etc.).

- Opportunity Cost: This is the cost of not being able to take advantage of other opportunities for investment that could deliver a higher rate of return than the sale of inventory.

- Ordering Cost: Includes all costs associated with order product (e.g. personnel, communication, paperwork, etc.).

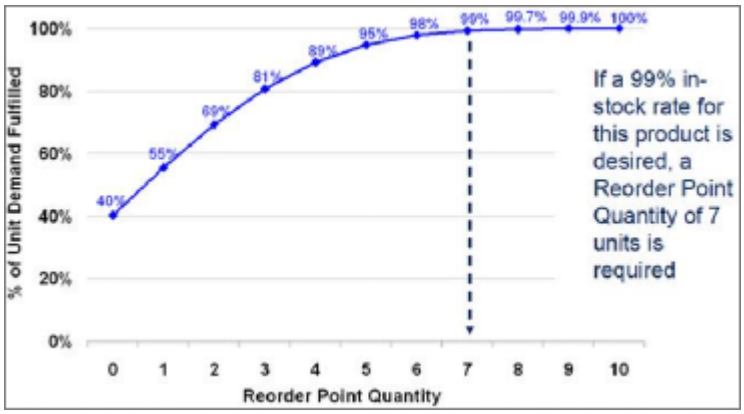
- Storage Cost: The cost of an item being out of stock and how long a customer will wait before cancelling an order.

- Production Change Costs: The costs with changing the production line to manufacture a desired part (e.g. material acquisition costs, equipment set-up costs, paperwork management, stock control costs, etc.).

Developing the right inventory profile can be the difference between making a profit and draining the business of needed cash to run the business.

It is important to note that customers buy a specific item and not a category of goods. At this lowest level, demand variability is at its highest. Having a synchronized approach (selling, production, and logistics) that transitions demand to available product helps balance the natural demand variability, reducing the individual item inventory required. In the demand planning section, we talk about the idiosyncrasies of managing forecasts.

- Service Level: This is a critical metric that defines the proportion of the population that a process is designed to cover. It is most frequently applied to a statistical confidence interval in defining the percent of the demand curve that a point estimate will include. For example, a 95% service level means that you are planning to miss 5% (or three weeks) of the demand occurrences that you will experience. The use of this term helps to understand the cost of covering 100% of the potential demand and its impact on inventory.



Service level is one of the biggest drivers of demand. It defines the safety stock (inventory carried to protect out of stocks during rare, but planned conditions). One must carry to cover “abnormal” performance.

Many times, the team remembers the one or two times that a customer demanded a quantity that was way above what was normally expected and senior management was upset with the team for not having the inventory available. In response, the team plans for these new levels and holds the inventory to make sure they never feel this managerial pressure again.

The use of statistical approaches can help digest historical demand, define the seasonality of the business, and digest a service level. It helps drive inventory up and down as the seasons progress to carry the right profile. The fluctuation in inventory frees up business capital to be used for other activities.

- Store Floorset: The sales organization may put requirements in place defining the amount of inventory available. In a brick and mortar environment, the merchandising organization will define a fixed plan with associated inventory profile that must be

maintained. This floorset will define the level of each item that each location must carry.

The floorset will define the maximum and minimum level of inventory that must be maintained. These requirements are fed into a replenishment planning solution to manage inventory flow from a supplier or supporting warehouse. This is simple if all locations are the same, but all too often this same sale operation will meter the level of inventory based on the location footprint, local customer preferences, and the expected revenue. This complication requires a system be used to manage the site-specific parameters.

In summary, inventory planning incorporates:

- Forecasting Solution
- Service Level
- Demand (history and variability)
- Lead Time (history and variability)
- Inventory Related Costs
- Store Floorplans Needs
- Replenishment Planning Parameters

It is a complex collection of many different data points and costs to minimize the inventory investment and free up capital to run the business. This process is high in the strategic meter, as well as, tactical meter.

Network Design

Supply chain network design is the practice of determining the optimal facility network (location and size) within the supply chain. It also determines the capacity (storage, picking, shipping) of these facilities given the products being handled, digesting the sources of demand (location and volume) through the network and selecting modes of transportation (type, cube, and weight). The goal of delivering defines service level (transit time) at the lowest cost

There are three fundamental types of network designs:

- Strategic Review: These reviews consider a long term, multi-year strategy, evaluating the current supply chain network, and determining the right number of locations and capacities of each facility to meet the designed needs. An understanding of inbound and outbound planned flows is critical in driving the analysis.

- Distribution Strategy Review: These reviews address tactical issues (picking, packing, storage, inbound receiving, outbound shipping, etc.) operations are currently experiencing and wants to solve for a short to medium period. These projects resolve storage issues, operational pinch points, and/or missed delivery schedules, often resulting in a network review.

- Transportation Strategy Optimization: These projects focus on optimizing material flow, transportation mode selection, carrier selection, and capacity utilization to develop a cost-effective transportation strategy. It considers a base understanding of the industry network, the capacity of key lanes, and the current market rates.

There are many methods used to complete the above work. The major trade-off in these methods is the level of complexity one chooses to consider:

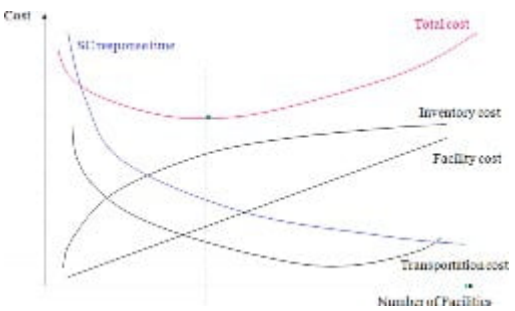


Figure 25: Value of Supply Chain Response Time

- Spreadsheets

- Regression and Statistical Analysis

- Simulation

- Linear Programming

- Mixed Integer Linear Programming
- Expert Programs / Heuristics
- Network Optimization Modeling

Network Optimization Modeling is the most used approach and relies on forecasted demand, lead times, capacities, costs, and distribution metrics to drive the optimization algorithms. These tools typically run at an aggregated demand level to streamline the analysis. Once created, the team can easily perform what- if scenario development to evaluate alternative solutions.

By integrating an understanding of your desired competitive position with senior management's view of the future of the business, you can create a network design that enables the business to reach the desired goals. This process is the first step in planning the future of the supply chain.

When reviewing network costs, there are several indirect costs that are often left unaddressed by a novice practitioner. These costs include:

- Tariffs: Duties that must be paid when products and/or equipment are moved across international, state, or city boundaries.
- Tax Incentives: Reduction in tariffs or taxes that countries, states, and cities often provide to encourage firms to locate their facilities in specific areas.
- Free Trade Zones: Areas where duties and tariffs are relaxed if production is used primarily for export.
- Quotas: Limits on import volumes placed by different countries to protect their local industry. Sometimes there are also requirements on minimum local content.
- Exchange Rate: A risk that must be mitigated when you collect revenue in one currency and pay for expenses in another currency.

Balancing pure transportation and facility costs with the above costs ensures you deliver the right solution.

Demand Planning

Figure 26: Focus the Effort on the Impactful Items

This process is a multi-dimensional process to evaluate historical performance and forecasting a future performance for a product. It fundamentally understands the items life cycle, its position within the assortment, and the impact of competitive pressure on the projected future demand. It relies on statistical processes to digest history, but relies on an art of digesting the future of the market to project a realistic demand.

As defined, demand planning incorporates the output from demand forecasting. It takes this output as a critical input in the evaluation of the products future demand projection. It is important to note that demand forecasts can be created at the item (bottoms-up), a collection of items (middle out), or the company level (top down). Whatever method is deployed, the result is an item level forecast from which inventory planning can be completed.

