PLATFORM LIFE CYCLE MANAGEMENT
BEST PRACTICES
BUILDING PROFITS THROUGH SIMPLIFICATION, STANDARDIZATION, SPEED, AND SCALE
A WHITE PAPER BY THE UNIVERSITY OF TENNESSEE’S HASLAM COLLEGE OF BUSINESS SUPPLY CHAIN MANAGEMENT FACULTY
DECEMBER 2015

GLOBAL SUPPLY CHAIN INSTITUTE
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Henry Ford pioneered many of today’s platform life cycle management principles in the 1920s. The automotive industry is generally considered the birthplace of modern PLCM.
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In the post-globalization era, supply chain executives are faced with massive challenges to maintain profitability. In the 1980s and 1990s, profitability was largely driven through cost savings achieved from global supply systems, predominantly through offshoring. Now, leaders must find new means to promote efficiency in supply chains with exponentially increasing complexity that paralyzes an organization’s ability to adapt. This complexity is unavoidable in the modern, global economy and can be attributed to:

- Globalization of supply chains creating increased time, distance, and cultural challenges
- Acquisitions
- Dramatic increases in governmental regulations in North America, Europe, Asia, and Latin America
- Channel customer consolidation—shifting the supplier/customer balance of power
- Increased product personalization demanded from customers
- Emergence of new customer channels with new product requirements (i.e. packaging)
- Lack of internal enterprise discipline to manage SKU levels/product offerings.

Most of the complexity is viewed as “non-valued added” by consumers, who therefore are not willing to pay for it. So supply chain executives are left with no choice but to manage increasingly challenging supply chains with existing resources. The result is that the majority of their time is spent managing the daily business instead of creating new capability, new products, and driving improvement/savings projects.

Best-in-class supply chain companies are cutting through this complexity using Platform Life Cycle Management (PLCM), an old business strategy applied in new, holistic ways. The Global Supply Chain Institute (GSCI) at the University of Tennessee’s Haslam College of Business interviewed fourteen of these organizations, and their solutions are interesting. These benchmark companies are using the platform strategies that famously transformed the automotive industry in the 1920s to simplify, standardize, and create more efficient end-to-end supply systems, product design, and multi-functional strategies/decision processes.
This PLCM white paper is part of the new Supply Chain Innovation series that focuses on providing business and supply chain leaders with best practices and accessible examples from benchmark companies that are forging new strategies and capabilities.

Best practices contained in this white paper include topics related to leadership, measurement, organization, and transitioning strategies. Highlights of over twenty best practices include:

- PLCM starts with product design
- PLCM needs a passionate Supply Chain zealot to lead the work
- Simplify first, then standardize to enable scale and speed

These best practices and many others will be developed in detail in the following sections.

Finally, the white paper includes information on how to access a PLCM assessment tool/process garnered from the research to support supply chains making these choices.
Introduction: What is Platform Life Cycle Management (PLCM)?

At a recent supply chain conference, I asked more than twenty attendees what a platform is. The answers were interesting but not surprising. They included:

- the wooden stage used by companies to make presentations
- a shoe popular in the 1990s
- the structure used in warehouses to complete work needed in the roof or upper rack.
- the design basis for the latest supply chain software/hardware improvements
- the hottest supply chain strategy to combat huge increases in complexity

Platforms and PLCM are not new concepts (you will see recognizable examples in the history that follows), and PLCM is not complicated. Frequently, supply chain leaders refer to this as a common sense strategy.

However, PLCM is an emerging strategy in benchmark supply chains that is not yet broadly understood. Most importantly, it is producing step change performance results for those supply chains and business leaders that have the discipline to manage in a platform culture.

Our benchmark supply chains report significant improvement from PLCM work, including:

- 30-50 percent simplification (materials, equipment)
- 10-15 percent reduction in supply chain cost
- 20-30 percent improvement in new product initiative cycle time (speed from idea to market and/or speed from first region to last global region)

Previous GSCI research has found that supply chain leaders frequently have a large variation in the definitions of key supply chain terms. To address this we will establish a few critical definitions in the PLCM and supply chain space.
KEY DEFINITIONS

Platform—The integrated system to design, develop, and supply a family of products. The system includes consumer needs, products (formulas, packages), materials, process, equipment, and operations.

Platform Life Cycle Management (PLCM)—Due to the cost and resources required to support a platform, it needs to be managed from a life cycle point of view, including:

- Developing the platform
- Managing and improving the platform
- End-of-life for the platform

Supply Chain/SC—The end-to-end, integrated system of processes and activities required to deliver product from the supplier’s supplier to the consumer’s shelf.

Supply Chain Organization—The holistic resources and teams required to deliver valued products and services to the consumer with excellence. This includes (but is not limited to) procurement, manufacturing, engineering, process control, quality, safety/environmental, innovation program management, warehousing, transportation/distribution, and logistics (materials/production/category/customer planning).
History

1920 through 1980

Platform management was originally pioneered by capital-intensive industries to manage investment cost and initially these strategies largely focused on equipment and product design aspects of PLCM.

The automotive industry is viewed as the birthplace of PLCM. It started nearly a century ago when Henry Ford commented on standards in 1926:

"Today’s standardization, instead of being a barricade against improvement, is the necessary foundation on which tomorrow’s improvement will be based. If you think of “standardization” as the best that you know today, but which is to be improved tomorrow - you get somewhere. But if you think of standards as confining, then progress stops."

Ford was the first major company to develop product platforms as a foundation of its company, allowing for lower costs and better quality.¹

Traditionally an automotive product platform was defined as a shared chassis from a previously engineered vehicle. Platform sharing has been a common practice since the 1960s with both European and US automobile builders. Examples included the Citroën 2CV platform chassis used by the Citroën Ami and Citroën Dyane, and Volkswagen Beetle chassis and mechanicals under the Volkswagen Karmann Ghia. General Motors used a common chassis platform across the Pontiac LeMans, the Buick Skylark, the Chevrolet Chevelle, and Oldsmobile Cutlass.²

1980s

Platform management strategies started to expand beyond automotive equipment and product design in the 1980s. These advances were largely in the automotive, aircraft, photography, and electronics industries.

During the 1980s, the aircraft industry used a platform scale approach to produce aircraft and engines for commercial, military, and private segments. Rolls Royce, Boeing, Airbus, and Embraer all used commonality and scaling to reduce costs both in development and manufacturing.³

- Rolls Royce RTM322 aircraft engine used a common core and was scaled to create a family of engines with different shaft horsepower.⁴
- Boeing was able to efficiently change its commercial aircraft (including the 777) to accommodate more passengers, cargo, and flight range by ‘stretching’ its aircraft.⁵
- Airbus increased the commonality of designs (particularly cockpits) across a number of their aircraft. Their A330 cockpit is used across other Airbus types. In contrast, Boeing’s 767-400 cockpit is only used in its 757.

- Embraer also applied a platform scale approach to reduce their development and production costs. The designs across four of their key aircraft (170, 175, 190, and 195 models) were 85 percent common. They established common designs across a number of their subsystems including avionics and fly-by-wire systems.

Sony was also able to efficiently introduce more than 250 Walkman models in the US in the 1980s, producing a very high quality product by applying a modular platform design and flexible manufacturing.

In the early 1980s, SMH, Switzerland’s largest watchmaker, was losing market ground to low-cost Asian competitors. They launched a major plastic watch initiative that applied a platform design with 30–50 percent fewer parts coupled with a high-precision plastic molding process. Using the best in contemporary European design, they began turning out 140 new Swatch models every year. SMH doubled their sales by 1992 while dramatically improving profitability (from losing $124 million per year in 1980 to a profit of $286 million per year).

