Orchestrating a Supply Chain Competitive Edge

An effective supply chain is the key to creating business value. By understanding the four stages of supply chain maturity — from decentralization to orchestration — organizations can focus change efforts and maximize results.
Executive Summary

Your Supply Chain Matters

Whether your industry is retail or manufacturing, transport or healthcare, your supply chain is the key to creating business value. An effective supply chain delights customers (internal and external, business and consumer), controls operational costs, and supports growth and expansion into new markets.

But what makes for an effective supply chain? And how can you approach new initiatives and transformations to increase that effectiveness?

That’s what this paper explores. We introduce a model for supply chain maturity that can take you from a standing start to the highest levels of excellence. We also provide the frameworks and questions to ask that will help you benchmark your performance today, and take a methodical organizational approach to improving your supply chain effectiveness. Throughout we have provided references to other publications that can help broaden your insight and get you started on your journey.
Climbing the Supply Chain Maturity Curve

Mounting Pressure to Excel

The end goal of any supply chain is to be “capable to deliver” — having a full picture of the lead time and resources that must be committed to meet the customer’s delivery expectations. That has always been a challenge to achieve, and today a host of trends are putting even more pressure on organizations’ supply chains.

In agriculture, for example, consumers are demanding to know where the food on their supermarket shelves has come from, with unbroken traceability from “field to fork”. In retail, customers expect stores to deliver a truly omni-channel experience, with same-day delivery and no compromise on quality.

Breaking Down the Barriers

Supply chains have many moving parts, spanning multiple organizations, and in reality they’re complex networks or ecosystems rather than simple chains. When looking to drive improvements in supply chain performance, it’s not enough to focus on one supply chain activity, one process or one entity in isolation.

Arguably, that’s exactly what ERP systems have encouraged. Many organizations today have localized excellence, but processes and systems that are siloed. They’re held back by the constraints of legacy systems and fragmented organizational structures, and the experience they deliver is just as outdated and disjointed.

Competitive edge arises from mastering the big picture: orchestrating the movement of goods and information seamlessly across functional and even organizational boundaries and building effective end-to-end value chains.

Every industry has its own supply chain dynamics. But many are looking to reduce manual “touches”, improve cross-organization collaboration, and improve speed to market through careful orchestration of just-in-time component delivery and product pickup.

Quick Take

Fast Food

The food industry is one example of an industry looking to better integrate supply chains for speed, efficiency and traceability. Read more in “A Leap Toward Sustainable Development.”

http://cogniz.at/1wlOFkH
Four Steps to Business Value

Evolution and Revolution

There’s a continuum of supply chain sophistication and effectiveness. We’ve identified four landmarks on this continuum (see The Four Levels of Supply Chain Maturity), which can help you benchmark your current performance and identify what you can achieve in the future. This paper describes that model and provides some recommendations for how you can move your organization to the next level.

The four levels represent different degrees of business value created by the supply chain – and different levels of business change needed to get there.

- **Level 1: Decentralized.** Individual processes and regions are optimized for efficiency and performance, but there is little integration between elements of the supply chain. Each unit operates independently.

- **Level 2: Unified.** Internal departments, such as procurement, finance and logistics, are integrated as one team to create a central supply chain organization. You have one supply chain across geographies. But this still leaves suppliers and customers on the outside.

- **Level 3: Networked.** Integration creates a networked organization that brings in partners, suppliers and even competitors to share information and reduce the number of touchpoints. It will also see you develop a common language for all units, which means that payment terms and delivery timescales, for example, are standardized across your supplier ecosystem.

- **Level 4: Orchestrated.** At this stage you have created a complete end-to-end supply chain that’s “capable to deliver”. Here everyone is working together to get the right product, to the right place, at the right time. The entire supply chain function is tightly integrated and synchronized, able to deal with huge complexity and dramatic fluctuations in supply, demand and participant behavior. There is a single view of customer demand across all channels of purchasing and fulfilment, shared by all supply chain partners in real time. Ultimately, the goal is to have a touchless supply chain, where the order is taken by the organization’s sales function or retail partner and fulfilled directly by the supplier.

Among others, Gartner has proposed an alternative but compatible model, which it calls the “Demand-Driven Maturity Model”. During its five stages – react, anticipate, integrate, collaborate, orchestrate – organizations increasingly adopt an “outside-in” mindset, integrating business unit supply chain functions, customers and networks, benefiting from increasing levels of standardization, scalability and adaptability. By delivering more efficient and better quality service to customers even as demand and supply factors fluctuate, they maximize profitability.

