Take a Strategic Approach to Supply Chain Capability Design for Emerging Digital Business Models

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Initiatives: Supply Chain Strategy, Leadership and Governance

New digital business models are creating a variety of revenue streams and will require the right supply chain capabilities to succeed. This research helps to expand CSCOs' understanding of these digital business models so they can guide their team toward developing the required capabilities.

Overview

Key Challenges

- Supply chain leaders are under pressure to develop unique capabilities that will enable a variety of emerging digital business models and the revenue streams they create.

- Supply chain capabilities that are built to only support current business models put revenue and profits from new business models at risk.

- Supply chain capabilities that are not designed to deliver customer value and support business outcomes risk suboptimizing supply chain performance.

Recommendations

Chief supply chain officers (CSCOs) responsible for strategy, leadership and governance should:

- Prepare the supply chain for the digital era by studying emerging digital business models to understand their potential to create new revenue streams for the business.

- Identify the supply chain operating capabilities that enable new digital business models by observing and learning from the first movers that have gone down this digital path.

- Ensure the supply chain team partners with enterprise architects to design hierarchical levels of supply chain requirements by using proven IT capability modeling techniques.

- Take a team approach to capability development by identifying the skill sets required and collaborate to obtain resources from owners outside of the supply chain such as IT.
Introduction

Digital business is creating a shift in customer value propositions and financial revenue streams that requires a portfolio of supply chain capabilities to respond appropriately. We have seen this play out in consumer products for several years with the rise of e-commerce. That digital business model is not profitable if the supply chain doesn't have the capabilities to efficiently support next day delivery and small quantity orders. Take the logistics industry as an example. In 2019, FedEx cut its profit forecast by roughly $900 million primarily due to the rising supply chain costs of increased e-commerce volume. FedEx responded to the challenge by investing in supply chain capabilities to support e-commerce such as developing modernized sorting centers. ¹

A variety of new digital business models that can generate new revenue streams for companies are emerging. CSCOs need to understand these new digital business models and their implications on the supply chain. They must take a strategic approach to ensure their teams design and implement the supply chain capabilities required to help the business derive profitable revenue from these new digital business models (see Figure 1).

Figure 1: New Digital Business Revenue Through Supply Chain Capabilities

### New Digital Business Revenue Through Supply Chain Capabilities

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<th>Connected Revenue</th>
<th>Platform Revenue</th>
<th>New Industry Revenue</th>
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<td>Digitalize Product or Service</td>
<td>Sell Existing Digital Assets</td>
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Source: Gartner 725008_C

Analysis

Study New Digital Business Models and Revenue Streams

We have identified several emerging types of digital business models that create new revenue opportunities and will affect how the supply chain must operate to meet customer expectations (see 6 Ways to Earn New Digital Revenue: A Supply Chain Perspective).
Study these new digital business models and the opportunity they bring as a new source of revenue for your business. These new types of digital revenue can be grouped into three categories (see Figure 2).

**Figure 2: Companies Pursuing New Digital Revenue**

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### Connected Revenue

Provide a unique customer experience enabled by digital connectivity to the customer environment or product being used.

We see different forms of connected revenue, and companies that are active here include:

- **Sell Metered Revenue** — HP Instant Ink uses the Internet of Things (IoT) to connect to printers and monitor ink usage. This allows HP Inc. to offer a new service to customers where they can pay for pages printed versus buying replacement ink as it’s used. HP Inc. guarantees the ink is there when needed providing a new value proposition to the customer and a new revenue stream for HP Inc. ²

- **Digitalize Product or Service** — L’Oréal is digitally capturing a consumer’s unique facial attributes by digitally scanning their skin at the store. An algorithm determines the perfect makeup foundation that’s available within 20 minutes. A digital record is kept and provides the option to place future orders online. ³

- **Sell Existing Digital Assets** — Bayer analyzes data captured across multiple farmers’ fields to advise them on how to improve crop yield. Bayer can offer this as a service for added revenue or to differentiate itself in its market. ⁴
Platform Revenue
Provide the digital environment or platform that connects various partners to, in combination, deliver the customer experience.