In 1987, Fuji introduced the Quick Snap 35mm single-use camera in the US market—a product that was destined to grow ten-fold from 1988 to 1994. Kodak was surprised by the initial introduction and did not have a competitive product until nearly a year later. However, Kodak used a strategy to develop many distinctive models built upon a common design platform. Kodak continued to follow this platform approach in 1989-1990 when it not only redesigned its base model but also introduced three new models. They were able to develop these products much faster and at a cost lower than the competition due to their common components and production processes. With these new designs, Kodak had twice as many products as Fuji and expanded their consumer appeal, retailer shelf space, and market share. By 1994, Kodak commanded 70 percent of the market share in the US.

The Black & Decker Company applied a platform approach when it was forced to change its electric motor design in response to a new regulatory requirement for double insulation. The company was able to reduce cost and increase the speed of this change across hundreds of tools and appliances by developing a family of universal electric motors that simply varied their stack length to produce a range of power outputs.

A common characteristic in each of these examples is the development of platform as an early and proactive exercise focusing on the development of customer products.
The last decade of the 20th century was highlighted by the development and commercialization of the computer industry. Top industry firms used PLCM that expanded the role of product design in the strategy and accelerated the inclusion of materials and process into the work.

IBM’s System/360 had developed the first modular computer family in the 1960s and 1970s, and it was a great financial success. In the 1990s the computer industry built upon this design approach. The industry began to recognize the business of not only setting up initial platforms that allowed derivatives to be introduced later but the necessity of incorporating new technologies into these platform upgrades. Hewlett-Packard’s ink jet printers are a great example of a product platform architecture that has been consistently renewed with improved technologies applied to their subsystems. HP successfully designed several of their inkjet and laser printers around modular components to gain benefits of postponing the point of differentiation in their manufacturing and assembly processes.

Intel established its own Intel Architecture Lab (IAL) in 1991 to combat platform obsolescence and increase market demand. Their goal was to advance the Personal Computer (PC) platform through expanding its scope. They demonstrated that through platform leadership they could not only realize internal architectural progress and facilitate other products to PCs, but also drive outside firms to develop complementary products to their microprocessors. Microsoft’s software platform leadership differed from Intel in that they sought to develop their own complementary products to their MS-DOS and Windows operating systems. They developed suites of complementary software like Outlook, Word, Excel, and an information manager embedded into Windows. The company successfully developed their operating systems incrementally offering multiple versions and actively promoted standards that benefited them as the platform leader. With the advent of the Internet, Microsoft added Internet Explorer to Windows and aggressively made deals with PC manufacturers to make the software their default browser.

Cisco grew into the platform leader in Internet networking services through providing a major part of the hardware and software infrastructure. They provided customers a one-stop, full service Internet network and became a classic example of building their platforms through the successful acquisition and assimilation of competitors/substitutes. They were able to develop networking industry standards as well as establish partnerships with both competitors and complementors.
Examples in the Last 25 Years

In the last twenty-five years, top supply chains have expanded end-to-end PLCM strategies leveraging the holistic platform to drive simplification and standardization, creating scale (cost savings) and speed.

Gillette Sensor and Excel razor systems were developed in the personal grooming category using platform strategies. Gillette designed unique handles for their male and female versions. The shape and color were completely different. However, the company standardized the design on their razor cartridges for each of the versions. The cartridges were a key leverage point both for improving shaving performance and achieving low costs through a common, highly automated manufacturing process.13

The use of platform technologies emerged in biopharmaceutical product development programs during the 1990s. As companies’ biologics portfolios expanded, the benefits of consistency and similarity of tools and methods across product development programs was becoming apparent. The industry saw improved quality, more efficient resource utilization, and faster product and process development through platform technologies. Recently, platform manufacturing approaches have enabled the design of multi-product facilities enabled through standard manufacturing equipment sets and work processes.14

The heavy-duty truck market has been transformed dramatically through platform strategies. The top global original equipment manufacturers (OEMs) plan to continue to increase the number of platforms such that by 2018 one in every three trucks will be built with a platform approach. Manufacturer Scania AB has seen improvements including a 50 percent part reduction, a cost reduction of 30-50 percent in design and development, 10 percent manufacturing cost reduction, and a 30 percent reduction in sales and service expenses.15

WinWinD, a Finnish based wind turbine company, has fostered growth since 2002 through the application of a consistent platform. Jonas Hagner, ICT director at WinWinD, credits its product platform with producing a consistently high quality wind turbine product.16

Automobile manufacturers have continued to progress their platform strategies over recent years across both the design process and total supply chain. Benchmark automobile OEMs are now realizing product development cost reductions of 20 percent, production cost savings of 20 percent and assembly-time reductions as much as 30 percent. They are leveraging these savings by not only increasing their profitability but also offering more value to their consumers with improvements to their products.17

Over the last 100 years, PLCM strategies have crept into most industries and broadened the definition of platform to include both its life cycle and end-to-end supply chain design/capability. A simple visual of this history is shown in Figure 1.1
The Future (Beyond 2015)

Theses companies are just a few examples of the hundreds using either platforms or more intentional PLCM strategies. The basic concepts of flexible, standard product design are well known. The future lies in the ability of companies and supply chains to drive these concepts of simplification, standardization, speed, and scale through an intentional, holistic, end-to-end PLCM strategy.

Our history started with the birthplace of PLCM—the automotive industry. This industry continues the charge and provides a vision for all supply chains to emulate.

OEMs ROLE MODEL PLCM’S FUTURE

“By 2020, the ten major OEMs (General Motors, Volkswagen, Toyota, Ford, Nissan, PSA Peugeot Citroen, Honda, Renault, Fiat, and Daimler) will reduce their platforms by about a third, from over 175 platforms in 2010, and will concentrate mass production across a few key core platforms. For instance, GM recently announced that it plans to almost halve its vehicle platforms from 30 in 2010 to 14 in 2018. The company is expected to save an estimated $1 billion per year, primarily contributed by product development projects. This will allow GM to produce 90 percent of its overall volume on these core platforms.”

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**Figure 1.1**

History of PLCM has grown to the holistic end to end supply chain
Driving Business Needs

Benchmark supply chain companies have the ability to concisely define their current challenges and incorporate them into a strategy that turns challenges into opportunities or competitive advantages. In our benchmark interviews, supply chain leaders articulated that the business needs driving implementation of a PLCM strategy are:

1. Significant cost savings
2. Exponential growth in complexity
3. Demand for faster and more cost-effective/efficient new product launches.

Cost Savings

The supply chain has long been a major source of the cost savings necessary to deliver corporate profit goals. As internal cost savings opportunities have begun to dry up, most benchmark supply chains are seeing their largest savings opportunities in the seams of the multi-functional organization. These involve not only waste in sales and operations planning, which has been a focus in the last two decades, but in product design and optimization of materials/processes invisible to the consumer. This waste in multi-functional seams provides the opportunity to drive needed cost savings through a PLCM strategy.

As internal cost savings opportunities have begun to dry up, most benchmark supply chains are seeing their largest savings opportunities in the seams of the multi-functional organization.

Causes of Complexity Increases

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Regulatory</td>
<td>71%</td>
</tr>
<tr>
<td>Information management</td>
<td>63%</td>
</tr>
<tr>
<td>Government oversight</td>
<td>60%</td>
</tr>
<tr>
<td>Increased speed of innovation</td>
<td>59%*</td>
</tr>
<tr>
<td>Tax policy</td>
<td>57%</td>
</tr>
<tr>
<td>Operating in more countries</td>
<td>56%</td>
</tr>
<tr>
<td>Doing mergers and acquisitions</td>
<td>50%</td>
</tr>
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*Higher in emerging countries
Complexity

The exponential increase in complexity is frequently less visible than cost saving issues, but it impacts the supply chain and business in multiple, significant ways. Investing a larger portion of resources to manage the base business slows an organization’s ability to develop/deliver cost savings and new product initiatives, as well as creating a drain on the creative energy within the organization.