The Four Levels of Supply Chain Maturity

![Diagram showing the four levels of supply chain maturity](image-url)
How Mature is your Supply Chain?

**Most Supply Chains are a Long Way from Orchestration**

Although organizations today have more sophisticated systems available to support them than ever before, most still report low levels of supply chain integration. As you can see below only 10% report “high” levels of integration. We can map these tiers to levels 1, 2 and 3 on our model – very few organizations have attained level 4 today.

**Change is No Easy Task**

It’s no surprise that many organizations are still at an early stage on this maturity curve. A large retailer, auto manufacturer, food and beverage manufacturer or pharmaceuticals company may have thousands of outlets and depots, thousands of SKUs made from millions of assemblies, components and raw materials, and thousands of suppliers in dozens of countries. Dozens of related systems and processes around pricing, promotions, packaging, payment terms and more are also intimately connected.

This complexity only functions thanks to layers of legacy systems, experienced practitioners, and large numbers of distributed physical assets, from retail point of sale systems to warehouse inventory and fleet dispatch applications. Changing these processes, people and systems is like steering an oil tanker: it’s slow going and has to be done with care if you’re to avoid a disaster.

**Maintaining the Status Quo is Not Enough**

Although change is difficult, every organization needs to establish a plan for advancing their supply chain competencies in order to maintain a competitive edge. According to PwC, CEOs are looking to supply chain leaders to support business growth in a range of different areas:

- New product or service development – cited by 35%.
- Organic growth in existing domestic markets – cited by 30%.
- New M&A, JV or strategic alliance – cited by 20%.
- Organic growth in new geographic markets – cited by 15%.

Supply chain organizations are responding to these goals with advanced new capabilities. In our 2014 benchmarking study, 83% of supply chain leaders said that supply chain is heading toward real-time planning. 78% said that adaptive planning will become commonplace. 75% said that their planning function is becoming globalized. And 64% say that they will increasingly use new data sources, such as social, in their planning.
Planning the Journey to Achieve Balanced Results – Measuring Strategic Direction

Cognizant’s Supply Chain Strategy Lifecycle brings together two frameworks to help organizations conceptualize, plan and measure for the great journey ahead, defining the target operating model.

The first part is an architecture vision composed of four elements. In order to become a fully orchestrated organization, businesses need to think about how all four of these disciplines connect to impact their strategy.

The Supply Chain Strategy Lifecycle

- **Business architecture** – including process and organizational factors such as roles and functions. The vision for business capabilities, such as strategic procurement services or integrated business planning.
- **Information architecture** – the conceptual information model and business information model. A common model for corporate data and language rules that underpins business processes.
- **Application architecture** – encompassing the application reference architecture model and application strategic intent. The application packages that support data transactions.
- **Technology architecture** – the lean, mobile, scalable device, hardware and network platforms that deliver applications.
Success in these four disciplines can be measured using the Supply Chain Council’s SCOR model, which defines five attributes of supply chain performance. As organizations transition through the supply chain maturity curve, they should benchmark their position in all five areas:

- **Reliability** — perfect order fulfillment.
- **Responsiveness** — order fulfillment cycle time.
- **Agility** — flexibility, adaptability and value-at-risk.
- **Cost** — total cost to serve.
- **Assets** — cash to cash cycle time, return on assets, and return on working capital.

Excellence in one area is not enough; the organization’s overall supply chain maturity level and performance will be dragged down by the weakest discipline (see Achieving Balanced Results Across the SCOR Disciplines).
Level 1: Decentralization

Decentralization Does Not Mean Low Quality
Decentralized organizations are not automatically laggards in the use of supply chain technologies. Many processes — such as purchasing, order management and shipping — may be highly automated and perform extremely efficiently. Organizations at this level of maturity may very well pay their suppliers on time, bill their customers promptly, hold adequate stock to meet demand, and deliver the right orders to their customers.

The challenge is that these processes aren’t joined up. In fact, the same process may be duplicated many times across the business: different business units may run their own procurement functions; or there may be different order processes for each region, product range, or sales channel. Different business functions may be so separate that they transact with each other as customers, issuing POs and invoices to govern the movement of goods and workforce effort around the organization.

Silos Create Challenges

The Consequences of Siloed Organizations are Broad

- **Customer dissatisfaction:** Customers can get frustrated — for example, by receiving half a dozen different reference numbers generated between placing an order and receiving the shipment, by having to call different teams to chase up a problem, or by experiencing different standards of service depending on what they’re ordering or which channel they’re using.
- **Operational inefficiency:** “High touch” manual interfaces between processes increase staff workload and cost, slow down the supply chain, and risk introducing errors.
- **Inability to flex:** Some relatively simple transactions — such as a consumer returning an order they placed online to their local store — can become problematic when they cross process siloes.