There are several critical factors in proper demand planning:

- Level of Forecast: Define what level is correct for generating the forecasts. You can use the product (item, class, and family), geography, or customer profile.

- Collaboration: The process cannot be put into a box solely resting on statistical processes. You must review the output and put your understanding of the market to “cleanse” the right end projection.

- One Time Occurrences: Make sure you cleanse one-time historical events when completing demand planning. On the flip side, make sure you include new events and the timing their occurrence when demand planning.

- Metrics: If you cannot measure it, you cannot improve it. Make sure you measure demand planning accuracy and use these results to improve the process.

- Organizational Understanding: As a collaborative process, the entire business must recognize that every player should have a voice in the end demand plan. To collaborate

effectively, each player must understand the underlying process and make changes to help manage future projections.

- Focus: It is important to remember that 80% of the sales volume is generated from 20% of the items. Make sure you get the 20% right and find the remaining 80% of items which impacts the sales of the key items.

- Forecast Learning: Demand forecasting is an iterative, constant learning process. Measure forecast accuracy and develop the process to incorporate what has been learned.

- Heavy Lifting: Deploy statistical tools to help manage and digest the information to present a suggested forecast. Use the output to start your demand planning efforts.

As you shape your demand planning, there are several typical actions one should avoid:

Figure 27: Critical Players in Demand Planning

- Preplanned Numbers: Demand forecasting should not be impacted by a preconceived notion of demand. It should not be forced to hit a budget or sales plan.

- Limiting Inventory: One should not limit the inventory to match a financial plan. You need to trust the process to define the right demand profile.

- Forecast Level: Trust the right forecasting method for the right tier of inventory. Do not plan an aggregate for “A” products.

- Inventory Planning Integration: Trust the plans to drive operational tasks. Let the demand plan feed your inventory plan. Likewise, review product availability

realistically and curb demand to products (S&OP) you have in-stock.

- Forecast Views: Each level of the supply chain requires its own forecast. Whether, it is vendor planning, warehouse planning, or cash flow panning; each requires their own view of the plan.

- Silo Views: The entire organization needs to be grounded onto a single forecast. Each silo cannot come up with their own view of forecast. If there is an opposing view, it must be included into a single company forecast.

- Assumptions: All fundamental business assumptions must be clearly defined and agreed upon. All levels must be seeing the same business direction.

- Forecast Evolution: All forecasts are wrong, but some are less wrong. Moving closer to true numbers, requires an iterative process and a collective organizational dialogue.

In the end, demand planning is an organizational dialogue aided by statistical analytics. The process works to incorporate the collective knowledge of the business to plan the business. The output is foundational to supply chain management.

Capital Asset Management

For businesses, a capital asset is a type of asset with a useful life longer than a year, and is not intended for sales in the regular course of the business's operation. It includes types of property movable or immovable, tangible or intangible, fixed or circulating. Many times, because of the multi-year use, these items depreciate over time.

Because of the nature and size of the investment, businesses analyze long and hard the dollars tied up in capital investments. When agreeing to invest in these projects, they expect a sizable Return on Investment (ROI). Often, they are required to drive a strategic vision/direction for the business.

When analyzing these investments, one should consider the following:

- Capital Portfolio Priority: Capital-investment performance is reviewed by investors to evaluate an organization's value since it is a precursor for driving growth and increase overall ROI capital.

- Total Business Involvement: Facilitate holistic business brainstorming to define the use of capital funds that drives the best end business solution.

- Fair Evaluation: Set a standard way of evaluating projects (e.g. Net Present Value (NPV)) to eliminate “pet projects” from receiving preferential support.

- Business Case Management: Update the business case constantly throughout the project and establish project “gates” to agree on continued investment.

- Return on Investment Drain: While, this is a good measure of a projects intended impact, plan for this to be updated during the project so it does not burden the team with its development.

- Clear Hurdles: Make the hurdles for a capital approval clear and defined. Eliminate delays in taking advantage of strategic initiatives because they are burdened with business case development.

- Forecast: Provide consistent project forecasts to inform the team on progress/delays so critical funds can be diverted if necessary.

If you adopt a culture of continuous improvement, teams should be constantly sizing potential improvements to the business. In doing so, guiding information is readily available and the ecosystem is in place to update approved projects. Armed with information, teams will make better capital decisions without requiring management intervention.

Event Management

Businesses plan for one-time activities to occur that are not planned to repeat. These “events” impact the supply chain in a multitude of ways. The ripples are felt from demand planning, inventory planning, transportation management, distribution center management, all the way through to customer order management and selling location management. Managing these one-time events is different based on where you are in the supply chain.

- Demand Planning: Events represent a bump in demand that would not be planned using history as your guide. Further, it is demand that you want to remove from history to ensure future forecasts do not plan for them to occur again. Developing a strong event planning process ensures that marketing and sales operations are in lock-step to creating the selling collateral and staffing support to manage the event.

- Inventory Planning: Once an event is planned and is a part of the demand plan, the procurement engine goes into overdrive to provide the required timed inventory flow. This will engage the manufacturing planning and resource planning efforts to make the products as required. Product pricing and the potential margin opportunities is defined and drives the final product selection.

- Transportation Management: Events in terms of transportation are interruptions in flow. An example would be a strike at the Port of Long Beach. There could also be certain company restrictions to flow. Often carriers will send notes/messages highlighting events within their network.

- Distribution Center Management: Events in distribution terms are impediments to the flow of goods through the distribution network.

In all perspectives, events must be logged, understood, and action plans taken to mitigate their effect on the supply chain.

Developing a formalized approach to manage risks (events) within the supply chain is critical to enabling a robust operation. Take the time to project potential risks and plan for them. Supply chain event solutions will capture these plans and enable them when and if they ever present themselves.

Figure 28: Supply Chain Event Management Hierarchy of Tasks

Service Level Modeling

When performance is variable and unproductive, service level modeling provides the toolkit of analytics to digest the diversity of the operating parameters to model its impact on inventory. It is a useful approach when completing the inventory planning activity.

Defining service level is an art and a science.

Simply, the service level parameter tells the percent of population that you will plan for. An example is an inventory in-stock service level of 95% means you will plan to miss 5% of the demand signals. In a year, that is three weeks of demand you will run out of inventory totally, including safety stock. Safety stock is the tier of inventory you hold to cover these types of events, by using a 95% service level you are stating you are willing to invest in inventory to ensure you are in- stock 49 of the 52 weeks.

There are several critical inventories impacting data elements that benefit from this approach:

- Vendor Lead Time: This is the relationship between the agreed to lead time and the actual lead time.

- Vendor Accuracy: This is the accuracy of the vender shipping the amount approved on the purchased orders.

- Customer Lead Time: This is the accuracy of the transportation provider delivery performance to the stated delivery time.

- Forecast Accuracy: This is the accuracy of the demand forecast to the actual demand.

Variability in the supply chain requires that additional inventory be provided to cover the lack of consistent performance. Service level modeling provides the systematic means for consuming the performance variability, digest a service level assignment, and deploy analytics to recommend the right inventory levels.

Vendor Collaboration

Vendor collaboration in the 21st century is not what it was in the 20th century. Businesses are looking for their suppliers to bring innovation, market insight, and add value to the buying-selling experience. Getting maximum value out of the vendor relationship requires that businesses see their vendors as a valued asset and not just a provider of goods and services.

- Vendor Responsiveness: As sellers react to the changes in market demands, they require their vendors to respond and help meet the changing needs. Being able to change outstanding orders and amend them to new products is critical in reducing unnecessary costs.