A recent KPMG survey described the sources of complexity impacting supply chains (see figure below).

Managing complexity is at the top of the business agenda—94 percent of executives believe that managing complexity is important to the success of their company.

Asia-Pacific and the Americas saw the most significant increases in complexity, with emerging markets in those regions accounting for the highest levels of increase.¹⁹

Factors Causing Complexity by Region

Regulation and information management a bigger concern in Americas and Europe, M&A, increased speed of innovation and operation in more countries a bigger concern in Asia-Pacific

Americas – Brazil, Canada, Mexico, US
Europe – Denmark, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden, Switzerland, UK
Asia-Pacific – Australia, China, India, Japan, Singapore, South Korea

Source: KPMG International, 2010
Our benchmark supply chains point to multiple issues creating this complexity.

1. INCREASE IN REGULATIONS ACROSS THE WORLD

This is a major issue with no clear end in sight as governments focus on creating rules that seek to govern and control consumer/environmental risk. The following chart provides an example of the rise in regulatory complexity.

![Number of Regulatory restrictions Enforced by FDA](image)

The number of regulatory requirements imposed by the US Food and Drug Administration (FDA) increased by 15 percent between the years 2000 and 2012.²¹

2. ACQUISITIONS

The rate of business acquisitions has further increased supply chain complexity. As businesses acquire other businesses, it brings in new and different supply chain assets. These assets range from different suppliers, materials, manufacturing sites, warehouses and distribution networks, information systems, and products. Corporate supply chain resource work multiplies with each acquisition, as all the above assets need to be integrated into information, health/safety, engineering, and procurement systems. The following merger data from the fashion industry provides an example for the increase in acquisition complexity.
The volume and value of globally announced mergers and acquisitions (M&A) deals in the first quarter of 2015 rose by 14 percent and 25 percent year-over-year, respectively, making it the best start to the year for deal making in the first quarter since 2007. The data also suggests that the number of megadeals, those with a value of more than $5 billion, will likely continue during the year. Already there were 28 megadeals disclosed in the first quarter, compared with the 14 revealed in the comparable period in 2014.\(^\text{22}\)

Over the past decade, M&As have reached unprecedented levels as companies seek to use corporate financing strategies to maximize shareholder value and create a competitive advantage.\(^\text{23}\)

### 3. GLOBAL SUPPLY CHAINS

The previously released GSCI white paper entitled “Global Supply Chains” discusses the globalization of supply chains in the last quarter of the twentieth century and into the twenty-first. The rate of globalization has softened as a critical mass of Fortune 500 businesses have expanded worldwide but supply chain complexity continues to intensify independent of growth. Demand is unique to each regional customer/supplier, regulations constantly grow/change, and myriad cultural nuances affect supply chain resources and efficiency. And, global supply chain networks are highly dynamic. So the pace of change is not expected to slow anytime soon as firms continue to seek new markets and more efficient networks to support those markets.\(^\text{24}\)

### 4. CUSTOMER/CONSUMER DRIVEN COMPLEXITY

Complexity in the supply chain can be traced back to both the customers selling products and the end consumers buying them. Heightened consumer expectations mean increasing demand for more personalized products. Individual retailers seek to leverage these expectations to create a competitive advantage by increasing their number of SKUs or requesting highly customized SKUs, which means a lot more effort for demand fulfillment on the part of suppliers.

Also, demand on the traditional supply chain infrastructure (built to service brick and mortar shops) is being simultaneously stretched and constricted. It constricts as traditional customer distribution channels, especially in the drug/pharmacy and office products industries, consolidate. But it expands while the expectation for omni-channel retail capacity grows. Influence has shifted from the supplier to customer, increasing the propensity for unique customer requests while also creating demand for secondary packaging to accommodate individual consumer Internet purchase shipments. All of these elements contribute to a more complex supply chain.\(^\text{25}\)
5. INTERNAL ENTERPRISE DISCIPLINE

Despite the rhetoric emphasizing integrated business planning over the last three decades, most of our GSCI sponsor companies still find it challenging to manage their level of product offerings and number of SKUs. These companies report approximately 80 percent of revenue being spent in less than 20 percent of all SKUs. A long tail of less productive SKUs is a significant driver of supply chain complexity.

Long tail SKU proliferation can be seen in virtually every industry. Mobile-phone makers, for example, offered 900 more varieties of phones in 2009 than they did in 2000. Mature product categories are not immune to this proliferation either: the number of variants in baked goods, beverages, cereal, and confectionery all rose more than 25 percent a year between 2004 and 2006, and the number of SKUs at some large North American grocers exceeded 100,000 in 2009.26

Mobile phone makers offered 900 more varieties of phones in 2009 than they did in 2000.
The Platform Life Cycle Management Process

In our discussions with supply chain executives regarding the possibilities of a PLCM strategy, we are frequently asked:

“How do I get started? My supply chain is suffering from the implications of the exponential growth in complexity. The biggest cost opportunities lie in the seams of the multi-functional organization. PLCM sounds like common sense, but I am not sure how to start.”

Our recommendation is to start with leadership and culture in your organization (additional help can be found in the section on Transitioning to a PLCM Strategy.)

But, before we start on leadership, it is helpful to review the PLCM activity flow and life cycle management. This takes us to our central theme for PLCM:

**BEST PRACTICE**

Platforms must be business and consumer based.

Platforms exist to serve both the business and the consumer. When designing or renewing a platform, the first question should be “What do the business and consumer need now and over the next X years?” For most businesses X is about five years. This future timeframe may be shorter in businesses with shorter product life cycles.

This is hard work. The business leader, marketing, R&D, and the other product leaders must be clear on what is needed and what is not needed. All elements of the platform require cost and create complexity. PLCM development and renewal activities are best completed with a scarcity mentality; do not create cost or complexity that is not needed, as your shareholders will not pay for it.

In Figure 2.1, we outline six activities required to develop a PLCM process. These activities are not complex, but they must be completed in order to ensure that waste is not designed into the process.
PLCM is designed to encompass a family of products. The product design, materials, packaging, process, equipment, and operation should be designed in a way to supply and innovate across all products within the family. Ideally, a business should maximize the number of products on the platform. Organizations that are at the very beginning of the PLCM strategy process should take the current product design and end-to-end supply chain as the starting points that define the platform.
It also is important to remember that the business environment in which these decisions are made is ever changing. External and internal forces impact platform design and execution. Examples of these forces include:

- Customer requirements
- Demographics and population shifts
- Governmental regulations
- Shareholder needs
- New product initiatives
- Acquisitions

Therefore platforms must be dynamic and evolve to meet the business and consumer needs. Figure 2.2 demonstrates these forces at work.
PLCM Process Best Practices

Now that we have developed the basic framework of PLCM, we will discuss the best practices gleaned from our benchmark supply chain organizations, which included more than ten large computer, automotive, food, CPG, tire, and alcoholic beverage companies as well as a few major consulting firms with expertise in the area. The best practices start with some overall general guidelines.

**BEST PRACTICE**

**The PLCM process starts with product design.**

Starting the PLCM process with product design is critical. It reminds us that the platform must be based on consumer needs, which is a core component of product design. Additionally, it reinforces that the majority of cost and complexity of the supply system is created by the design of the product. The most efficient time to drive out all non-valued cost is during the product design phase.

**MODULAR DESIGN**

In modular design (a proven technique for effective product development) formulas, materials, processes, and packaging are created based on building blocks. The blocks are combined in different combinations to deliver different consumer products. The automotive and electronic/computer industries have shown the effectiveness of this approach for decades. Benchmark companies in less capital-intensive industries like food/beverage and CPG are implementing this design approach as well. It enables consumer variety and a number of other benefits including:

- Increased scale with material and equipment suppliers as standard components have larger volumes
- Increased postponement opportunities as materials and sub-assemblies can be maintained and differentiated as late in the supply chain as possible
- Increased standardization, especially in packaging, to drive equipment capital efficiency.

