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Deloitte's Digital Capabilities Model for Supply Networks

Introducing a new model to drive
supply networks transformation

Digital supply networks

A case for action

Today's digital era has been defined by a series of disruptive trends that have rendered traditional linear supply chain paradigms inadequate. Rising customer expectations fueled by increased connectivity are prompting organizations to rethink the speed and interconnectivity of their processes, the agility of their supply chains, and their customer engagement strategies. This, in turn, has led to increased product complexity, stock keeping unit (SKU) proliferation, and even higher service-level expectations. All of these factors place downward pressure on margins that companies must address through ever-leaner supply chains.

Fortunately, a host of new technologies are emerging that are helping businesses address these challenges:

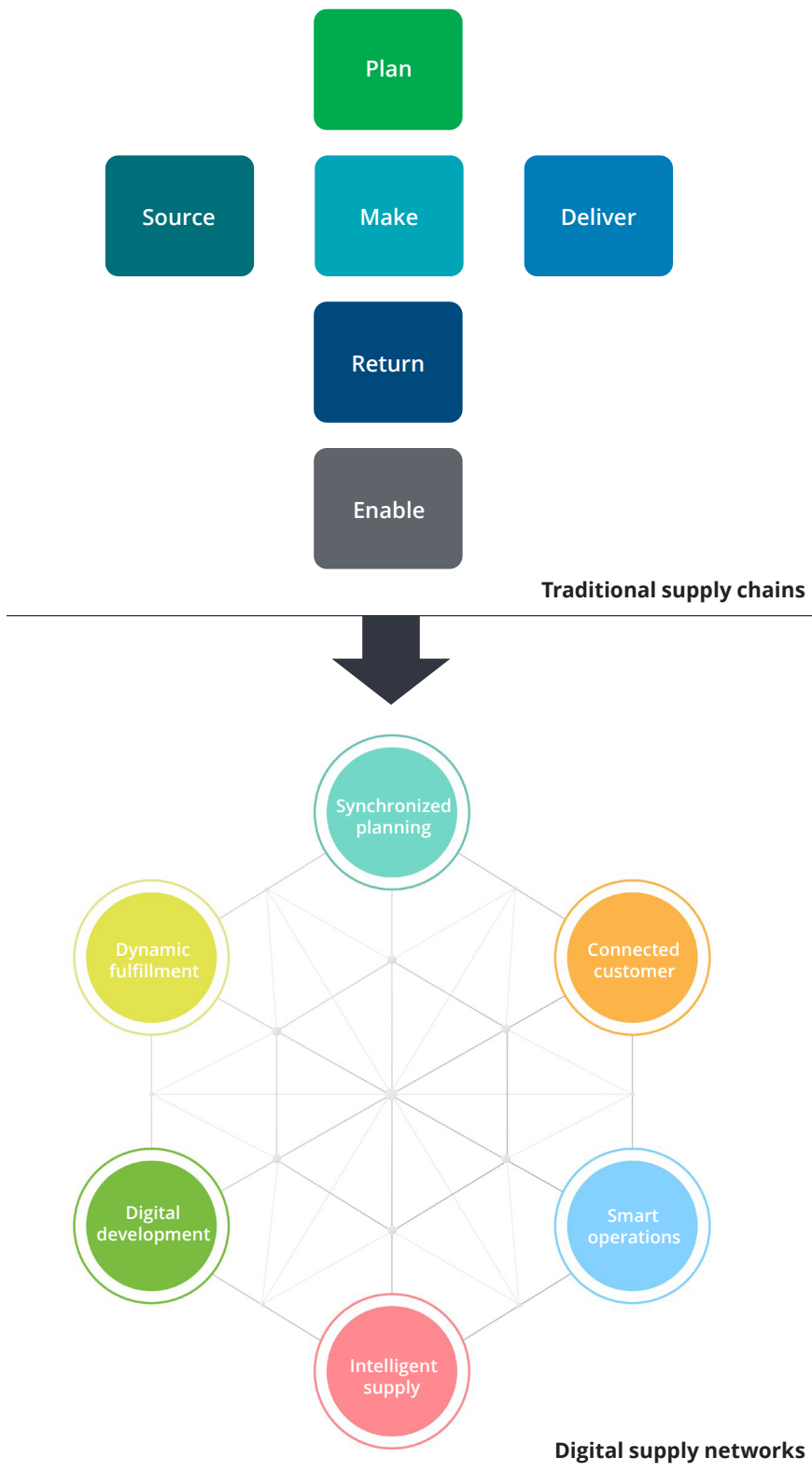
- **Hyper-connectivity**, perhaps best exemplified by the Internet of Things (IoT), has given rise to a range of disruptive processes. For example, with sensor-driven replenishment, sensors on warehouse shelves or on a customer's premises send signals that trigger replenishment when stocks run low. Hyper-connectivity also enables predictive maintenance, in which sensors maximize uptime for assets through real-time measurement and AI-based predictive analytics.