Perhaps most importantly, the business has no complete view of its entire operations, from demand to supply. This hinders agility and increases financial and operational risk. When unexpected events unfold, each department reacts independently, with little central coordination.

The business consequences of decentralization can be dramatic. For example, failed UK photography retailer Jessops accumulated £16 million in excess obsolete stock due to its disjointed forecasting processes. It had little visibility into the demand for different products. Enterprises that lack insight into where inventory lies around the organization commit themselves to ordering additional unneeded stock simply to meet order fulfilment performance targets.

Quick Take

Are You Ready for the Next Level?
Evaluate your maturity by answering these three questions:

- Do you have a common process taxonomy with integration touch points?
- Is your organization prepared to function as a joined up center of excellence?
- Is data across your organization accurate?
Level 2: Unification

Bringing the Pieces Together
Organizations moving to unification bring together different supply chain teams from stages of the process and from different regions and business units into a centralized function. This naturally reduces duplication, promotes joined-up thinking, and provides a single “center of excellence” for staff, customers and partners to approach for any supply-chain related query. This migration to a centralized model may be catalysed by a general move to a shared-services operating model in other parts of the business.

Realizing the Synergies
The benefits of unification are important:

• **Greater efficiency**: There’s a natural improvement in consistency and (once the transition is complete) a reduction in operating costs. It’s much more efficient when systems seamlessly integrate forward and reverse logistics transactions between purchasing, ordering, warehouse and planning departments; organizations can expect to cut the time wasted in reconciling financials and material transactions by 75%.

• **Improved quality**: Supply chain performance should improve, with reduced error rates and faster movement of products (and cash) through each stage. Unification enables a “low touch” supply chain model, where only key transactions along the supply chain involve hands-on work between the various operating units.

• **Insight and oversight**: Increased visibility of assets, cash and relationships should also provide the business with a clearer picture of operational risk and compliance. And the availability of more complete, accurate and normalized data about the entire supply chain also creates opportunities for insight that can guide processes including product development, pricing and promotions.

No Shortcuts to Success
Achieving unification will take effort. It can only happen when data and processes are common across the operating model, and getting there will require fundamental changes to processes and the systems that power them.

• Staff, teams and facilities may need to be moved, created or disbanded.

• Staff, partners and customers will need to be retrained to adapt to the new way of doing things.

• The business culture will need attention, as local or divisional teams face the disruptive effect of responsibility moving to central teams.

• Data will need to be normalized, migrated and checked.

And all this will have to be done without compromising business-as-usual activities. This explains why few organizations have actually managed to attain a unified supply chain, even though it seems so logical and simple.

The Cognizant supply chain planning study asked respondents what effect better supply chain visibility has on planning results.

**Figure 5**

- **89%** said it would have an improvement
- **53%** said the improvement would be “significant”
Are You Ready for the Next Level?
Evaluate your maturity by answering these three questions:

- Is your supply chain talking the same language?
- Is your supply chain prepared for building synergies across a trading network?
- Is your supply chain providing “line of sight” to increase customer satisfaction?
Level 3: Networked

Involving the Wider Ecosystem

The logic behind adopting a networked supply chain is that there’s only so much value you can create within your organization’s four walls: naturally, much of the supply chain work is performed by your suppliers, logistics partners, distributors, resellers and retailers - and indeed customers themselves.

To create a truly efficient and differentiated supply chain experience for customers, information and instructions must flow seamlessly from end to end, enabling full visibility, pre- and post-event reporting, and predictive analytics of customer behavior (see Bringing Networked Partners into the Supply Chain).

Networked supply chains exhibit many of the same benefits as unified ones, just to a far greater extent.

Bringing Networked Partners into the Supply Chain

Making the Connection

ERP providers such as Oracle and SAP have offered collaborative supply chain tools for a number of years, enabling businesses to create open portals for integrating customers and suppliers into the supply chain. However, upfront and ongoing costs of deploying and customizing these tools on their own premises have deterred most organizations from pursuing collaborative supply chains.

With the advent of cloud computing, organizations are now looking towards software as a service (SaaS) models. Gartner estimates that 50% of deals are SaaS-based, specifically in the Transportation Management services sector.6

Source: Oracle
Figure 6
Speaking the Same Language
Software alone isn’t enough to get you there. One of the key success criteria for a networked supply chain is to ensure you have common supply chain language and a standardized way of collaborating. In order to avoid errors and manual reconciliations, all key activities, data types and milestones must have a common meaning and format for all trading partners in the networked supply chain: including purchase orders, sales orders, returns authorizations, invoices, stock checks, late deliveries and soiled goods.