Well designed ‘modules’ that creatively fit together are critical for successful application of this approach. Designers need to conform to these modular requirements, otherwise the platform benefits will not be realized.
PLCM is based on end-to-end supply chain.

Early platform strategies focused largely on equipment and product design. In the last two decades we have observed supply chains broadening the focus of PLCM strategies to include suppliers/materials, warehousing, business processes, and customer operations across the broad, end-to-end supply chain. These holistic strategies have delivered step change results.

The use of PLCM simplification, standardization, scale, and speed sub-strategies to drive improved value with materials, process, packaging, and operations has enabled a broad spectrum of businesses/supply chains to utilize this strategy to combat complexity and drive breakthrough cost savings.

PLCM requires 100 percent organizational involvement.

Success with a PLCM strategy requires 100 percent involvement from all the functions in the organization. The general manager’s business strategy needs to include PLCM as it directs the approach to product design and management of the business, which impacts every function (marketing, R&D, sales, finance, supply chain, etc.). On a supply chain level, this strategy meets the high standard for effective cross-functional integration as everyone in the supply chain can create impactful, personal action plans in the PLCM work (100 percent involvement).

PLCM capability is best developed simultaneously with key suppliers and partners across the supply chain.

The supply chain is only as effective as its weakest link. Large, breakthrough strategies like PLCM drive development of new capabilities and work processes. These capabilities and work processes must link with key suppliers and partners. To maximize savings and speed, non-value added complexity must be eliminated/reduced from the supplier’s supplier to the consumer’s pantry.

Simplify first, standardize second to enable scale and deliver speed.

This best practice is a cornerstone of PLCM. The PLCM approach starts with simplification. This enables the organization to eliminate as much non-value added waste from the product design and end-to-end supply system prior to standardization. Only standardizing value added elements saves resources and time. Once the work is standardized, the organization is positioned to drive savings and revenue through improved scale and speed. As a result, simplification, standardization, scale, and speed are commonly referred to as the “PLCM Supporting Elements.”
PLCM Supporting Elements

PLCM has four supporting elements:
- Simplification
- Scale
- Standardization
- Speed

Each of these four elements could be successfully chosen by EVPs of supply chains as a stand-alone functional focus.

Since PLCM includes all four of these supporting elements, it is more complex/holistic. But, the benefits can be great if your organization is faced with significant complexity and the types of cost-saving challenges described in the section on driving business needs.

The PLCM approach simplifies first, then standardizes to enable scale and deliver speed.

Simplification

Simplification is the first step. Driving out non-valued added product design, organizational work, and processes can deliver immediate business improvement (typically with limited investment/cost). Additionally, it ensures that the product design, materials, packaging, process, equipment, and operations are optimized before they become standardized. Standardization requires significant effort and should not be attempted before non-value added elements have been eliminated.

Best Practice

Use visible and invisible concepts to manage simplification.

The simplification work should be divided into two categories:

- Visible to the Consumer—As you begin your simplification work, a helpful question is “Is this material, work, or activity something that the consumer can see (and see value in)?” This is a technique to divide decision-making authority for external needs (consumer) versus internal wants. The business leadership should manage elements that are visible to the consumer. If something is visible to the consumer, leadership should ensure that it is non-value added prior to eliminating it (A key question: Is the consumer willing to pay for it?). Changes to items visible to the consumer may require consumer education/communication, which can be costly and complex.
Note: this mindset reminds us of the importance of product design in determining new product scope that is visible to the consumer.

- **Invisible to the Consumer**—If the scope of simplification work is internal, it is likely invisible to the consumer. This would include internal product design attributes (i.e. the electronic panel inside a computer). Elements invisible to the consumer should be managed by the technical (supply chain, R&D) leadership. If something is not visible to the consumer, the technical leadership should determine if it adds value.

Benchmark companies consistently use this type of technique to manage simplification. This process reduces complexity that the consumer is not willing to pay for. It is worth mentioning that benchmark companies use different terms to define these categories, another popular set being “Above the Skin” (visible to consumer) and “Below the Skin” (invisible to the consumer).

**BEST PRACTICE**

SKU management decisions are handled in internal business planning meetings or equivalent high level, decision-making forums.

Most supply chain professionals have seen charts showing that a company’s top 20 percent of SKUs deliver 80 percent of the company revenue and profit. Additionally, the bottom 50 percent of SKUs deliver less than 10 percent of the company revenue and profit. These charts are typically reviewed with a graph showing the sharp rise in number of SKUs in recent years. These types of results are not unique. As we talked with our benchmark supply chains, we learned that significant organizational energy is spent managing to the most profitable SKU level. Companies that do this work best utilize high-level leadership meetings to make multifunctional decisions regarding which SKUs will be added and which will be eliminated. The internal business planning (IBP) meetings are productive forums for making these multifunctional decisions that ultimately impact demand and supply plans. Companies that have more serious issues controlling the number of productive SKUs may escalate this process to incorporate internal guidelines like “one SKU in = one SKU out” as the starting point for new SKUs. Number of SKUs is typically at the center of complexity discussions as the decision to add or keep a SKU impacts materials, suppliers, production time, inventory, scrap/obsolescence, and customer logistics.

**Examples:**

- In one of our global benchmark companies, the general manager hosted a quarterly meeting at each regional manufacturing facility. Finance, marketing, and R&D executives were required to attend a review with the GM and supply chain. A table of all the products (including promotional packs) that the plant
produced in the past quarter was prepared. A second table of all the products the plant/warehouse is holding in inventory that was not produced in the last quarter was prepared.

The initial reviews proved to be both educational and “embarrassing,” as the supply chain was shown to be producing hundreds of SKUs that were not profitable and holding inventory for hundreds more that were not selling. The quarterly meeting brought the multi-functional community closer together in delisting non-productive SKUs and developing more robust new product proposals.

- A global CPG company created a project to reduce color complexity. The company had one category with fifty green color specifications. A joint, technical community team was chartered to reduce green specs to fewer than ten. The team met its goal and put a process in place to maintain the work, saving significant cost and cash.

- A second, large, global CPG company had a program to reduce fragrance complexity in its air care products. Hundreds of fragrance codes created virtually no scale for procurement. Supply chain leadership established a task force with a goal of 10 percent fragrance cost reduction and 50 percent fragrance specification reduction. One change streamlined sixteen different lavender fragrances to three (one for each product form: aerosol, mist, and liquid formats). After the early work, the team now expects to deliver 15 percent cost savings and a 67 percent specification reduction. The success of this project motivated the technical leadership to adopt standard material specification lists.

HARMONIZATION

Another proven technique to manage complexity in a diverse, global business is product harmonization. Product harmonization is the process of designing products so that they can be sold in all or multiple regions of the world. This process requires that products be designed to meet all global regulations. This is not easy work and in limited cases may not even be possible. However, if it can be achieved, the benefits of a harmonized product design principle are significant. They include:

- Increased product quality and customer service from more robust/ focused process definition and significantly less variation in the supplier/manufacturing processes.
- Increased speed to market for product changes due to new regulations, cost improvement, and product upgrades.
- Reduced R&D and supply chain resources to manage change.
Standardization

Once the product design, materials, packaging, process, equipment, and operations have been simplified, the organization is ready to standardize. Benchmark companies see a significant boost in company creativity with standardization. The idea is to standardize what is known, leaving more time to create what the company does not know.