- **Cognitive computing**, which simulates human thought patterns in automated ways, makes applications more artificially intelligent by applying machine learning and other data science techniques to increase speed and accuracy in decision-making.
- **Cloud computing combined with software-as-a-service (SaaS) delivery models** has enabled software providers to deliver specialized solutions that allow companies to access leading-edge supply chain capabilities.
- **3D printing** is beginning to materially change key aspects of manufacturing and inventory management across a variety of industries.
- **Social networking**, both professional and personal, provides a wealth of data points that can be mined to fine-tune business operations. Marketing and product development organizations leverage these social networking platforms to gain insights that are then used to modify products and enhance the overall customer experience.

But to fully reap the benefits of these and other emerging technologies, companies will need to rethink the paradigm for their supply chains. This means shifting from a traditional linear supply chain to an approach that emphasizes the key ingredients needed to operate an efficient supply chain today. Deloitte calls this new paradigm *digital supply networks*, and it differs from a traditional supply chain in two fundamental ways:

1. **Network operations:** Organizations that adopt a digital supply networks paradigm move beyond the traditional silos in their supply chain organization, incorporating interconnectivity at every stage.
2. **Digitization:** For digital supply networks, technology enablement is no longer an afterthought; rather, it is central to how they are designed and operated.

Figure 1. From traditional supply chains to digital supply networks



The Digital Capabilities Model for Supply Networks (DCM)

To codify the digital supply networks paradigm, Deloitte has partnered with the Association for Supply Chain Management (ASCM).¹ This collaboration gave rise to the Digital Capabilities Model for Supply Networks (DCM), a framework to help businesses develop capabilities to transform supply chains into digital supply networks.

The DCM aims to increase organizational intelligence by aligning traditional silos to work together and leveraging capabilities and data to create an integrated supply network. The model is structured around six capabilities that expand on the world's most widely recognized, traditional supply chain model, known as Supply Chain Operations Reference (SCOR). The SCOR model has six elements: Plan, Source, Make, Deliver, Return, and Enable, as visualized in the top half of figure 1. The DCM builds

on and moves beyond the core traditional components, establishing the six digital capabilities that currently make up the DCM:²