Still Room to Evolve
Networked supply chains have consistency of processes and a solid technology foundation end to end, which should then allow the business to get the basic supply chain principles right, effectively fulfilling customer needs, albeit with a level of manual management.

But that doesn’t mean they have achieved the greatest level of sophistication across the four disciplines of business, information, application and technology. They may lack the ability to manage the most complex of supply chain models, where demand and supply factors show great variability and volatility across many different order and fulfilment channels.

Advance planning tools can help organizations manage their trading network from a centralized position, but don’t necessarily offer the agility to deal with such uncertainty and complexity automatically based on robust business rules.

Quick Take
Are You Ready for the Next Level?
Evaluate your maturity by answering these three questions:
• Is your supply chain prepared for emerging markets to eventually become your core markets?
• Is your strategy geared to becoming a pioneer of supply chain innovation?
• Is your workforce competent to manage touchless supply chains?
Level 4: Orchestrated

Achieving Excellence, End to End

The orchestrated supply chain is fully integrated across all regions and organizations. It uses advanced technologies and automated, rules-based processes to quickly and effectively manage many different supply chain scenarios, with real-time feedback to support decision-making. The result is that the business can meet customer expectations for timely, high-quality logistics, with zero errors and profitable operations (see The Architecture of Orchestration).

The Architecture of Orchestration

Orchestrated supply chains stand out from the earlier maturity phases in their ability to deliver a few key outcomes, solving some of the thorniest challenges facing supply chain leaders.

Supporting Diverse Movement of Goods

Goods can flow in many different ways through the supply chain based on automated business rules, meeting diverse customer expectations. Vendors such as Oracle now provide technologies to facilitate what’s called Distributed Order Orchestration (DOO): effectively organizations can use this to capture multi-channel orders and automatically fulfil them in the most appropriate way — including segmenting requests by value or other factors to prioritize the most profitable actions.

The orchestrated supply chain is also optimized to deal with returns, not just outward shipments. Returns play an increasingly important role: companies in electronics manufacturing, life sciences and consumer goods for example have a growing responsibility to manage and safely dispose of packaging, e-waste and hazardous goods flowing back to them from customers.

Attaining the Zero-Touch Interaction

The orchestrated supply chain bridges different systems and data structures to create a single platform or backbone where your trading partners and customers can interact directly, for example during fulfilment and returns. Transactions can bypass interim touchpoints within the supply chain, delivering greater responsiveness and agility. Every touchpoint avoided brings down cost, avoids delays and cuts potential for failures. This helps support the zero error, 100% on-time goal of high-performing supply chains. Accountability is maintained through real-time feedback.
Complete Oversight

Sensing demand signals has always been a critical input for supply chain planning. Read more in “Reducing the Bullwhip Effect via Market Research-Gleaned Insights.”

http://cogniz.at/1t3Rfov

The orchestrated supply chain is highly adaptive – read more about this concept in “Manufacturers, Retailers Look to Adaptive Supply Chains to Increase Revenue, Cap Costs, Boost Productivity.”

http://cogniz.at/1mrYgLu

Although reverse logistics is often overlooked, organizations that master this discipline can gain competitive differentiation. Read more in “Reverse Logistics: The Way Forward.”

http://cogniz.at/1w2i2Uc
Staying One Step Ahead of Volatility

Manufacturers are constantly dealing with supply chain variability and volatility, and trying to minimize the impact of changes in demand and supply before they occur. External factors, such as social media dynamics, digital supply chain messaging, retailer integration and the Internet of Things, are all creating information continuously – Code Halos surround your customers, partners and your business.

The orchestrated supply chain can deliver the right alert to the right point via multiple delivery options, allowing for the organization to react and adjust their supply chains accordingly, saving time and money and increasing both customer and shareholder value.

The orchestrated supply chain senses these signals, synthesizes them in the cloud in real time, and generates predictive insights into demand and supply trends. Increasing automation frees up experts to focus on exceptions and outliers. This enables the supply chain to be highly responsive or even proactive, mitigating risks and maintaining standards of customer service.

For example, a customer could have a natural disaster to deal with; a manufacturing site faces a forced shutdown; or suddenly a large order could be cancelled or modified. The orchestrated supply chain can deliver the right alert to the right point via multiple delivery options, allowing for the organization to react and adjust their supply chains accordingly, saving time and money and increasing both customer and shareholder value.

By viewing the entire supply chain and having maximum transparency across it, organizations will be able to tailor their supply chain buying behavior or issue customers with delivery notifications before anyone experiences the problem.