Standardization is a relatively simple and a logical concept, but it is difficult to manage. Western world cultures recognize developing “new and improved ways” as a strong leadership attribute. In a standardization culture, the organization is rewarded for “developing new and improved ways” but these improvements must demonstrate that they create enough value to change the standard for all the materials/processes/equipment. If changing the standard does not generate enough value, the current system should be maintained and creative focus should be directed elsewhere.

Our benchmark supply chains have greatly benefited from standardization but realize that maintaining standard materials, processes, equipment, and operations is a significant challenge. This challenge becomes the basis for the next two best practices on change management and menus.

**BEST PRACTICE**

Global standardization requires a robust change-management system.

The resources and time to create standardized material, equipment, processes, and operations are greater than the time and resources required to move away from the standard. For this reason, our benchmark companies have robust change-management processes. Once the standard is created and the organization transitions to it, the culture must focus on maintaining the standard to reap the benefits. These change-management processes include the following elements:

- Clear, written definition of the standard
- Clear, empowered decision maker to manage changes
- Reward systems to support a standardization culture.

Figure 3.1 shows an example of a common equipment standard definition. Your organization will need these types of standards for all the components of the platform.
MANAGING RISK IN THE GLOBAL SUPPLY CHAIN

100% of equipment, materials, and process are identical (standard). New product qualification is done once (on 1 system) for the entire goal (completely transferrable). Strict change management system. Often used in supply chains with very high technology. Rigid equipment/process/materials approval systems.

Equipment/process/materials for key transformations is the same. The platform’s key transformations have been fully qualified to predict product specifications. New product qualifications is done once (on 1 system) for the entire globe. Rigid change management system. Rigid equipment/process/materials approval systems.

Global standard equipment/process/materials defined. One or more of the 3 (equipment, process, materials) areas are not standard. New equipment typically must meet local ROI targets. Requires separate qualifications by site. Organization struggles with conflicts.

Global standard is created. Organization has started transformation to standard equipment

No standard for equipment, process, or materials.

### EQUIPMENT STANDARDIZATION EXAMPLE

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<tr>
<th>LEVEL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>4</td>
<td>100% of equipment, materials, and process are identical (standard). New product qualification is done once (on 1 system) for the entire goal (completely transferrable). Strict change management system. Often used in supply chains with very high technology. Rigid equipment/process/materials approval systems.</td>
</tr>
<tr>
<td>3</td>
<td>Equipment/process/materials for key transformations is the same. The platform’s key transformations have been fully qualified to predict product specifications. New product qualifications is done once (on 1 system) for the entire globe. Rigid change management system. Rigid equipment/process/materials approval systems.</td>
</tr>
<tr>
<td>2</td>
<td>Global standard equipment/process/materials defined. One or more of the 3 (equipment, process, materials) areas are not standard. New equipment typically must meet local ROI targets. Requires separate qualifications by site. Organization struggles with conflicts.</td>
</tr>
<tr>
<td>1</td>
<td>Global standard is created. Organization has started transformation to standard equipment</td>
</tr>
<tr>
<td>0</td>
<td>No standard for equipment, process, or materials.</td>
</tr>
</tbody>
</table>

### LOW-COST CAPITAL SUPPLIERS

Benchmark engineering organizations have developed capable, low-cost capital suppliers across the globe, enabling supply chains to create practical equipment standards and attractive rates of return for capital investments in developing countries. Frequently, product profit margins in developing countries are too slim to support standards (and their associated costs) set by developed regions. Low cost capital suppliers have not only enabled developing countries to support these standards but have also provided much needed cash improvements.

Examples:

- A large, global CPG supply chain chose Level 3 standardization (as shown in Figure 3.1) as the best equipment definition for its supply chains. The focus in this definition was on standardizing key transformations that drive the most impact on both existing products and future planned innovations. Further
focus was achieved by defining a set of manufacturing equipment (core box) that was applied under this standardization definition. By prioritizing standardization work to the most impactful investments the company saw the quickest return.

A large, global information systems company utilized standard product designs. After customers place an order, the company embeds product variations, capacity, speed, and other features in production at the most effective time. As the customer/consumers grew into the products and requested more capability, the company simply unlocked the features remotely.

**BEST PRACTICE**

**Develop standard menus for materials and equipment to efficiently manage standardization with clear menu decision authority.**

Several benchmark companies used menus as a tool to manage standardization for equipment and materials. Both of these menus require close collaboration between the supply chain and R&D.

Material menus create the universe for what raw and packaging materials are allowed to be used in product design. Supply chain and R&D executives define the scope of the menu to ensure that enough flexibility exists to deliver consumer product needs while minimizing the number of materials. Middle level managers in these two functions are given the autonomy to manage the total number of materials to a level below the stated maximum. In this system, requests for new materials must be robustly justified and include materials to be eliminated so the menu maximum is not exceeded. This menu rigor has proven very successful. It limits new material requests to only those that benefit the consumer and keeps them at a manageable workload.

Equipment menus work in a similar manner. Typically engineering owns and makes decisions for the equipment standard menu (in some companies this may be a joint ownership with R&D). Equipment standardization often also requires: 1) defining the global standard equipment/process to supply a family of products and 2) the justification of and plan for transitioning non-standard assets to globally standard equipment. If the company has acquired supply chain assets through acquisitions, this can be a complex process.

The benefits of simplified/standardized products and supply chain assets are massive. This foundation enables companies and supply chains to create:

- Speed to address consumer/customer demand variation (responsiveness)
- Speed to deliver cost savings
- Speed to transform ideas into new products
- Speed to globalize new product launches from first to last market
- Scale to influence suppliers and customers
- Scale to influence regulations
- Scale to create purchase volume leverage
- Scale across the company, category, and industry.

Examples:

■ A large, global information company used a parts catalog to manage the menu of components. Sales and product designs could only be comprised of parts from the catalog. This enabled procurement to have the necessary scale to meet cost targets. Using a term like “catalog” gave the organization a sense of choice while enabling standardization.

■ A large, global CPG company created a standard equipment platform. This global standard enabled the engineering team to develop and fund a pipeline of production lines through a replenishment appropriation. This appropriation was based on the predicted future production line requirements. As expected, the leveling of equipment vendor work reduced capital by 10 percent. The unintended benefit was the ability to take advantage of country tax credits. India, for example, communicated a $10 million tax credit if new production capability was installed by a certain date. Normally, this would not be possible with established project schedules. The replenishment appropriation (standard equipment) had created a pipeline of needed equipment in India that could be constructed on time enabling the realization of the $10 million credit.

BEST PRACTICE

Develop robust platform information systems.

Benchmark supply chain organizations develop information systems that drive understanding of their platforms and products down to a raw material level. A robust information system system is vital to clearly identify simplification and scale opportunities as well as manage new innovation. Without such a system, many opportunities are just too difficult to efficiently and effectively identify.

Example: Robust Platform/Product Information Systems

■ A large, global CPG supply chain developed platform/product information systems classifying existing products by a menu of chassis, sub-chassis, and raw material components. They also included a simplified menu of these same components. These systems have enabled a 30-50 percent reduction in supply chain complexity through a combination of targeting simplification projects and guiding innovation efforts to simplify while creating new products.
Scale

**BEST PRACTICE**

The capability created by PLCM must be intentionally focused on creating scale both internally and externally.

One of the first and most obvious activities in the initial PLCM simplification work is to question why a supply chain may have ten specifications for the same material with ten different prices. This basic simplification project forces the organization to decide on one or two specifications and the suppliers with the lowest total cost. But the work does not stop here. Pooling into a single specification and supplier will create volume leverage, which is one of the first ways to leverage scale internally and can be applied more broadly for much greater scale and savings. Figure 3.2 demonstrates how the scale effort needs to expand across the company, category, industry, and like supply chains.
Examples:

- A large, global beverage company faced with aggressive competition from craft beer companies used PLCM to self-fund acquisition of select craft beer brands, broadening its product portfolio. The first scale action plan was to switch the craft beer brands to the parent brand materials, dramatically cutting cost while greatly improving the quality of the product. The parent company also ran its can production lines ten times faster than the craft beer plants, and its bottling lines five to seven times faster, creating a high reduction in manufacturing expense. Integrating the craft beer brands into the benchmark parent company distribution systems drove further savings and increased revenue. Overall, the annual savings generated by the PLCM strategy self-funded the acquisitions.