- Vendor Synergies: By treating a vendor as a collaborative partner, you allow them to work through their network to mitigate risk. Holding this information close to the “bakes in” creates costs that you will find hard to mitigate.

- Unleash the Collaborative Power: While you may source a component from a vendor, they may have engineering insight that might help on other products. By working openly and collaboratively with your suppliers you unleash their knowledge and product design capabilities.

- Value of Co-Marketing: If you are selling a brand that is bigger than yours, look for

ways to co-market and leverage their brand recognition.

- Suppliers Can Drive Efficiency: Partnering with your vendors can help provide goods in a way that eliminate your costs.

- Suppliers Know What You Need Better Than You Do: Make sure you lay-out your intended use of the products you are sourcing. They know what they sell better than you do and can help you satisfy your requirements better than you can articulate them.

How do you develop a work class procurement operation? It is with collaboration. Here are the top collaboration components:

- Share Your Business Strategy: Vendors can better help you meet your goals if they understand your strategy. By divulging where you are going, they can help prepare their infrastructure to support your needs.

- Trust: Develop a strong collaborative relationship requires time, trust, and a willingness to openly share important information.

- Focus: Understanding what a vendor is good at is important to unlocking their potential. Find the vendors expertise and allow them to unlock their knowledge to your advantage.

- Information Flow: Develop a seamless communications protocol that shares your best view of the future. Share where you see potential upside so they can plan to support you if it materializes.

- Metrics: Set clear measures of performance. Track progress to these metrics and set regular meetings with resulting actions to improve on the relationship. Remove the nameplate of each business from the discussion and lead with the common “we” verbiage.

Vendor collaboration is a very strategic initiative with very tactical features. It is best described as a culture set to manage your product/component sourcing. Implemented to its fullest, a collaborative partner can provide engineering skills, product knowledge, and a market understanding that will help you be better positioned to compete.

Landed Cost Management

Landed cost is the most tactical task in the capital efficiency stack. It is listed in this stack because products (tools and products) result in a total price which includes all costs to get the product to the buyer's door. The landed cost includes the original price of the product, all transportation fees (both inland and ocean), customs, duties, taxes, insurance, currency conversion, crating and handling, and payment fees. It will tell you the "fully burdened" cost of procuring an item.

By understanding the fully landed cost, you may find local sourcing options that are cheaper than overseas offerings. While completing the calculation is time consuming, estimating gaps in knowledge can help you define the right strategy. It is a great way to think through the supply chain to recognize where your requirements may be creating costs in the process.

Do you know how much your goods cost you? Are getting the products you need at the lowest cost available?

3.6 Profit Management

Every business sets out to make the most profit. In this stack, we discuss the supply chain initiatives that helps drive profit. It is a mix of the procurement and selling processes that work together to decipher what the market will bear from both a buying and selling perspective. On the far right of the periodic table, these initiatives are very strategic in nature and involve discussions with the senior management team.

Supply chain strategies give life to topside revenue dreams. It is the place where action must take shape from high level discussion. In this stack, the theoretical market potential of future products take shape into real product procurement.

Assortment Rationalization (Planning)

Assortment rationalization is the analytical process used to determine the merits of adding, retaining, or deleting items from a seller's offerings. The analysis includes a holistic view of the market offerings and competitor (direct and indirect) positioning to determine if a proposed product should be added to the offering. The analysis must include not only the viability of adding the item to your assortment, but determining the size of the potential market and sizing the profit that the item could generate.

To complete the process effectively one should consider:

- Life Cycle Management: The team should review the life cycle of every item to determine the impact of new entrants to the assortment.

- Customer Voice: Sellers should listen to their customers voices in selecting the types, brands, and product attributes that meets their requirements.

- Brand Strategy: The products you sell should align with your image and brand.

-

  Product Demand Cannibalization: Customers are loyal to some products and are lukewarm to others. Understand those products. Evaluate alternatives in other products where substitution is common.

- General Market Availability: Be careful to understand the products that are readily available in the market. You do not want to compete with goods that have high supply and low demand.

- Product Carrying Cost: Understand the total cost of carrying the proposed inventory. Minimize investment in products with high shrink, low margins, and high handing costs.

- Test Your Assumptions: Test your assumptions of demand before expanding it to the entire business. Set realistic targets and demonstrate an ability to deliver results before heavily investing in a new product.

- Re-Align Strategy: The rationalization of items must be a continuous process. The business should be open to this process and operations set-up to support item rationalization reviews.

Listening to your customers is key to being successful at assortment planning. Here are some helpful hints:

- Troublemaker SKU's: Items that have low-frequency/high correlation are important to detect. These are upsold items because they are highly correlated to its related items. Their low frequency of demand means they do not sell on their own and require sales effort to sell.

- Bundled items: Items that are bought in high quantities, but always with other items are great candidates for merchandising and bundling.

- Drop Ship Items: The low frequency/low correlation items are the targets for SKU rationalization projects. These items are hard to sell and have a limited traffic of natural demand.

- Traffic Drivers: Items that sell in high frequency, but usually on their own, require high service levels. These items draw customers to your products, but they do not help to sell any other items.

- Dependent Sales: Items that always sell with another item. Demand from the first item will automatically provide demand to the complimentary item.

In this discussion, we have used low demand that is based on the number of purchases rather than the total units purchased. Correlation is a statistical term that defines how closely the action of one element predicts the behavior of the other. By understanding your item behavior and your competitive positioning you can evaluate additional products.

Merchandise Planning

With the establishment of the optimal assortment, the process moves to the merchandise planning. This process provides a systematic approach focused on maximizing the ROI by

planning sales and inventory deliver optimal profits. The process manages the entire sales process including the revenue cycle (initial sale price, markdowns to move the residual inventory, and end of season close-out pricing) and in-stocks to optimize the selling opportunity.

There are several major trends impacting merchandising planning:

- Product Choices Keep Growing: Customers are demanding more and more items. As a result, the assortment is broadening to provide what the customer wants, when they want it. This puts a lot of pressure on inventory and demand planning systems to manage the requirements and minimize inventory.

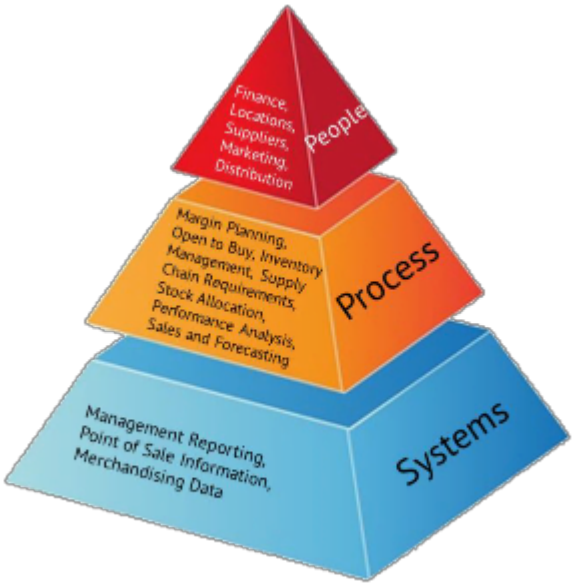


Figure 29: Merchandise Planning Construct

Constant Innovation: Merchandise planners must have the market sense to extend current trends and line plans to the next iteration products to effectively position the business with new products.

- Need for Speed: Trends move quicker today than ever. What once took a season or two to move from Europe to the United States, or the east coast of the United States to the west, now takes weeks. As a result, merchandise planners must work with suppliers to foresee these trends and jump on them once they materialize.