An example of platform revenue and a company active here includes:

- Become a Platform Business — Caterpillar recognized its customers require a variety of services to ensure their operational success. It has been acquiring and building capabilities to orchestrate services across a digital platform that connects ecosystem partners together. These partners can range from used construction equipment sellers to software application developers.

New Industry Revenue
Apply a disruptive digital revenue model in one industry and then apply that approach to other industries.

An example of new industry revenue and a company active here includes:

- Move Into Adjacent and New Industries — Alibaba started its online digital marketplace in 1999. Since that time, it has expanded into a broad set of industries with millions of products across 40 different major categories ranging from health and beauty to automotive parts. Alibaba doesn’t just have a product catalog but offers a range of trade services also including logistics and production monitoring.

Study these emerging models and revenue streams so you can build the right capabilities. Different models will require different capabilities. Build awareness of the business opportunity these new models create and then align the supply chain and its capabilities strategically to support them.

Align Supply Chain Capabilities to Digital Business Models
Evaluate what these digital business models and revenue streams mean for the supply chain. In some cases, new capabilities will be required. In other cases, the supply chain as we know it today might be replaced or could even disappear. Be sure to properly align required capabilities to these new digital business requirements to ensure the supply chain does not become a barrier to capturing revenue and profit from these new digital offerings.

Three of the digital revenue types discussed are listed below and summarized in Table 1. Each shows the supply chain capabilities necessary for the company to capitalize on new digital revenue opportunities.

- Contract on Shared Risk Outcome — Lockheed Martin uses sensors to monitor aircraft health to predict when maintenance is required. This allows the company to offer a performance-based contract where it is paid based upon aircraft availability. This results in a shared risk with the customer based upon the agreed upon service-level contract.

- Become a Platform Business — Caterpillar recognized its customers require a variety of services to ensure their operational success. It has been acquiring and building capabilities to orchestrate services across a digital platform that connects ecosystem partners together. These partners can range from used construction equipment sellers to software application developers.

- Move Into Adjacent and New Industries — Alibaba started its online digital marketplace in 1999. Since that time, it has expanded into a broad set of industries with millions of products across 40 different major categories ranging from health and beauty to automotive parts. Alibaba doesn’t just have a product catalog but offers a range of trade services also including logistics and production monitoring.
- L'Oréal — To provide personalized makeup, the supply chain needs to capture and translate the digital attributes of the customers' skin tone into a product recipe for the manufacturer. The supply chain organization must support fulfillment of e-commerce replenishment orders by building flexible and agile filling lines. The function needs to align what L'Oréal calls its operations 4.0 digital program to support these capabilities while also optimizing its traditional product lines.

- Bayer — To support digital farming, the supply chain must look at how demand for physical products may be influenced as it sells digital insights to farmers to help them maximize yield. For example, recommendations to farmers may shape demand for products and services, which are important insights for supply chain planning.

- Caterpillar — As it becomes a platform to provide and orchestrate services, the supply chain has a role. Today, supply chain has visibility throughout ecosystem partners to efficiently respond to demand for spare parts. This will evolve as the platform matures to gather intelligence available from the platform for demand planning or supply risk management. Supply chain will need to plan for any product mix implications or rethink supplier management and customer fulfillment if actively participating in this channel.
### Table 1: Companies Build Supply Chain Capabilities to Support Digital Revenue