- A Chinese CPG company was challenged with difficult and changing customer secondary packaging expectations. This work was all non-visible and non-value added to Chinese consumers. The supply manager is now working with his competitors to create an industry secondary packaging standard that all manufacturers would deliver to customers (and eliminate all competitors non-value added secondary packaging work). This has required the competitors to agree that the basis of competition will be on the product design, quality, cost, and service provided to the consumer rather than on the packaging characteristics.

- A global beverage company has taken scale to a completely new level by partnering with a similar supply chain. This company standardized aluminum specifications and can design, generating the high volume leverages with their can suppliers, then doubled its scale by partnering with a major soft drink company to standardize aluminum specification and can design with them as well. The company believes they saved between $800 million and $1 billion in a single year due to this PLCM strategy, with the majority of savings from procurement scale.

**Speed**

Arguably the most damaging aspect of an exponential growth in complexity is the impact on organizational speed and responsiveness to market changes. Halted by complexity, organizations frequently lose their edge. Teams that have been very creative, fast to respond to market demands, and quick to deliver the biggest cost savings/improvements become sluggish. The damage stretches beyond cost, quality, service, and innovation, and impacts the spirit of the organization. Coming to work every day and making complex changes to meet the latest product regulations that the consumer does not value on thousands of SKUs can depress the best supply chain talent. Simplification and standardization focus on limiting the necessary base business work and enabling the organization to spend a larger portion of its time on improving the business.
In order to remain competitive, businesses must create more improved products on faster timelines than their competitors. By investing in the productivity improvement through PLCM, benchmark supply chains see large gains in the time focused on innovation and improvement and thus overall business growth. New product innovation heralds the question, “When is it time to create a new platform to support new products?” The simple answer is when the value of the new products (from a total cost of ownership perspective) pays out.

**BEST PRACTICE**

New platforms to support new products require disruptive innovation and a robust, TCO-based payout.

Even if the question was simple to answer, it can create significant conflict in the organization. Estimating the incremental revenue of a new product, recognizing the risk with initiative success rates, and anticipating competitive initiative plans has proven not to be an exact science. These elements form the basis of the total cost analysis required to invest in a new platform.

Therefore, PLCM decisions must be top level leadership choices. The investment is great and the impact on the business as a whole and its brands is direct.

Figure 3.3 demonstrates the organizational focus of utilizing the existing platform until a disruptive innovation that delivers a robust payout is developed.

---

**Figure 3.3**

**NEW OR EXISTING PLATFORM?**

- **Disruptive Innovation**
  - Create Platform: New Solutions
- **Continuous Improvement**
  - Leverage Existing Platform
- **Customer Differentiation & Marketing Innovation**
The large investment in creating platforms and the complexity of major changes to them demands that they must be managed with a life cycle approach. This means they not only are created, but also managed and potentially improved to extend their longevity. Obviously, the longer the life cycle the greater the asset utilization and profit. Businesses are constantly assessing the balance between utilizing existing platform assets and ideas for new/improved products that might generate significant revenue but require a different platform. Thus, the major life cycle phases of PLCM include:

- Developing the platform
- Managing, improving, and extending the platform
- Ending the platform.

Figure 3.4 shows a simple life cycle diagram.

**Figure 3.4**

**TYPICAL PRODUCT LIFE CYCLE CHART**

- **Optimal Product Life Cycle**
- **Typical Product Life Cycle**
- **Ideally—we extend the Product Life Cycle until the next Disruptive Innovation**

How do we deliver evolving consumer needs with the same assets (people, materials, processes, and equipment?)
Example:

A large, global food company transitioning to a PLCM culture created supporting, new product principles. The company defined new products either as spaceships (disruptive innovations, game changers, new habits), rockets (noticeable continuous improvements valued by consumer), or sparklers (promotional activity to keep product in front of consumers/customers). Only a spaceship could start the discussion of a new platform and only if it created significant value to the consumer (recall that new product success rates are mixed). Every spaceship should be designed with several potential rockets and multiple sparklers to ensure a multi-year launch and leverage plan. This type of innovation framework linked to PLCM drove the organization to focus on maximizing its innovation investment.

**PLCM decisions must be top level leadership choices. The investment is great and the impact on the business as a whole and its brands is direct.**

**Early multi-functional involvement in new product innovation saves time and cost.**

A challenging best practice for supply chain leaders is allocating time for the new product innovation process. In the past, supply chain managers focused on execution at the expense of future speed and efficiency. Our benchmark companies force the priority of early supply chain involvement in the innovation process to ensure new product designs incorporate platform-driven standards and thus save cost and enable speed. Frequently, experienced supply chain leaders with expertise across multiple supply chain disciplines are utilized in the early innovation design process to reduce the total number of people involved. The key is to have procurement, operations, logistics, and engineering expertise involved early to ensure new product designs incorporate platform-driven standards and thus save cost and enable speed.
Supply Chain
executives understand that
you get what you inspect.

PLCM Measures

Supply chain executives understand that you get what you inspect. As you would expect, this also applies to PLCM. Later in this paper, we will propose that you appoint a team to own/lead the platform work. The sponsors (supply chain and R&D leaders) should meet regularly (i.e. monthly) with these platform teams to review the results (output and in-process measures), action plans, remove barriers, and align to action plan adjustments.

**BEST PRACTICES**

Utilize a robust, ongoing process to review results and action plans and make appropriate adjustments.

Have a visible scorecard with the critical few PLCM measures.

Ensure a holistic lifecycle analysis is in place for new products/SKUs.

Often companies wonder what benchmark businesses have on their PLCM scorecard. The answer depends on the driving business need for the PLCM strategy (business type, challenges, gaps, shareholder/customer/consumer expectations, competitive capabilities, etc.). Below is an example list of typical scorecard items:

- **SCALE**
  - Breakthrough cost savings (multi-functional PLCM teams focus on delivering breakthrough cost projects at the seams of the organization)
  - Capital reduction (equipment scale)
  - Material cost reduction (supplier scale)

- **SPEED**
  - New product initiative speed
  - Idea to launch in first region
  - Global first to last region time

- **PERCENT REVENUE ON PLATFORM**

- **SIMPLIFICATION** (percent reduction in invisible complexity)
  - Percent reduction in packaging specifications
  - Percent reduction in raw material specifications
  - Percent reduction in equipment types or parts

- **STANDARDIZATION**
  - Percent global standard equipment
  - Percent materials on menu
  - Cost capital avoided due to standardization
The broader team must clearly see the value of the work and the return on this organizational investment.

PLCM Organizational Best Practices

**Leadership**

**BEST PRACTICES**

- PLCM strategy is based on a driving business need.
- PLCM has visible, overt support from business and commercial leaders.
- PLCM strategy is led by the technical community (supply chain and R&D).
- Technical leaders must speak with a unified voice to the business.
- Successful implementation of PLCM traces to a passionate supply chain zealot’s presence in leadership.
- An energizing process exists to broadly communicate successes.

Successful supply chain and business strategies start with great leadership. Our benchmark supply chains all had strong leadership to guide the PLCM strategy work.

Step one is for the supply chain leader to develop a clear, simple, urgent, driving business need. PLCM strategies require significant multi-functional focus, priority, and work. Therefore, the broader team must clearly see the value of the work and the return on this organizational investment.