- Consumers Have Been Trained: Traditional retail has lived by the sale game. They have offered sales for every holiday to entice buying. Unfortunately, customers are now trained to wait for these events. The merchandise planner must be aware of this trend and find complementary items that may recoup the margin loss.

- New Way to Style: Social media has opened the opportunity to hear the true customer voice concerning products and their styling. Facilitating customer interaction in the creation of goods makes sure their voice is heard and appropriately responded to.

Done poorly, ineffective merchandise planning leads to the following supply chain symptoms:

- Loss of First Mover Advantage: You will be late to the market and unable to take advantage of the profits from being a first mover.

- High Inventory: Excessive inventory levels and low inventory turns.

- Selling the Wrong Product: Failure to stay up with the latest product. Having the last generation of products on the shelf and not keeping up with the newest trends.

- Excessive Markdowns: Inability to hit margins goals and being forced to take deeper discounts to move inventory.

- Poor In-stock Levels: Inability to keep top locations with inventory of the latest products. In certain situations, an inability to provide the latest products to all locations because of limited supply.

- Missing of New Trends: Inventory planning that plans for what they have today and does not sense the next trend. As a result, they must lock-up the next generation items before they are popular or be a part of developing the next generation items.

- No Understanding of Lifecycle Management: A failure to recognize where a product is in its life cycle.

- Limited Strategy and Planning: Reacting to what is sold rather than having a strategic plan for what the business should be. This results in inadequate margin management and no strategic plan for the season.

3.7 Loss Leader Management

Loss leaders are products that are sold below market price to stimulate sales of other more profitable products. This is a heavily used practice that gets the customer in and buying the advertised product with the expectation that complimentary items will also be sold that have a strong margin. This practice comes in many forms a) grocery store free giveaway, b) buy one get one free, and c) sale of printers at a low price knowing the ink cartridges are very expensive.

Using this strategy is a great way to move slow moving inventory that helps free up needed working capital. While helping to grab new potential long-term customers, it is a great way to clear end of season or special buy products. One should be careful, however, because the "special pricing" sets a new expectation of price for your customers.

There are laws in certain states that forbid selling goods below the Minimum Advertised Price (MAP). When implementing these strategies, one needs to make sure they are confident they can sell the profitable goods to ensure it does not result in lost profit.

Using this strategy requires planning to ensure inventory is available, complementary item stock positioned for sale, and the selling staff is trained to sell the profitable complementary items.

Successful implementation requires coordination by the entire organization. Demand planning teams need to include this demand as an event in their forecast. Teams will need to model the lift in complementary goods as part of the forecast.

Inventory planning efforts will need to be completed to position inventory to support the event. Additional inventory will potentially need to flow to ensure in-stock positions of these items. Store operations will need to be aware to make room for additional product supply.

Merchandising will need to adjust floorplans to accommodate the product supply. The marketing team will need to ensure there is proper communication to encourage customer interest. Sales operations support will need to be ready and in position to service the customer when they arrive.

Loss leaders are a tactical way to gain customer traffic. It has a real impact to the supply chain operations. The impact on assortment and merchandising planning are significant since running an event of this type sets a new market expectation of price.

Profit Planning

Every company is in business to make a profit. Planning on how this will be achieved is not an accident, but a product of a defined strategy and a specific set of actions. For a small and medium sized business where cash flow can be lean, profit planning is critical to ensuring the longevity of the business.

Figure 30: Profit Planning Overview

The profit planning process takes the topside strategy and ensures that the planned approach delivers the profits needed to support the business. At a high level, the steps to this process include:

- Profit Goals: As part of the strategic business plan, cash flow planning requires that the team estimate the resulting profit. The team must break the topside profit expectations into segments that can be bridged to the assortment plans.

-

  Sales Volume: The most important aspect of the process, forecasting the sales, volume must include an understanding of trends, strategic focus, and the competitive landscape. The demand planning team works to collect the organizational view of the business to define the revenue and profit plans.

- Expense Projection: To ensure the resulting profit defines the true landed profit, the team must burden the revenue with the expenses needed to get the products in position for sale. Supply chain and operations teams must understand the landed cost of a product to facilitate this effort.

- Profit Estimates: Given the analysis, assortment planning and event planning will react to provide items and revenue to reach the profit goals.

This process iterates monthly, seasonally, and annually as the business manages its way to profitability.

This is a very strategic exercise which requires inclusion of the entire business. The results of the process are events and weekly sales expectations to better plan the operation. This activity is critical in a business to ensure that it will deliver the requisite cash flow to sustain operations.

Target Pricing

The last of the strategic initiatives in the profit management stack, target pricing, is the process of reviewing your internal assortment, understanding your competitive position, and determining the pricing for each item. The goal is generating organizational profits.

Developing the right selling profit requires you to understand the competitive landscape. Working with your vendors can help identify ways to reduce cost and add value in the products you sell. As you balance purchase price (target cost) and selling price, here are a few things to remember:

- Selling Price: Many believe that the market defines the price and that you must accept the current pricing acceptable. As discussed in the loss leader and event management conversations, there are ways to counteract this process.

- Landed Cost: Procuring goods at the lowest cost helps create profit. Understanding the landed cost may lead to initiatives to remove cost and increase profits. Pack size, vendor labeling, and direct shipments, are ways to reduce handling costs and increase profits.

- Price Management: The best way to create profit is to add value to a product. By collaborating with your vendors (as previously discussed) you may be able to offer new product attributes which helps increase the selling price for the same purchase cost.

To develop the right target price you must balance the profit expectations to the cash flow requirements. Working closely with the supply chain team can unlock tactical and strategic operational changes that can eliminate cost.

While going through this process, you should consider:

- Listen to Your Customer: Deriving value from long standing products can come from providing small tweaks customers want. By listening to your customer, you can uncover these opportunities.

- Design for Efficiency: Include the supply chain and manufacturing teams during the design process and engineer for savings. Collaborating with your vendor can also unearth their ability to reduce costs.

- Cross Functional Collaboration: Understand organizational pain points and costs to engineer solution to reduce the landed cost expense items.

- Cost Clarity: Lay-out all costs burdening an item's profitability. Set a clear target and work collectively to design a process to reach your goals.

- Life Cycle Management: Be honest about where an item is in its life cycle and be reasonable about profit expectations.

- The supply chain team can be a critical member of the team in harvesting expense reductions.

Selling Price Management (Competitor)

The tactical execution of the selling process is the selling price management process. Businesses must determine how flexible they want their selling price to be. If your competitor offers a low price on a segment of products, do you adjust your price to match? If you do, does the greater supply chain get a heads-up?

Creating a robust supply chain will allow you to respond to competitive pressures as you choose. A strong vendor relationship can aid in securing needed product flow as the market shifts. Providing the right information flow ensures that complicated direction can be easily communicated and executed with minimal delay.

Managing a dynamic pricing model requires forethought and planning. Ensuring that field associates quickly and totally adjust to price changes ensures optimal response to your competitors. Digital signage in brick and mortar retail is a great example of how you can quickly respond to changes in the current selling process.

Price/Positioning Testing

Balancing the revenue generation with the velocity of item sales, ensures you generate maximum capital to fund the business. Managing one without the other creates a burden on

the balance sheet that can be fatal.

When the business does not realize the planned selling levels, they often adjust their approach to “get back on track”. Using statistical methodology to measure the relative gain/loss is critical to learning customer behavior drivers. The team should set-up the program to design tests and measure the results of these tests.

To be able to accomplish this, you need a test group and a control group. The test group should provide a representative sample for the end solution to be rolled out. The control group, the group unaffected by the test, should also be a statistically good representation of the group for which the end change will be rolled out to. Both test and control evaluations should be selected using statistical methodology to determine the right criteria for selection.