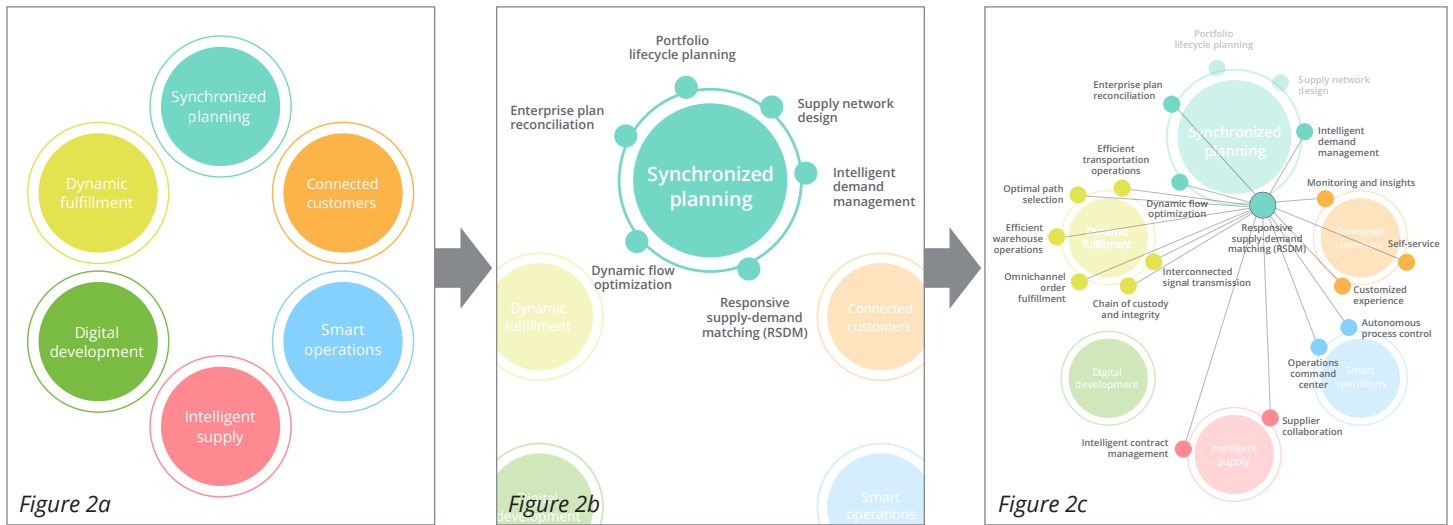
- **Synchronized planning** articulates the synchronization function planning has in the supply network.
- **Intelligent supply** focuses on building automation and intelligent capabilities into the sourcing and procurement function.
- **Smart operations** broadens the Make element of the SCOR model to include nontraditional operations, enhanced by adoption of digital and cognitive technologies.
- **Dynamic fulfillment** focuses on flexibility and adaptability in order fulfillment and better integrates a bidirectional capability, including the return aspect, into the supply network.

The DCM expands SCOR in two capabilities:

- **Digital development** incorporates elements for product design and development into the model.
- **Connected customer** expands the supply chain deeply into the customers' world. It focuses on gathering real-time feedback and using that information throughout the supply network.

These six capabilities are referred to in the DCM as "level 1" capabilities (figure 2a) and are complemented by 39 level 2 capabilities, which provide the next level of detail, as shown in figure 2b. Each level 2 capability provides clear definitions and documentation of how digital supply networks differ from traditional supply chains, digital implications to consider, and relationships to other capabilities. It is these visualized connections between level 2 capabilities, as depicted in figure 2c, that truly differentiate DCM from the SCOR.