**Example:**

- A large, global information system company’s leadership wanted to create highly visible tools to reinforce the PLCM strategy. They developed mobile apps for their procurement resources to make the work more efficient. The app only used approved parts menus, thereby reinforcing the platform work. An unintended benefit was that procurement managers had real-time parts menus; as soon as the technical community approved the parts they became visible on the new apps.

Step two is developing a strong partnership within the technical community (i.e., between supply chain and R&D) since the majority of resources to support
a PLCM strategy lie within these areas. R&D must be able to broadly communicate the benefits to the consumer, the value of robust processes to delivering quality, and the value of speed to new product innovation. The litmus test is whether the technical community can speak with one united voice to the overall business. This alignment requires that supply chain and R&D leaders invest time in building the partnership, jointly leading platform teams, jointly sponsoring those teams, and resourcing the work.

Once the technical community is united the rest of the business must be aligned to the strategy. This should include a long-term vision that guides the business plan, the future innovation, and the platform efforts to maximize the benefits. In every case we studied, significant progress in a PLCM strategy required that the business leader is overtly and publically supportive.

PLCM requires each function to build new capabilities. Functional leaders must discard old and inefficient rituals and embrace the new strategy.

**Figure 4.0**
All business functions are required to create a strong PLCM culture.
Here are a few examples that highlight this point for various functional leaders:

**FINANCE**—Financial measures and analytical standards frequently need to improve in a platform culture. The system needs to be capable of analyzing life cycle cost (including end of life), the value of standardization, and the value of innovation speed. In a platform world, the first initiative on a new platform should not be required to bear all the investment cost. Finance must lead the work on how this analysis is performed, what are the key measures, and how to align funding decisions with leadership.

**GENERAL MANAGEMENT**—The primary role of the GM in the PLCM strategy is to visibly and frequently assess whether the strategy is delivering on the expected business results. This will require including PLCM in the business strategy (choices, actions, results), including success stories in business reviews, increased multi-functional teamwork expectations, and delegating decision-making authority (decisions need to be segmented for visible to the consumer and invisible to the consumer).

**MARKETING**—In some businesses, marketing is heavily involved in initiative work processes and mid-level decisions. This work shifts to the platform teams, freeing the lower/middle level marketing managers to focus on external and consumer needs.

**R&D**—The R&D reward system needs to evolve with PLCM if development of new formulas, materials, menus, and processes for continuous product improvements are viewed and rewarded as examples of creativity. The focus should be on standard menus (equipment, materials, and processes) within the existing platforms until a disruptive innovation is created. This allows R&D to focus its scarce resources on creating breakthrough work.

**Process**

PLCM follows an intentional process. It starts with the consumer and business need, as discussed. This is followed by product design, materials, process, equipment, and operating elements. Significant work processes are embedded in each element. Figure 4.1 provides an example of possible teams and work processes. The intent of this visual is to provide a starting point not an answer. The systems and work processes will need to be developed by platform teams. Figure 4.1 also shows how a potential organizational structure would split responsibilities for this work (match with the example organization structure in the next section of this paper).
## Platform Teams and Work Processes

### Examples

<table>
<thead>
<tr>
<th>Consumer</th>
<th>Product Design</th>
<th>Materials</th>
<th>Processes/SC</th>
<th>Equipment</th>
<th>Operations</th>
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<tr>
<td>Consumer Direction</td>
<td>R&amp;D data</td>
<td>Standard Specs</td>
<td>Make/Buy Analysis</td>
<td>Level 1, 2, 3, or 4?</td>
<td>Global Changeovers, Washout, Purge and Standards</td>
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<td>R&amp;D Pipeline/Programs</td>
<td>Corporate Scale/Leverage</td>
<td>Supply Flow Diagram/Map</td>
<td>Develop and Developing World Capital Solutions</td>
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<td>Story</td>
<td>Competitive Advantage</td>
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<td>SC Constraint Design and Capability</td>
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<td>Technology</td>
<td>Strategic Materials</td>
<td>Supply Network Design</td>
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<td>New Material/Supplier Development</td>
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<td>Change Management</td>
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<td>Competitive Benchmarks</td>
<td>Simplification</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Team Leading

- **Commercial Team**
- **Technology Team**
- **Technology Team**
- **Operations Team**

**Materials/Supply System Team**

---

**Figure 4.1**

EXEMPLARY PLATFORM TEAMS AND WORK PROCESSES.
Organization Structure/Teams

One of the first and most important decisions for businesses adopting a PLCM strategy is how to organize work (who owns/leads what). Although PLCM teams are largely comprised of people in the technical community, they do require commercial resources to lead the consumer/business need work.

As with many resourcing decisions, the technical community has two basic choices to resource the work.

1. Create new, dedicated teams to lead the platforms. This approach normally increases staffing but creates clear accountability in the organization.

2. Utilize horizontal process teams to lead the work. Horizontal process teams involve matrixing current resources that are currently doing this work differently and forming multi-functional/multi-discipline teams to manage the work. Most of our benchmark supply chains resource the PLCM work in this manner.

Figure 4.2 shows an example of how this could be done. The key point is not necessarily to resource as in Figure 4.2 but rather to create a resource and team structure to own and lead the work.

PLCM ACROSS THE END-TO-END SUPPLY CHAIN

Supply Chain Risk—The risk profile in the supply chain can increase with a PLCM strategy. As we have discussed, the process starts with simplification. Complexity reduction will challenge the organization to look at the cost of multiple suppliers, multiple product designs, and multiple supply systems (companies should scale as much work as possible on an existing platform). These activities by their very nature can place more business in fewer assets/organizations, which may increase risk. Therefore, we recommend renewing your risk management systems with this strategy work.

Non-product Design and Manufacturing Work—PLCM best practices and processes apply and should be utilized across the end-to-end supply chain. Application of these principles has delivered important improvements in staff and services areas.
Some of the benchmark supply chains have chosen to co-lead all these teams with respected mid-level R&D and supply chain managers who have decision-making authority (priorities, resources, budgets). The advantage of this tactic is to ensure full R&D and supply chain alignment. The challenge with this design is that two-headed leadership can create lack of clear direction.

**Figure 4.2**

<table>
<thead>
<tr>
<th>PLCM TEAMS EXAMPLE</th>
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<tbody>
<tr>
<td><strong>Technical Community</strong></td>
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<tr>
<td><strong>Sponsor</strong></td>
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<td><strong>Teams</strong></td>
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<tr>
<td><strong>Senior Leader</strong></td>
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<tr>
<td><strong>Members</strong></td>
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Case Studies

n the past several decades PLCM strategies have expanded from capital-intensive, technology-driven businesses to a broader scope of organizations. Businesses that successfully employ PLCM are enjoying the benefits of larger savings projects, increased scale, and increased speed. In the case study section we will highlight two examples of the latest generation of businesses leveraging PLCM.

GLOBAL FOOD AND SNACKS

A large, global food and snack company recently deployed more aggressive operating margin targets to their categories. The improvement targets were divided among business functions, with the supply chain receiving the largest savings target. The targets were not achievable by internal, historical benchmarks. After significant consideration, supply chain executives determined that the best option to deliver the business need was implementation of a PLCM strategy with an initial focus on renewing supply chain network design.

The supply chain experienced exponential increase in complexity driven by historical local autonomy, acquisitions, regulations, and an increased rate of product innovation. Additionally, the savings targets forced the team to consider the bigger opportunities driven by early multi-functional product design decisions.