Run the test for a long enough period to get a true customer response. Read the results of the test and then make the final decision. Include any changes into the demand planning and inventory planning processes.

By running this process, the team can learn the true drivers of their customers behavior. They will develop a playbook of actions that can be taken to entice demand for slow moving, orphaned items. They will be able to call the right play, at the right time to ensure the balance of revenue and the item sell through is maintained.

3.8 Strategy Development

Strategy development is the lifeblood of the business. It sets the course for the business and sets the path for the future. It is the quintessential process that incorporates the vision, mission, objectives, strategies, and action plan activities to establish the company direction.

As Jack Welch said, “Good business leaders create a vision, articulate the vision, passionately own the vision, and relentlessly drive it to completion.” The strategy is the vision and helps all other activities anchor their activities too. Without it, the business is rudderless and unable to reach any of its defined goals.

Strategic Planning

Strategic planning is the most important activity senior management will undertake each year. During this process, they will evaluate the company’s direction and re-establish the direction of the business. It should take an honest assessment of the competitive landscape, the company specialization, and what their customers/markets demand today and in the future. The end goal of the process should be an operational and branding roadmap to strategically compete in their market.

Fundamentally, the business should continuously re-evaluate their mission, their vision, and their values. Let’s evaluate the meaning of these three elements:

- Mission: A statement of your core purpose, why you exist.

- Vision: A future tense statement about your desired state, where you want to go, and what you want the business to become.

- Values: Clearly defines the guiding values/principles of the company, how you want people to interact.

In combination, these statements create the underyling business culture. Once grounded, the team can focus on evaluating the competitive landscape and where you fit into the marketplace. Break down your uniqueness in the following buckets:

- Differentiator: Something you do or offer that distinguishes you from your competitors. Customers should be able to point to your differentiator and it should be a part of their rationale when buying from you.

- Difficult to Imitate: Your competitive advantage must be difficult for you competitors. This could be in the form of people, process, technology, and/or unique services.

- Continuous Improvement: While a differentiator today, there are certain competitive advantages that one must continue to evolve or develop to maintain their position. These traits must be a focus of continued improvement.

Organizational strategies should be facilitated that enhance your competitive position while driving toward your strategic vision.

There are five fundamental questions your strategic plan must answer:

- Goals: What is the business's niche and what are the tangible metrics to measure success?

- Competitive Position: In evaluating the competitive landscape, how will you be competitive and what opportunities are not right to chase? It is essential to set your boundaries and stay true to your plan.

- Pathway to Success: Once the playing field is defined (competitive position), what is the approach that will ensure the business is successful?

- Essential Infrastructure: What capabilities are required to lead in the playing field of choice? How can you use your infrastructure as a competitive advantage?

- Measurement: What is the balanced scorecard that helps ensure we lead in our space?

Understanding what winning means is critical to developing a plan to lead your market. Include as many voices as possible in the strategy development process. Facilitate candid dialogue that openly and freely debates the future company direction. Create a planning "safe zone" that allows all voices to speak with equal weight during the discussion.

Cash Flow Management

Second only to the business strategy, cash flow management is the biggest strategic and tactical concern of a business. Without the appropriate cash flow, the business cannot pay its employees or vendors, which directly impacts the sustainability of the business.

Proactively managing the cash flow requirements of the business helps the company ensure that it has the lines of credit to sustain operations.

Cash flow is the usage of money to fund the business. How can you improve your cash flow?

- Measure Cash Flow: Develop a comprehensive ledger of accounts that show expected inbound payments and outbound expenses to understand the timing of cash use and collection. Along with the strategic plan, the cash flow schedule will help understand deficiencies.

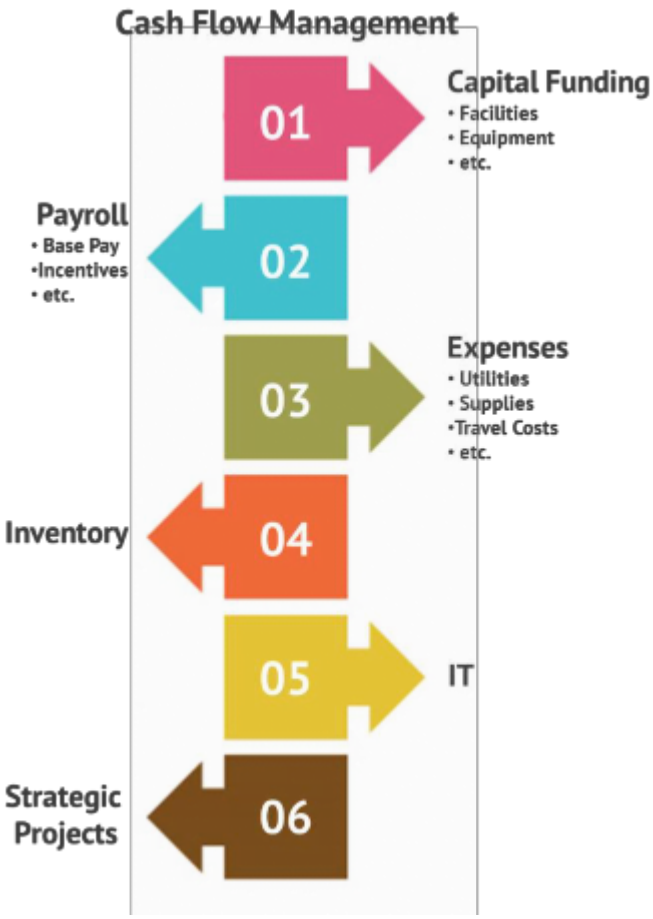
- Improve Receivables: Evaluate the timing of base customer payment schedules and offer reduced product costs for quicker payments.

- Manage Payables: Hold your cash if you can before paying your vendors. Use tools like electronic payment, delayed vendor terms, and buying at a higher price to get terms that help your cash flow.

- Survive Shortfalls: The earlier you can identify shortfalls the better you are at finding a solution. Banks and/or suppliers may offer terms to help during periods of shortfall.

Managing your cash position enables you to manage your business better to meet your commitments.

Here are a few thoughts on how to best manage your cash flow:



- Own or Lease: When the business is cash strapped, it should consider leasing capital assets to minimize its cash requirements. This has an added advantage of placing the repair and replacement burden on the leaser, but does not give the business the tax advantages of owning the asset.

- Bill Immediately: Most B2B transactions come with payment terms (e.g. net 20 days). Start the clock immediately upon the goods being delivered so you shorten the delivery to cash cycle.

- Pay Incentive: Incentivize your customer to pay on short terms. Give shorter terms better pricing. The backside of this is applying penalties when payments are late.

- Sales Campaigns: Find creative sales campaigns to incentivize customer purchases and turn inventory into cash.

- Third Party Support: Partner with third party partners to collect on outstanding receivables.

- Visibility: Update cash flow views regularly to get early visibility to potential shortfalls. Give yourself as much heads up as possible to resolve any potential issues.

- Having the Right Tools: Invest in tools that help manage and collect receivable.

Give your team the right tools so they can effectively chase opportunities. Do not let your profits be tied up in receivables delays. Staying on top of your cash flow helps you understand where your profits may be getting lost in cash flow actitvities (i.e. interest costs for lending money to cover operating costs).

Business Profit Planning

Small and medium businesses (ones with limited capital) must ensure that any effort taken on results in profit. They do not have the scale to “waste” efforts on activities that do not add value. Profit planning is a holistic progress of reviewing revenue and expenses and ensuring that needed profit is not wasted on unnecessary costs.

The basics of profit planning includes:

- Business Operation Evaluation: By understanding the overall business expenses, you can pinpoint processes that are draining critical cash. One should review the profits from each stream versus the costs to remove unnecessary operations that drain profit.