Figure 2. The Digital Capabilities Model for Supply Networks

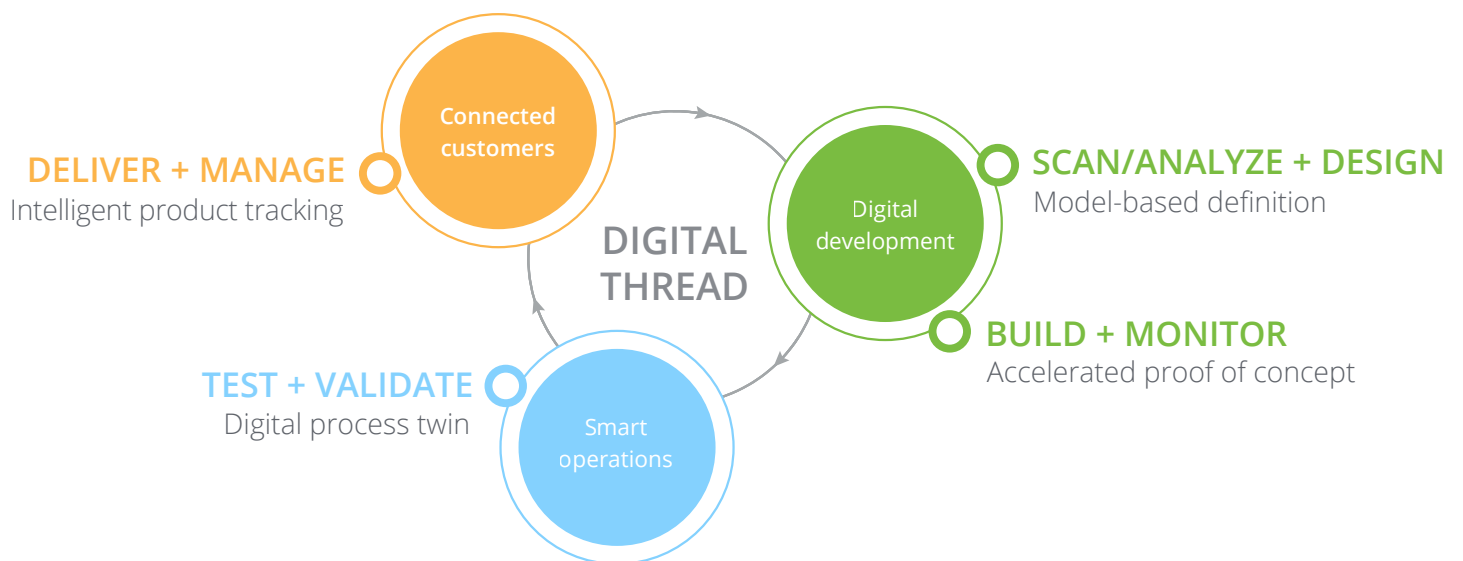


The connections between the level 2 capabilities make it possible to follow a digital thread throughout the DCM. A digital thread is a connected string of level 2 capabilities, within or across multiple level 1 capabilities, that resolves a business problem (figure 3). A great example of a digital thread can

be found in the video series generated by Deloitte Consulting and *Sloan Management Review* called "[Following the Digital Thread.](#)" The video shows the development of an airplane bell crank from a digitally optimized design through prototyping, then into a digital twin-enabled production process, and

then finally shipped to the customer, where usage and performance data is collected and digitally captured to improve future designs. Digital threads provide the paths throughout the relational DCM, demonstrating how the network model applies to everyday use cases.

Figure 3. Digital thread example



How can you use the DCM to transform *your* supply chain?

The DCM serves as an important tool that helps companies articulate and build the digitally enabled capabilities required to transform their linear supply chains into connected, intelligent, scalable, customizable, and nimble digital supply networks.

Deloitte employs a three-step approach to guide our clients through their journey to operate as a Digital Supply Network (DSN). In the first step, planning, we leverage the strategic choice cascade to define and prioritize the capabilities to be addressed first. Once a prioritized roadmap is established through synthesis, we strive to deliver value quickly through pilot deployments that address the biggest pain points. While most pilots drive immediate value, they allow for flexible shifts in direction to ensure we establish a foundation for sustainable value generation. Once that foundation has been established, we work with our clients to scale the solutions, ensuring they become part of the DSN fabric. This approach takes our credo, "think big, start small, act fast" to heart.

In this document, we will focus on the Plan section of the methodology, which is designed to help you answer five strategic questions about your supply chain. This is followed by a synthesis and piloting phase that prepares you to unlock the value of these digital capabilities. While the duration of the digital supply network

transformations varies based on the organization, typically the strategic choice cascade and synthesize of a roadmap can be performed in 8–12 weeks. Pilots can unlock value in a similar timeframe, while scaling is mostly dependent on the organization's breadth and complexity.

To provide a solid foundation for your prioritized roadmap, Deloitte has a series of accelerators which facilitate the answers throughout the strategic choice cascade.

What is our winning aspiration?

Deloitte's Digital Supply Networks Lab helps companies explore the art of the possible tailored to their strategic priorities (see excerpt 1).

Where will we play?

- Teams use Deloitte's "Voice of the Customer" (VoC) methodology to get a clear perspective on what matters for customers (see excerpt 2).
- With VoC outcomes, combined with learning from the Digital Supply Networks Lab, participants define a vision for the core (level 1) capabilities and prioritize them so that primary capabilities receive the most attention. This ensures the greatest opportunities for quick wins, providing a financial stimulant to the program as the organization builds momentum towards a true transformation.

How will we win?

- Deloitte's Digital Readiness Survey helps the team determine where the company currently stands with respect to becoming a digital supply network. Deloitte can facilitate a guided session to assess digital readiness across business units, regions, and functions.
- The team identifies the metrics and key performance indicators (KPIs) that define success in each market segment in terms of delivery performance, cost, efficiency, and agility.