After developing and implementing the strategy and action plans, the team is 50 percent complete on the initial platform renewal work. Already 40 percent of the expected savings have been realized, well ahead of the plan. The key activities driving their success include:

- Developing a simple and compelling business need (everyone in supply chain and in the business understands the urgency and importance of the work)
- The formation of technical community teams (R&D and supply chain) to lead the work
- Rigorous supply chain network design analysis based on TCO principles to justify and approve projects
- Investment in a world-class project management process
- Development of a modern, advantaged, global equipment standard with clear decision-making authority owned jointly by engineering and R&D
- Establishment of a clear global menu card (product formats, raw/packaging materials, components) with clear decision authority owned jointly by the supply chain and R&D.
GLOBAL CPG

A large, global CPG company implemented PLCM in several of their largest categories. The driving business needs were based on cost savings at the seams of the organization and management of the significant increases in complexity, which negatively impacted ability to support a larger number of new product initiatives at a faster pace.

One of the smaller categories in the company did not implement PLCM. The category was a showcase of the company with over a decade of ‘double digit’ growth across the globe, moving from a hundred-million dollar brand to a multi-billion dollar brand. Unfortunately the growth slowed, and as it did general management, marketing, and R&D increased the number and pace of new product initiatives while capping staffing to current levels. This made the business situation worse. Revenue continued to be flat over a three-year period. Complexity increased dramatically and reduced the technical community’s capability.

After some internal benchmarking, the technical community and general management aligned on a joint PLCM strategy. A clearly defined vision including the business benefits (savings, scale, and speed) was vital to this alignment. The initial focus area was simplification, with a target of 30 percent reduction in raw and packaging materials. The organization embraced the work as they saw the value to the business and the improvement in their workload.

Multiple examples of waste were uncovered. Ingredients with eight to ten specifications of the same material and six to eight different unit costs were not uncommon across the globe. The teams reduced materials, consolidated suppliers, and leveraged higher volumes to reduce cost. All the cost reduction and cost savings targets were exceeded.

The work has resulted in a global set of standard materials with decision-making authority shared by R&D and the supply chain. This required important cultural changes. R&D had forty global product formulators. Each scientist worked to create new products with unique ingredients and questionable consumer benefits. This had to change. The number of formulators was reduced significantly, direction was given to formulate based upon a simplified product chassis menu, and new ingredients had to be approved on a “one in, one out” basis by the platform team.

This progress has laid the groundwork for other platform work to be implemented, including equipment/process standards, more efficient product design approaches, and simplification in the overall product menu.

The net result was that the business returned to growth over the last three years (at a much lower single digit level) and experienced record levels of cost savings. The strategy is viewed as critical to return the business to targeted growth levels.
The transition to a PLCM strategy can look like a daunting task. In our discussions with benchmark supply chains, six areas surfaced to help with the early PLCM work.

**BEST PRACTICES**

The general manager and R&D leadership jointly develop the driving business need and organizational implementation plan.

It can save time and effort to jointly develop the business need and implementation plan with business leadership and the technical community. This approach works well if your relationship with these leaders is strong and this group has concluded that a new strategy is required to deliver on the business’s challenges. If this approach is not possible, we suggest following the steps outlined in the leadership section of this paper.

**Develop a clear PLCM vision, definition, and training plan.**

Start with a limited number of transparent PLCM measures (a focused scorecard).

Developing a simple and clear vision, definition, scorecard, and training plan will enable the organization to learn and grow together. This work can be renewed and improved as you build capability.

**Start the work with a focus on simplification.**

Simplification is the starting point of PLCM. It is easy for everyone to understand, as complexity impacts virtually every person in the organization. Leadership should frequently communicate simplification successes (both for individuals and the business) to build energy for the strategy.

**Transition to global standard equipment and materials with ongoing investments.**

One of the major transition issues faced by supply chains implementing PLCM is how to migrate to global equipment and material standards. The total cost of this transition is typically millions of dollars. Obviously a rapid transition and investment will generate the benefits sooner, but most businesses do not have these cash resources available. Additionally, the supply chain must work with finance...
to improve financial analytical capability in order to assess these investments. In light of these issues, most benchmark companies establish global equipment and material standards and transition to them with ongoing investments (facility upgrades, new product investments, new assets, new suppliers, etc.).

Staff PLCM leadership with highly capable supply chain and R&D leaders.

It is vital to ensure that a highly capable leader from the technical community drives PLCM to expedite the transition. This leader should have a track record of leadership/influence across not only the technical community but the commercial community as well. Ideally the individual should be experienced in multiple supply chain disciplines both in execution and innovation. It is critical to the PLCM strategy that the organization sees rapid progress in PLCM activities and results early. Highly capable supply chain and R&D PLCM leadership can drive this.

Summary

A PLCM strategy is ideal for supply chain executives faced with monumental profit and complexity challenges. You are well matched for a PLCM strategy if:

- Your breakthrough savings opportunities exist in the seams of the multi-functional organization
- Your team suffers from exponential increases in complexity, preventing valuable resources from focusing on improving the business (cost savings, new products, improved capabilities).

This paper provides you with the framework of PLCM, a set of best practices from benchmark organizations with supply chain managers who are experienced with platforms, and easy to understand examples. This work is often referred to as the common sense strategy, and there is truth in that statement. The concepts are simple and logical, but building a high performing PLCM culture will test your leadership capabilities.
Best Practices – Reference List

PLCM STRATEGY BEST PRACTICES

General Guidelines

• Platforms must be business and consumer based.
• The PLCM process starts with product design.
• PLCM is based on the end-to-end supply chain.
• PLCM requires 100 percent organizational involvement.
• PLCM capability is best developed simultaneously with key suppliers and partners across the supply chain.
• Simplify first, standardize second to enable scale and deliver speed.

Simplification

• Use visible and invisible concepts to manage simplification.
• SKU management decisions are handled in category internal business planning meetings or equivalent, high-level, decision-making forums.

Standardization

• Global standardization requires robust change management system.
• Develop standard menus for materials and equipment to efficiently manage standardization with clear menu authority.
• Develop robust platform information systems.

Scale/Speed

• The capability created by PLCM must be intentionally focused on creating scale both internally and externally.
• New platforms to support new products require disruptive innovation and a robust, TCO-based payout.
• Early multi-functional involvement in new product innovation saves time and cost.

Measures

• Utilize robust, ongoing processes to review results and action plans and make appropriate adjustments.
• Have a visible scorecard with the critical few PLCM measures.
• Ensure a holistic life cycle analysis is in place for new products/SKUs.
PLCM ORGANIZATION BEST PRACTICES

• PLCM strategy is based on a driving business need.
• PLCM has visible, overt support from business and commercial leaders.
• PLCM strategy is lead by the technical community (supply chain and R&D).
• Technical leaders must speak with a unified voice to the business executives.
• Successful implementation of PLCM traces to a passionate supply chain zealot’s presence in leadership.
• An energizing process exists to broadly communicate successes.

PLCM TRANSITION BEST PRACTICES

• The general manager and R&D leadership jointly develop the driving business need and organizational implementation plan with the general manager and R&D leadership.
• Develop a clear PLCM vision, definition, and training plan.
• Start with a limited number of transparent PLCM measures (focused scorecard).
• Start the work with a focus on simplification.
• Transition to global standard equipment and materials with ongoing investments.
• Staff PLCM leadership with highly capable supply chain and R&D leaders.
End Notes


Assessing PLCM Capability

The GSCI has an effective process to assess the PLCM capability of your organization. This can be helpful for supply chains considering this strategy and supply chains renewing their PLCM capabilities.

To inquire about PLCM assessments, please contact the GSCI directly or contact Mike Burnette (mburnel8@utk.edu)
A FINAL NOTE
We hope you have found the material in this white paper helpful and useful. We at the University of Tennessee’s Haslam College of Business are committed to translating our top-ranked position in academic research into information useful for practitioners. We believe the real world of industry is our laboratory. It’s why we have the largest Supply Chain Forum in the academic world, with over 60 sponsoring companies. We are always looking for industry partners to assist us in this journey. Let us know if you are interested in being one of our valued partners.

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