- Marketing Impacts: Marketing costs are one of the largest expenses in “drumming up” interest and demand for products. By critically reviewing these costs and comparing it to the benefit they deliver, you can remove cost drains.

- Funds Use: Each business unit requires funds to support the business. As the needs (funding) is defined, the business should evaluate the profits generated and critically evaluate the funding levels.

- Staffing Plan: A business is the collection of the right staffing resources with the right expertise to complete the business mission. Teams need to evaluate the recurring staffing costs of each function and role for ways to reduce cash requirements.

Completed on a periodic basis, profit planning provides a needed managerial checkpoint to ensure the company is using the funds as effectively as possible.

By benchmarking your plan to your competitors, you can get a good understanding of the viability of your plan. If your planned performance is far better than your competitors, you

should critically review your plan for missed activities or costs. If the approach deemed correct, you should ensure that your profit advantages are protected and managed to deliver the competitive advantage.

When times get tough, here are a few profit planning parameters you should plan for:

- Price & Terms: In tough times, you will need to manage more closely the terms of your customers. When times are tough for you, they are tough for everyone so being lax on outstanding receivables results in more write-off's.
- Staffing: Recognizing the cash flow strains helps you freeze hiring and manage more tightly.
- Inventory Policies: Reduce the "gamble" on potential upsides and protect the business with assured volume. Tighten the inventory policies to reduce cash drains.
- Capital Spending: Delay strategic expenses.
- Credit: At the first signs of a contracting economy, get credit terms established.

Make sure you begin to manage your lending source relationships and give them regular updates on the health of your business.

Preparing the business for down trending markets ensures that you are healthy during strong markets. Having a clear plan and action to work during these times helps establish the controls to acknowledge these environments and ensure the business is sustained.

Very different from profit planning under the profit management stack, this initiative is a topside business review of profit and a strategic determination of how to adjust the strategy to manage through lean/good times. This process should be a component of the strategic planning process detailed at the top of this stack. It has a very high strategic value and a high inertia energy score.

Integrated Business Planning

Figure 31: IBP Overview

Integrated Business Planning (IBP) extends the principles of S&OP throughout the supply chain, product and customer portfolios, customer demand and strategic planning, to deliver one seamless management process. Completed in concert with the entire organization, IBP are industry best practice models for ensuring a total business dialogue through the planning and alignment process.

IBP is helping streamline the annual planning and budgeting processes through the development of balanced scorecards and ensuring metrics are aligned. Because of the collective nature of the process, the overall approach is causing integration (information and technology) to support the use of better analytics.

Driving the process is best completed by checking the following items:

- Benchmarking: Review your performance versus best in breed performances for opportunities to improve. Defining the right performance metrics is based on your market and your competitive advantage.

- Team Education: Getting maximum value from the process is based on the whole team understanding the process. Teams should have a clear mission, procedures, and goals for the process. Teams should develop the level of analysis and resulting documentation based on their competitive assessment.

- Executive Commitment: The process must include the players that will own the process, the results, and the plan implementation. Players in the IBP process must be committed to the success and stress its importance and value to their teams.

- Technology/Infrastructure: Teams must have tools at their disposal to bring together and reconcile demand, supply, and financial plans, to identify gaps and imbalances. Once identified, these tools should enable scenario playing and operations planning integration to drive planning solutions.

From a supply chain perspective, IBP provides a collaborative work environment for recognizing and resolving strategic business modeling. Historical gaps between financial and supply chain gaps in plans are resolved through the IBP process.

Supply Chain Risk Assessment

Supply chain risk assessment is the most strategic activity the supply chain organization can complete. This process helps ferret out natural disaster, political, geographic, and resource risks. Once risks are identified, the supply chain is responsible to create resilience within the business.

What is resilience? It is the power or ability to return to the original form, position, etc., after being bent, compressed, or stretched.

By taking the time to prepare for potential risks, you have the time to think through the appropriate responses to effectively deal with them in a systematic, controlled way. Often, teams fail to complete this preplanning and as a result miss vital processes like communication plans, back-up plans, and deploying alternative resources with little financial impact. Creating resilience is a culture.

Figure 32: Five Steps to Manage Risk

As defined in Maslow's hierarchy of needs, dealing with risks is similar. Make sure to satisfy the business's lower needs before moving to higher order needs. Starting with the documentation of the plans and processes that define the organizational response.

Creating an organization sensitive to risk is a cultivated approach and not one generally implemented in the industry.

There are five fundamental steps in creating a risk based organization:

- Stakeholder Concerns: Every team should be involved in defining the potential supply chain risks. Focusing on the most important, understanding the risk stakeholders and the issues that keeps them up at night.

- Risk Identification: This step does a review of suppliers, lanes, political landscape, wars, geographic review, and natural disaster patterns to highlight specific risks and the items at risk. This will serve as the roadmap and plan for the risk activities. Make sure you review your supplier sources to ensure they are not imposing risk by the locations of their sources.

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  Figure 33: Risk Hierarchy of Needs

  Risk Mitigation: With risks identified, the team must define strategies and plans to mitigate them. Risks must be evaluated holistically with a mitigation plan being developed. The mitigation strategy should include the communication plan and triggers for execution.

- Risk Measurement: The earlier you can identify a risk, the better. The team must generate monitoring processes which could include third party agencies, vendor scorecards, and real- time news reporting. Teams must develop a strategy that picks

up on risks as early as possible.

- Simulation: Teams should complete dry runs of events to ensure all the needs are documented. We do this for fire drills. Teams should take this exercise seriously and run through an event end to end to see how well the event has been planned.

Planning requires an investment. Senior management must value this process and be willing to invest in it with resources, systems, and time.

Go-To-Market Strategy

Under this initiative, we start to move towards how we reach our customer. The Go-To-Market (GTM) strategy defines how you will reach your customer and achieve a competitive advantage. This process is the quintessential link between the marketing, sales, and distribution strategies. All teams need to work in harmony to meet customer needs.

Development of this strategy considers a clear understanding of your customer segmentations, what your customers want, and how they want to interact with your business. It incorporates assortment planning, customer interaction, and cost management activities. The goal is meeting customer expectations of offerings, prices, and interactions.

Developing a comprehensive GTM strategy includes the following parameters:

- Business Strategy: The output of the strategic planning process. Defines the fundamental business focus and approaches that must be supported.

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  Product Strategy: The output of assortment planning and merchandise planning process. Defines the product focus and any changes in products.

- Channel Strategy: The output of the customer interaction stack defines how you will interact with your customers.

- Marketing strategy: Output of the event management activities. These are unique activities to increase customer awareness and enticing consumption.

- Distribution Strategy: The output of the network design activities listens to the customer experience requirements and designs the physical flow of goods to meet the customer expectations.

- Customer Expectation: An active feedback loop where your customer can tell you what they want.

- IT Infrastructure: An output of the next generation technology activity product systems and solutions to better interact with the business actors (internal and external). It is the way to provide speed to the business and make interaction quick and easy.

- Success Measurement: The output of the KPI activity where you establish an active performance achievement. Performance is compared to a design expectation to measure attainment of a designed goal.

There are two basic means for reaching your customers:

- Direct: When a company sells directly to a customer, they are responsible for managing all aspects (e.g. marketing, sales, procurement, distribution, invoicing, etc.) of the interaction. The business must invest in the resources to build these capabilities and evolve them as your customer demands change. While you have the flexibility to run it exactly as you like, you have the offsetting burden of finding the right professional to create and evolve the process.