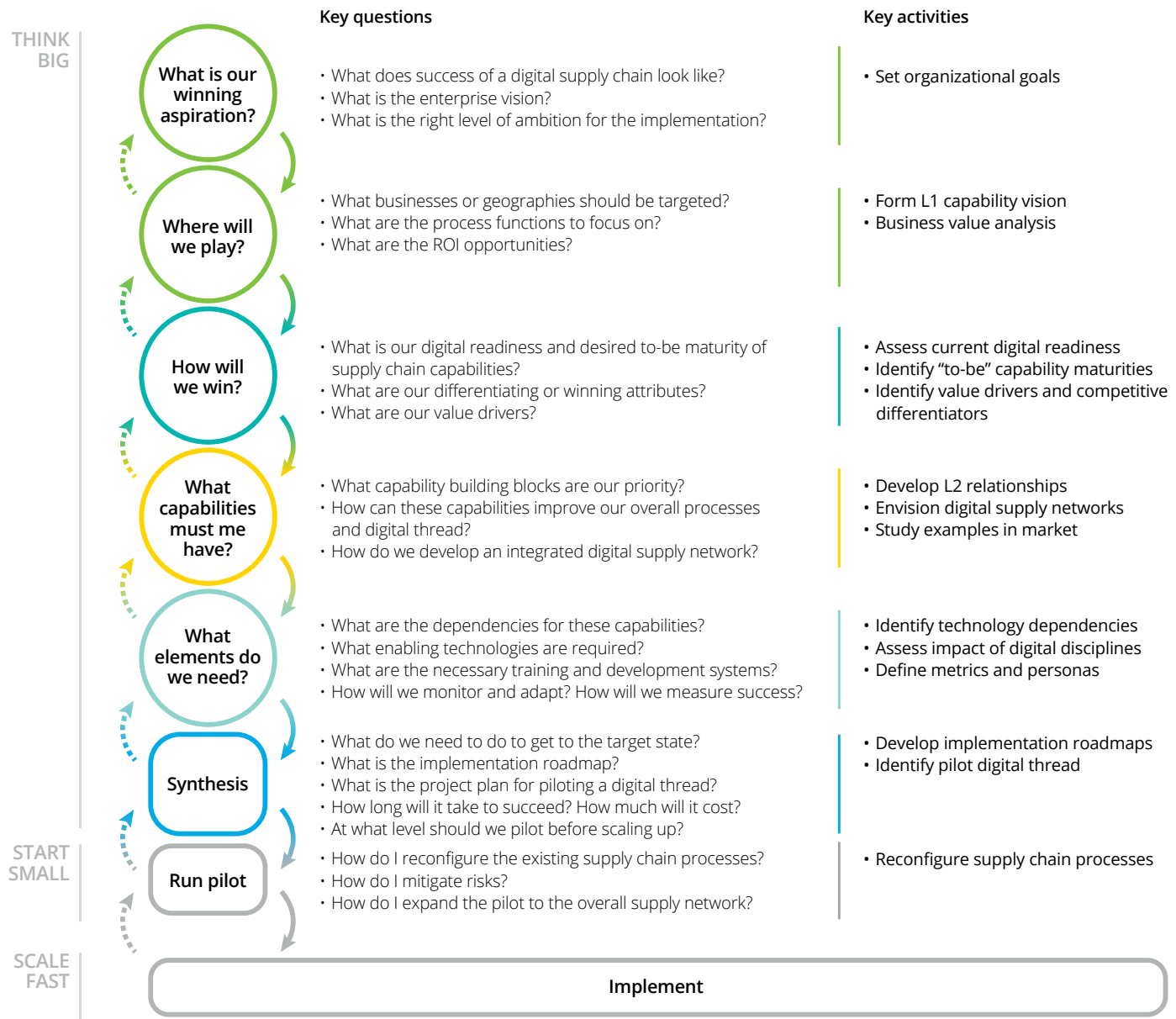
What capabilities must we have?

Deloitte's proprietary capability maturity models, based on the DCM and combined with competitive research, helps teams assess high-priority capabilities and identify areas with the greatest opportunities for improvement.

What elements do we need?

- As digital supply networks differ in two ways from traditional supply chains, the focus will be on identifying the silos in the organization and leveraging the digital threads to streamline process integration, enabled through newly developed digital capabilities.
- Based on a long history in process and system integration, Deloitte brings a proprietary technology enablement framework, translating the capabilities from the DCM model to a level of detail

Figure 4. Digital supply network transformation methodology



for technology-enabled features. These features can be enabled through package technology, accelerating software selection and implementation to digitize the supply network.

Synthesis

- In the synthesis phase, the answers to the strategic choice cascade will be consolidated into initiatives in a high-level roadmap to transform the current supply chain to match the future-state digital supply networks model. Prioritization will be driven through an in-depth understanding of the organizational

change imperatives (people), combined with the process and technology complexity of the initiatives.