<table>
<thead>
<tr>
<th>Company</th>
<th>Digital Business Model and Revenue</th>
<th>Customer Value Proposition</th>
<th>Supply Chain Capabilities</th>
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</thead>
<tbody>
<tr>
<td>L’Oréal</td>
<td>Digitalize Product or Service</td>
<td><strong>Personalize Makeup</strong> Delivered a product matching customers’ skin tone in 48 hours.</td>
<td>▪ Custom mixing in retail&lt;br&gt;▪ Flexible and agile factory refills&lt;br&gt;▪ Operations 4.0 innovation (digital)</td>
</tr>
<tr>
<td>Bayer</td>
<td>Sell Existing Digital Assets</td>
<td><strong>Digital Farming</strong> Maximize crop yield using field performance data.</td>
<td>▪ Planning for digital and physical products&lt;br&gt;▪ Demand insights for planning&lt;br&gt;▪ Segmented supply chain services</td>
</tr>
<tr>
<td>Caterpillar</td>
<td>Become a Platform Business</td>
<td><strong>Orchestrate Service</strong> Connect product and service networks to maximize operational outcomes.</td>
<td>▪ Shaping demand with solutions&lt;br&gt;▪ Orchestrating relationships on new</td>
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Each of these examples represents a new revenue stream for the company made possible by digital.

Don’t view these new digital revenue streams as something happening outside of the supply chain role. Get smart about how digital will change your company’s product and service portfolio and how it will impact your supply chain.
Get involved early when new digital business models are being developed. Determine their impact on the supply chain and prepare now to build the supply chain capabilities required for these business models to succeed. At HP Inc., the success of Instant Ink involved cooperation with the product development teams. Not every product is suited to a device-as-a-service model, so teams must work together to figure out how to best develop products that can support this mode. This ensures they deliver on the customer value proposition while also maximizing profit and cash flow.

Use Modeling and a Team Approach for Capability Design

When faced with different digital business models to support, the supply chain team will need to redesign and align the supply chain operating model to deliver. This requires evaluating supply chain capabilities in more detail.

As the team designs these SC capabilities, it must map them to the business models using a hierarchical capability structure with multiple levels (see Figure 3). This ensures you are starting from the highest-level customer value proposition and required business model capabilities and, from there, expanding into lower-level capabilities to deliver that customer value. This capability modeling is a technology design technique that’s well-recognized in IT by enterprise architects. However, we are seeing this as a knowledge gap in digital supply chain roadmaps.

**Figure 3: Hierarchical Structure for Designing Supply Chain Capabilities**

**Hierarchical Structure for Designing Supply Chain Capabilities**

`Business Model`

`Capabilities`

`Supply Chain Operating Model`

**Level 1:** Deliver Personalized Offering

**Level 2:** Predict Unique Customer Demand

**Level 3:** Analyze Demand Variables

**Level 4:** Manage Master Data
When capabilities are not aligned to the customer value proposition, they are instead developed and suboptimized in functional supply chain silos. For example, one might build the capability needed to optimize a warehouse or a factory for cost or productivity. However, they may not consider its impact on delivering the customer value proposition intended by the digital business model. In the L’Oréal example, the customer value proposition is to use the convenience of digital e-commerce to reorder a personalized product. If it were not aligned to customer value, L’Oréal might have suboptimized manufacturing to build products in high volume to improve factory utilization. However, instead it created agile production filling lines to ensure it could produce personalized customer orders.

CSCOs should partner with the CIO to ensure supply chain business and technology strategies are aligned to deliver customer value. The customer value proposition in a digital business is typically delivered as an “offering” that is a product and/or service. Direct your supply chain team to work with IT architects to learn this hierarchical modeling technique to avoid building capabilities that suboptimize in supply chain functions. They must work through each level to ensure capabilities align.

Below, we use the HP Instant Ink case example to describe each level.

- **Level 1** — Define the customer value and business capability needed. In the HP Inc. example, the business capability needed was to “deliver a personalized offering” by shipping replacement ink before the customer needs to reorder.

- **Level 2** — Achieving the customer experience above requires the capability to “predict unique customer demand” which is accomplished by monitoring data from their printer using IoT.