- Channel: The channel is a partner of selling professionals that markets and distributes your goods on your behalf. You simply provide the products to them at an agreed upon price and they assume the costs and responsibility of sales and distribution. Since they are providing these services for multiple companies, their operations are efficient and cost effective. You share their team's attention and focus.

Go-To-Market Channel Comparison

Operational Element	Channel	
	Partner	Direct
1. Provides Credibility		
2. Facilitates Scaling & Ramping Sales with Limited Capital		
3. Reduces New Customer Acquisition Costs		
4. Experise of Local Expertise (e.g. Laws, taxes, etc.)		
5. e-Commerce Infrastructure and Expertise		
6. Cross Market Interest ➔ Multiplier Effect		
7. Improves Company Valuation and Fund-Raising Ability		
8. Cost Efficient Market Reach and Visibility Expansion		
9. Ability to Bundle Your Promos with Other Companies		
10. Leverage an Existing Robust Supply Chain		
11. General Business and Logistics IT Infrastructure and Policy Definition		
12. Control of Customer Information and Buying Behavior		
13. Control of Content Creation, Lead Nurturing and Marketing Execution		
14. Unanticipated Costs to Focus Energy on Your Products		
15. Sales Ramps		
16. Focused Marketing on Your Products		
17. Continued Long Term Commitment for your Goods		
18. Continued Training for Channel Sales Team		
19. Comprehensive KPI Reporitng		
20. Understanding/Insight of Corporate Deals Decisoin Making		
21. Limited Specific Sales and Marketing Channel Commitments		
22. Clear Sales Quota and Revenue Accountability		
23. Valuable Market Feedback on What Is and Is Not Working		
24. Quick and Efficient Speed and Time to Market for New Products		

Figure 34: Pros/Cons of Go-To-Market Strategies

Developing a clear understanding of your customer, their requirements, and the optimal ways to reach them is pivotal in defining the right GTM strategy.

S&OP Planning

When it comes to sustaining the business, and working through supply gaps, S&OP is the most readily recognized process to ensure the sales and operations teams are align tactically on strategic goals. S&OP is the process that facilitates business conversation into what needs to be done to hit sales and revenue targets. Because of its tactical nature, S&OP focuses on supply gaps and helps problem solve substitutes available to ensure the team hits their targets.

Many organizations understand the value of the process, but fail in its implementation. It is a process that must be valued by the entire organization and the problem solving must be cross functional and holistic. The reasons why these programs fail include:

- Lack of Senior Management Support: Senior Management must actively participate and require others in the business to be a part of the process. They must take ownership of the results and ensure that the meetings lead to concise, focused, and strategic actions that drive toward the strategic plan.

- Cross-Functional Engagement: The goal of the process is to resolve gaps in the plan to ensure the business meets its commitments. All players (sales, finance, distribution, procurement, etc.) must be involved in the process to ensure the resulting action leads to short and long-term requirements. Any player missing from this process ensures the executive team is out of synch with one another.

- Misaligned on the Goal: While executive teams are rewarded for consistent performance (i.e. hit the numbers you commit to), there may be times when “opportunity” presents itself. This could come in the form of a new customer, a new

product, or struggles from a competitor. Having the ability to work through these changes, allows you to harvest these opportunities. Teams should not get locked into a plan. They need a way to work through “opportunities” positively and negatively to deliver their numbers.

- Streamline Change: Plans provide direction, but must be nimble enough to change as reality presents itself. By formalizing a regular business check-in and establishing KPI’s of success, the teams can work for improvement in harmony with long-term goals as they move forward. S&OP provides a structured regular check-in to enable teams to raise issues as they arise.

- Learn as You Go: Teams should document events so they can refer to them later if they present themselves again. By collecting these experiences and responses, they can develop a playbook of how to respond. Conversely, if actions taken do not lead to the desired result, teams should change their actions and develop the right play using their hindsight. This will help them respond better the next time.

The S&OP planning process is intended to structure change. Players must come to this process informed. It is best executed when the teams have a singled minded focus on helping the business succeed.

At its most fundamental level, S&OP manages the relationship between demand and supply. It is constantly managing the inbound customer orders (demand) against the available supply (inventory, facility capacity, resources, etc.) to ensure that commitments can be delivered. When there is a mismatch between what the customer is asking for and what the team has available, the team must work together to find an acceptable solution so the customer does not go to a competitor to get their needs met. Teams representing demand (i.e. marketing, sales, etc.) must work with the team representing supply (e.g. procurement, distribution, inventory management, production scheduling, etc.) to find solutions that meet the financial goals (e.g. finance, accounting, etc.) of the business.

Aligning the executive team of a business ensures consistent, effective execution. The S&OP

process (a portion of the integrated business planning process) provides for a regular, structured check-in on the plan and works to problem solve risks realized to ensure target execution. Driven by the most senior of leaders in the business, it must result in tangible, concise actions that align with the long- term business strategy.

Competitive Differentiation

Now more than ever, customers are being bombarded with product and vendor choices. The emergence of the internet and eCommerce business has enlarged the potential supplier network. Customers are now overwhelmed with routes to secure a product they desire.

How do you stand-out in the crowd? You must provide a product, service, or customer experience that makes you become the provider of choice. Once this has been done, you must work constantly to enhance this differentiator so that your competitors cannot replicate your differentiator and nullify your competitive advantage.

The most fundamental way to differentiate yourself is by your brand. By merging three to five of these brand differentiators into a seamless business process you make yourself tougher to compete against.

- Quick Response: The ability to provide the latest goods and service either a) before they are desired or b) as they are desired. If you can do this faster than your competitors, you can become the source of choice.

- Best Quality: If you can build quality into your goods so that they are superior to your competitors' goods, customers will reward you.

- Delivered When the Customer Wants It: If you can make a promise to a customer and deliver on that promise, customers will view you as adding value and treating them right.

- Appealing Location: If you have a convenient way of doing business, customers feel comfortable and will shop at your location.

- Image: Your products bring esteem to the customer and bring them a feeling or connection (e.g. celebrity) that they desire, they will search you out for interaction.

- Product Recognition: If you have a long-term relationship with your customers (e.g. Starbucks) and they recognize your name and are comfortable, you have a market differentiator that is hard to unseat.

- Price Competitiveness: If you can provide your products at a price that your customer deems as “a good deal” your customers will develop loyalty to you.

Cultivating a competitive differentiator is both a strategic and tactical process. It takes work and focus to create a distinct difference between how you interface with your customers and how your competitors interface with their customers.

The key to the process is to anchor your differentiators on approaches a) sustainable, b) hard to repeat, and c) adaptable to changes in competition. The business must recognize that competitors will evolve with your success. As a result, the team must constantly review their position and “stay ahead” of their competitors to win. Customers must feel that your changes are in their best interest and are not a self-serving process. If this is not the case, they will find a supplier that aligns with their values and supports their needs.

Customer Expectation Management

Managing your customer is critical to becoming the supplier of choice. More tactical in nature, this strategic activity requires planning, forethought, and a focus on understanding your customer. Strategies and resolution processes must be created to enable supplier dialogue and resolution execution to meet customer needs.