All of these capabilities are possible with technologies available now. They can help organizations stay ahead of the competition, build customer loyalty, and streamline their operations to avoid cost, risk and waste.

Are You Ready to Take Your Supply Chain Further?

Orchestration isn’t the end state for supply chain maturity – there are advanced levels of predictive planning and analytics that provide opportunities for the most advanced organizations.

• Is your supply chain capable of managing omni-channel ordering and fulfilment?
• Is your supply chain adapting to emerging technologies in the digital age?
• Is your supply chain capable of dealing with an autonomous workforce?
Making Orchestration Happen

Starting Your Journey
Transforming your supply chain to move up the maturity levels will likely involve big changes to business, information, application and technology architectures, right across the business. So how do you know where to start?

We suggest you ask six key questions to open the discussion and help identify your maturity today, beginning with the all-important factor of leadership and strategy setting, plus the five key elements of the SCOR performance measurements:

- **Leadership**: Is supply-chain management a strategic boardroom position in your organization? A fully integrated supply chain is key to giving you a competitive edge, and having senior buy-in will ensure your business has a strategic focus on cost, time and quality in terms of both process and product. Value-chain leadership practices must demonstrate three qualities: alignment with the business’s strategy for a target operating model; integration of business processes and information to underpin decision-making; and adaptability to partner with the business and deliver differentiated value.

- **Reliability**: Is quality built into your supply chain? Ultimately, the goal is for the customer to get what they want at the time they asked for it to be delivered, but all that is irrelevant if the product is broken when it arrives.

- **Responsiveness**: Do you have a built-in change-management process that constantly monitors the dynamics of your supply chain? An orchestrated supply chain means an agile supply chain, and so all partners and processes need to be able to adapt to change in order to improve quality and drive operational efficiency.

- **Agility**: Does your supply chain minimize the number of touches and the touch time in supply-chain transactions? A touchless chain means you can achieve zero failure principles and deliver 100% on-time capabilities.

- **Cost**: Is the movement of information and money as critical in your supply chain as the movement of materials? Effective supply-chain orchestration means having a seamless flow of information and money so that goods can be delivered in line with customer expectations and profit expectations.

- **Asset management**: Do you have the relevant resource capability? 63% of CEOs say that staff shortages are a key problem. How well prepared are you to find, attract, and keep tomorrow’s workforce? It’s so important to have the right talent with the right skills in your supply chain. An internal talent assessment can quickly tell you if you’ve got what you need, and help you to identify your competency improvement program.

Your answer to these questions will help you as you progress on your journey from Decentralization through to Orchestration, and enable you to focus more clearly on how you drive your competitive edge.
Footnotes

1 Introducing the Five-Stage Demand-Driven Maturity Model for Supply Chain Leaders
2 PwC, 17th Annual Global CEO Survey
3 Cognizant, 2014 Supply Chain Planning Benchmark Study. http://cogniz.at/1nC289Mf
4 http://www.gordonbrotherseurope.com/Case-Studies/Disposition/Jessops.aspx
5 Market Trends: A Golden Opportunity in the Transportation Management System Market
6 PwC, 17th Annual Global CEO Survey

About the Author

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About Cognizant Supply Chain Management

Cognizant's supply chain management practice can help you make the most of this critical business function. Our 2,500 supply chain consultants help you align changing demand patterns with cost-appropriate fulfilment and inventory options to achieve your business objectives.

Our end-to-end supply chain expertise across policy, process and technology issues enables us to tailor solutions to meet your market needs. The result is reduced cost to serve, optimized inventory working capital, and fast response to demand changes. We offer services in three areas:

Supply Chain Transformation Services
By combining industry leading practices and the latest supply chain and cloud solutions, our supply chain experts help you reduce manufacturing lead times, increase asset utilization, streamline processes and collaborate better with partners and suppliers.

Supply Chain Planning Services
To unlock additional value from your supply chain, we help you create or refine strategic and tactical plans for purchasing, manufacturing, distribution and other areas of your business. We focus on plans that can be implemented quickly, drawing on our expertise in demand planning and forecasting, production planning, inventory planning, distribution and e-commerce.

Supply Chain Execution
Warehousing, transportation and manufacturing execution are complex processes that can dramatically affect customer service, brand image and the bottom line. We help simplify this complexity with technology solutions from leading vendors such as SAP, Oracle, JDA Software, Microsoft and Manhattan Associates. With our supply-chain expertise and vertical market experience, we help you evaluate, select and implement solutions that add business value and agility.

For more information visit:
www.cognizant.com/supply-chain-management
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