- **Level 3** — Once the IoT data is captured above, advanced analytics are then needed to “analyze demand variables” to move beyond just describing what’s happening and to optimally predict when new ink is required.

- **Level 4** — The data above must be combined with other supply chain data sources using “master data management” to optimally fulfill orders across millions of printers. Internal and external product supply partners will match this demand data with their capacity, inventory, lead time, product design and other data to deliver perfect customer orders profitably.

Continue to map the relationships to lower-level capabilities as needed to ensure any new critical capabilities are identified and addressed (see Part 2: Best Practices for Creating High-Impact Supply Chain Capability Models).

**Take a Team Approach to Building Capabilities**

No one individual has all the skills required to design and build all the necessary capabilities. This is a team effort where many skills are required. For example, consider the skills required to build the capability to predict demand (see Figure 4).
Figure 4: A Team Approach to Building Capabilities

A Team Approach to Building Capabilities

The first step is to assign the capability owner of predicting demand, which most likely will be the demand management subject matter expert in supply chain.

Then, identify what else must be developed for that capability. From our mapping exercise, we identified process expertise, data management, data science and analytics as well as information and operational technology that will require experts in each area.

Build a cross-functional team of experts in these areas. There is a challenge for many that are building these capabilities. As revealed in a Gartner survey, in most cases all these skills are not found within a single organization. Less than 35% of supply chain organizations surveyed own dedicated resources for any one of these skills. In most cases, these resources are owned by an organization outside of the supply chain. Getting these resources and prioritizing your capabilities for development require clear communication of your digital roadmap. Collaboration and governance will be essential to aligning the right resources.

Evidence


2. HP Instant Ink, HP Inc.

3. How We Seize New Technologies to Change the Way We Work, L’Oréal.

4. Smart Fields, Bayer.


7 Products by Category, Alibaba.

8 One on One: Stuart Pann, Chief Supply Chain Officer, HP Inc., Supply Chain Navigator.

9 2018 Gartner Digital Supply Transformation Survey

- Gartner surveyed organizations between 23 May 2018 and 11 July 2018 to better understand how executives and functional leaders prioritize and organize to define their digital supply chain roadmap and drive their transformation as well as what success looks like.

- In all, 377 respondents participated from the U.S. (n = 86), Canada (n = 16), Germany (n = 59), France (n = 60), the U.K. (n = 58), Benelux (n = 5), Australia (n = 40) and Singapore (n = 53).

- Qualifying organizations are large organizations in the retail, healthcare, CP, chemical, industrial, high tech and life sciences manufacturing industries with at least $1 billion equivalent in total annual revenue for their current fiscal year, 2017 ($500 million equivalent and above outside the U.S.). These companies either are planning to implement a digital supply chain and have actively begun to define a roadmap, are actively implementing or are in the advanced stages of their digital supply chain roadmap.

- Qualified participants hold positions or job roles tied to supply chain functions (i.e., planning, sourcing, manufacturing, logistics, customer service, strategy, IT, etc.) and are actively involved in defining the plans for implementing a digital supply chain, which would include defining the roadmap by identifying and managing projects, considering and experimenting with emerging technologies as they relate to SC and more.

- Interviews were conducted online and in a native language (English, German or French). The sample universe was drawn from external panels of IT and business professionals. The survey was developed collaboratively by a team of Gartner analysts who follow these IT markets and was reviewed, tested and administered by Gartner’s research data analytics team.

- Disclaimer: Results do not represent “Global” findings or the market as a whole but are a simple average of results for the targeted countries, industries and company size segments covered in this survey.

Recommended by the Author

6 Ways to Earn New Digital Revenue: A Supply Chain Perspective

Part 1: Best Practices for the Content of High-Impact Supply Chain Capability Models

New Dimensions in Collaboration: Scale Shared Value and Develop Supply Chain Ecosystem Partnerships

Successful Digital Supply Chains Require a New Generation of COEs

Supply Chain 2029: Disruptions Impacting Future Innovation