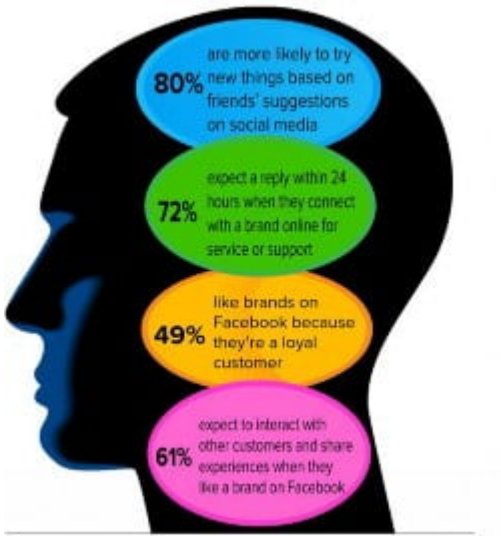

Figure 35: Profile of a Social Customer

Customer Expectation Management (CEM) goes beyond issue resolution. It is a holistic process of how to interact with your customer to ensure they feel special and important. You need to develop a process of listening, learning, and responding to their needs in an agreed to relationship that benefits both parties. It becomes an “acceptable business rulebook” that establishes an interaction agreement.

There are five ways to develop a strategy to digest and manage customer expectations:

- Informed Associates: Controlling customer expectations can only be achieved through the sellers understanding of the issues, the solutions, and an agreed to timeline for resolution. Having a process that informs the organization on the intricacy of issue resolution helps communicate the right message and ensures the customer feels

  informed on steps being taken to meet their needs.

- Committed Timelines: Customers understand delays may occur, but they demand that they are given a time of resolution that they can decide if they want to wait or not. If the date of resolution is missed, the customer expects you will bear the burden to make them accommodated. Failure to view delays from a customer’s point of view (rather than the company’s point of view) will render your approach ineffective.

- Be Transparent and Honest: Customers are making decisions on their supply partners based on the information they receive. Do not commit to a date, service, or accommodation that you do not have the authority or ability to execute. Provide the customer with clear and concise issue resolutions that you can execute and deliver.

- Be Positive: Be positive in the experience and leave them with the confidence that you can deliver. Be realistic in your discussion, but positive in how it is communicated.

- Communication: Follow-up with your customer and make sure they are happy. Enable customer focus groups and other ways of “listening” so you can better

  interact. Reward customers for honest feedback and take tangible actions in response. By fostering a two-way conversation, customers not only see change but they feel you are accommodating them and partnering with them.

- Under Promise, Over Deliver: Customers will reward you for delivering a good or service early. Conversely, they are not happy when you deliver it late. Be realistic in your timeline of delivery.

- Understand Priorities: Every customer has their own set of priorities and needs. If you can understand your customers true pain points, you can focus your efforts on the goods/services they value most. Spend necessary focus on the most valued issues and then work to close the lesser valued issues.

Many times, customers cannot articulate their needs until it is apparent to them. If you can understand their operation better, then you can anticipate their needs, you will add value to their operation. Helping bring your expertise to the table will help curb customer expectations and last-minute rushes.

Customers have different expectations based on the uniqueness of products (i.e. configure to order), the route in which they are purchasing, and the position of the item in the product life cycle. Suppliers should recognize this dynamic and tailor their experience to align with customer expectations.

Tactical Operational Plans

Developing tactical operational plans may feel misaligned under the strategy development stack. While, it is very tactical in nature, actions taken in the short-term must align with the long-term operational vision. It is this alignment with the longer-term business strategy that places this activity in this stack.

Many business activities are a collection of past experiences. An issue is realized and the business finds a solution to resolve it. This rush for a resolution often leads to a long term process precedent. If the solution is not scalable, the issue will rear its head again once scale overwhelms the short-term solution.

Thinking through the long-term ramifications of a short-term solution ensures that the issue will not need to be addressed again. It makes what was once an operational limitation into an operational strength. It ensures an efficient long-term operation since the team does not continue to retrace ground already addressed.

Organizational inertia is hard to move when the solution creator becomes the owner of the operational solution they created. This familiarity of the issue and solution leaves them with a comfort that works to resist change. This business dynamic is a strong force that resists changes once in place.

Arming the teams with the tools to effectively ferret out root causes to issues, ensures that problems are effectively solved. The six sigma tools and techniques are effective at helping in this process. Teams must make sure they solve root causes. By doing so, they will eliminate the issues and provide a streamlined business. If integration is a part of the business culture, teams will work seamlessly and quickly to eliminate “work snowballs”.

What is a work snowball? It is a small issue that was not resolved once realized and runs through the organization, taking on additional work and complications. Had the initial problem been addressed at the beginning, no additional work would have been required.

Tactical Operation Planning (TOP) is best completed in a collaborative, cross-functional process where teams discuss issues and determine the right resolution to minimize cross team involvement. It facilitates the development of long-term processes that align with the long-term business strategy. Executed effectively, it helps the business recognize when investment and automation are needed to resolve a current issue that solves a building block for the future.

In our use, we have blended two types of planning:

1. Tactical Planning: Traditionally defined as viewing the operational needs of the business, less than one year in the future. It is a level above the current issues at hand.
    - Specific Goals with Fixed Deadlines
    - Budget Addition to Create/Change
    - Resources (e.g. IT, People, etc.) to Solution
    - Marketing/Sales Alignment
2. Operational Planning: Issues resulting from inadequate or failed internal processes, people, systems, or from external events. They represent activities that need immediate intervention to meet customer needs.
    - Problem Specifics Actions
    - Policy Adaptation

We blended them because best of breed supply chain operations need to move between these seamlessly.

This activity takes the planning activities into the business processes that run the business. By doing so, the business begins to live its end state and begins to digest the reality of their strategic world. The team also begins to understand what it will take to reach their strategy and whether this is in fact what they desire. It provides a feedback process to the strategic planning process, so that a realistic operating vision can be constructed.

Product Age/Risk Management

This is the most tactical initiative in the strategy development stack. As a product ages, it becomes susceptible to impacts from the entry of new products, which by design offer an enhancement that improves prior versions/forms. This makes the older version less valuable which requires that profit plans and marketing dollars be used to move these goods.

Left to a subjective discussion, teams will disagree on the market value of aged goods. Teams struggle to recognize that they must take a financial hit to sell these goods. As a result, the risk of these goods (i.e. lower margin expectations and higher marketing costs) will be left off the financial projections.

Developing a system program (e.g. take a 10% reserve as

goods get to 90 days old) to apply financial reserves assures the business that it is consistently risk assessed and that the resulting profit plans are accurate and achievable. Failing to implement these strategies, leaves the business open to “surprises” that nobody wants to realize.

A reserve is a financial entry that holds an expected loss in a defined account to allocate funding of a future planned loss. A reserve becomes a clearing account that once the items driving the reserve are realized, the reserve is cleared. If the goods are sold for a higher amount than planned, then the business realizes a benefit.

Managing these reserves requires an interaction with inventory management teams and finance teams. They must track the specific items applied to each reserve and meet on a regular basis to define the new status of the reserve. Reserve planning helps provide finance with a roadmap.

To accomplish an age-based process, the supply chain team must develop the processes and controls to manage a program with this attribute. Lots age must be managed and blended. This will require both IT infrastructure and a supply chain management system to execute the designed level of control.

4.0 Summary

The pace of change in the retail industry rivals that of any industry in the recent past. The pressures of this change are impacting all phases of the supply chain and all players that participate in it. Understanding the fundamental business components helps to dissect the impacts and understand how to effectively address the change.

Figure 36: The Disruptive Forces Changing the Traditional Retail Model

In our conversation, we have broken the supply chain down into our understanding of the fundamental components. We have aligned and arranged these using a standard construct to collect our thoughts/approach to deal with the unique issues. The proposed periodic table is intended to spark a debate and hopefully spark discussion.

Like Dmitri Mendeleev's publication over 200 years ago, we hope the proposed structure helps us (as an industry) recognize our gaps and find solutions to fill in our current understanding. By doing so, we are confident we will find new solutions to help us manage through change. Without such a quest, we will be relegated out of the strategic conversations that businesses need us to be a part of to help drive new business strategies and profits.