- Digital threads will be developed and piloted to establish how a series of interconnected capabilities can be digitally enabled, generating momentum and building a common understanding of the value of digital supply networks.

Pilot

Deloitte's methodology is focused on time to value, which will be unlocked through accelerated pilots proving the value of

integration and digitization of supply network capabilities. Tapping into decades of deep supply chain experience, the team will bring a comprehensive set of tools and accelerators that help enable every stage in the organization's transition to a digital supply network.

Scale

Leveraging the momentum generated through the value-oriented pilots, Deloitte's tools and methodology will enable fast scaling to drive accelerated return on investment.

Learn more

Deloitte has many published resources that can help kick-start your digital supply network transformation. Please have a look at our [Deloitte web page](#) or browse through the DCM on the [ASCM website](#). You can also perform a basic digital readiness assessment on the ASCM web page to get a sense of where your company currently stands in the journey to becoming a digital supply network.

To learn more about an in-depth assessment of your digital readiness, or to participate in a custom Digital Supply Networks Lab for your organization, please reach out to the thought leaders below:

Chris Richard

Principal
Deloitte Consulting LLP
chrisrichard@deloitte.com

Mike Deng

Senior Manager
Deloitte Consulting LLP
mikdeng@deloitte.com

Jeroen Kusters

Senior Manager
Deloitte Consulting LLP
jekusters@deloitte.com

Kelsey Carvell

Senior Manager
Deloitte Consulting LLP
kcarvell@deloitte.com

Excerpt 1: Digital Supply Networks Lab

DSN Transformation Lab

An immersive experience

Statement of intent:

Align on a mission to enable a Digital Supply Network, with corresponding timelines, obstacles, and the path to overcome them.

Approach:

Highly facilitated experience in a Deloitte Greenhouse® Innovation Lab. A creative approach to problem-solving and determining critical success factors rallying the organization behind the vision of the program.

Core questions to align on:

How can the supply chain leadership team ignite the necessary organizational shift in order to achieve their digital supply networks transformation vision?

What barriers stand in our way, and what does it take to achieve our goals?

The supply chain leadership team will build several key insights from the day:

1. *Learn more about the art of the possible*, seeing digital supply network capabilities in action in a real-life setting to get the creative juices flowing.
2. *Agree on where we are headed*: The team will align on the vision and share relative confidence that the vision can be achieved.

3. *Identify the path forward and obstacles that lie ahead*, to overcome the misalignments around organizational and customer expectations, delivering digital supply networks capabilities. *Recognize there will be barriers*, and be open and transparent about what they are and what the leaders in the room will do to address these.
4. *Commit to action and necessary mindset shifts*: Build a collective willingness to commit to the behaviors necessary to rethink the barriers and legacy behaviors.

Excerpt 2: Voice of the Customer

Voice of the Customer

Listen to customers to define priorities

Statement of intent:

Deloitte will facilitate a "Voice of the Customer" process, in which customer requirements are used to drive alignment on the product and supply chain capabilities and performance targets.

Approach:

Structured data collection and conjoint analysis with key customers to determine the attributes customers value, and the trade-offs which matter to these customers.

Core questions to align on:

What service level performance is expected, at what level of flexibility given the price-point?

What is the preferred collaboration approach, what can be improved in demand forecasting and collaborative planning?

What level of product customization is valued, balancing service levels and lead times?

Process for "Voice of the Customer"

Week 1: Define baseline questionnaire and schedule interviews: Working with operations, sales, and marketing, the team will establish a baseline set of hypotheses to be tested, and the questionnaire to discern explicit and latent customer requirements.

Week 2-3: Conduct interviews: Collect data and conduct structured interviews, including verbatims. Customer will be afforded the opportunity to maintain their anonymity in the process.

Week 4-5: Analysis and report out: Deloitte team will provide a report out on the Voice of the Customer to serve as an input to define priorities on postpone, service level expectations, and demand priorities.

Endnotes

1. ASCM was formerly known as APICS and is the current curator of the Supply Chain Operations Reference model (SCOR).
2. Just like SCOR, DCM is intended to evolve with the increasing maturity of the digital supply network capabilities described.



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