

# UNDERSTANDING THE DIGITAL SUPPLY CHAIN OF ONE

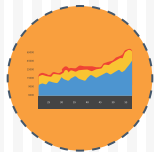


# Market Drivers of Digital Platforms

Understanding and targeting **customers** is more important than ever before given the demand for individualized products, same-day or even one-hour delivery, and renting a service rather than buying a product.



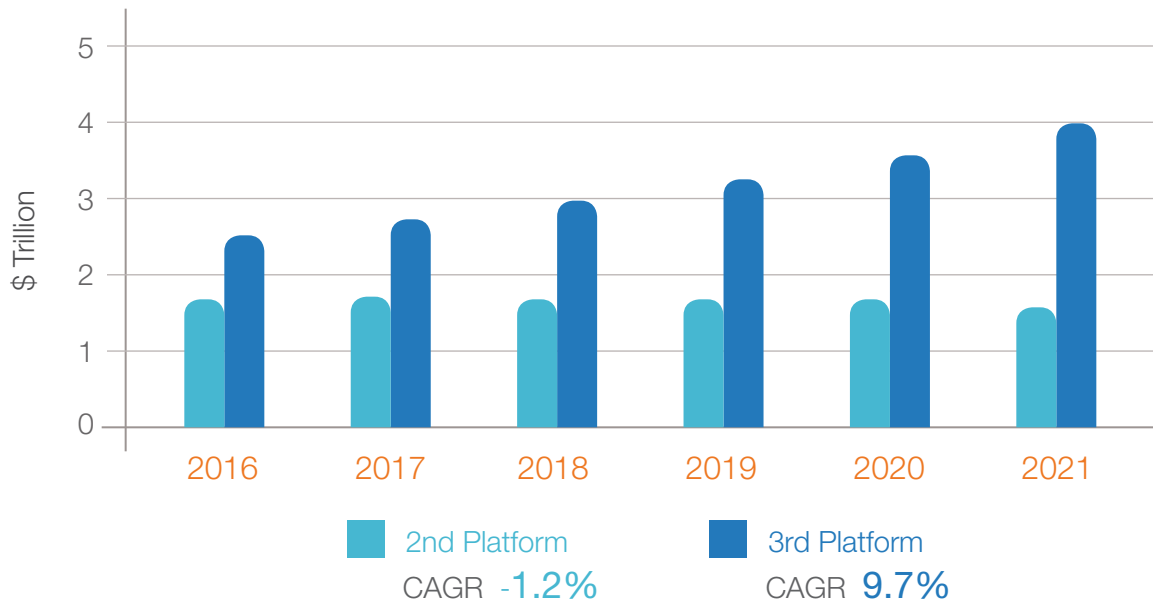
While **manufacturers** still need to reduce costs and improve productivity, they are also expanding partner and supplier ecosystems to evolve their supply chains, stay competitive, and grow their business in today's economy.



To meet these challenges, **3rd Platform technologies** such as analytics, cloud, mobile, and social are growing at almost 10%, as these are the enabling tools for digital platforms. And **networks of digital twins** are expanding in the enterprise and across value chains due to increased connectivity and the importance of having a digital thread throughout the lifecycle of a product or asset.

# Market Drivers of Digital Platforms

## 3rd Platform Technologies and Solutions Are Dominating IT Spending



Source: IDC Worldwide Black Book 3rd Platform Edition, December 2017

By 2020, **60% of G2000 manufacturers** will rely on digital platforms that enhance their investments in ecosystems and customer experiences and support as much as **30% of overall revenue.**



# Build a Digital Supply Chain of One

Supply chains as we know them are being redefined and function on a digital innovation system that interconnects product, supply chain, manufacturing, customer, and service processes. Manufacturers are digitally transforming, and they require a technology platform that enables this digital thread to be established.

## Key considerations for building a digital supply chain of one



# Sense, Analyze, and Respond Within a Customer Centric, Thinking Supply Chain

At the heart of a digital innovation platform is **customer centricity** and a Thinking 5C supply chain that is **connected with IoT**, provides **comprehensive analytics**, is **cognitively enabled**, allows **cross-domain collaboration**, and is **“cyber aware”** or built on a platform of strong security. These capabilities enable demand and operation visibility, collaborative supply chain design and planning, and a connected, networked, secure, and smart supply chain, as well as a network of digital twins to optimize business operation and supply chain execution.

## The Digitally Enabled Thinking 5C Supply Chain

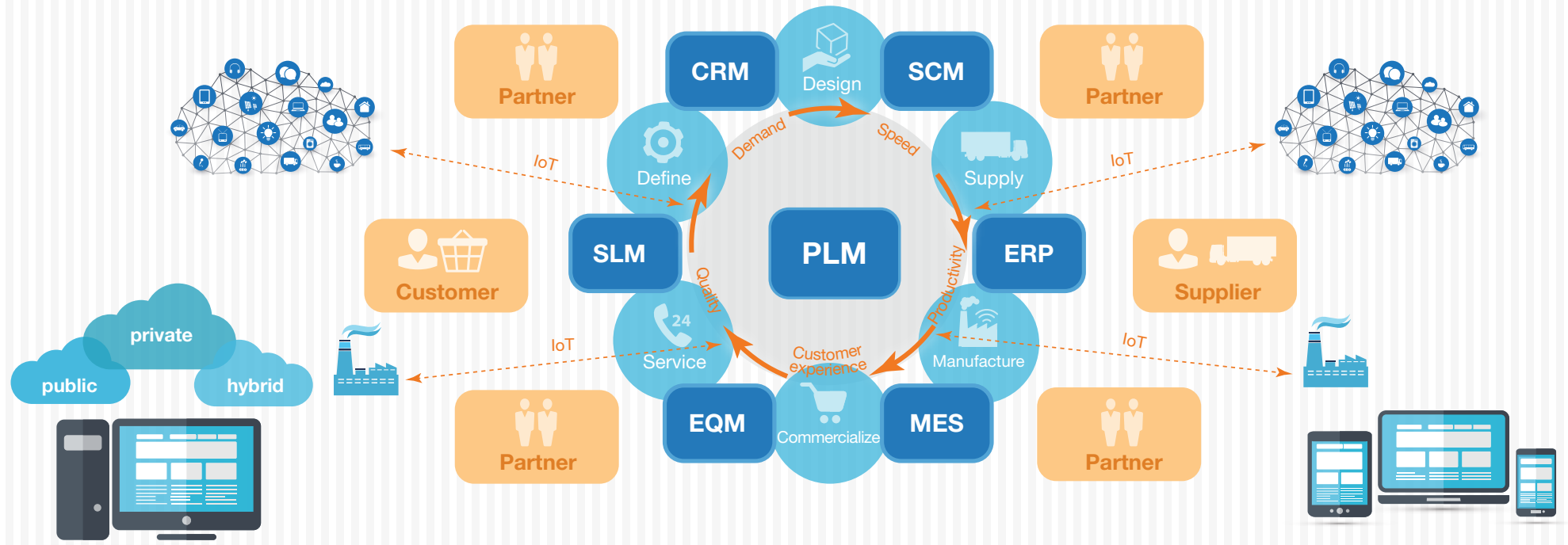


# Extend Design and Collaboration Across the Product and Asset Life Cycle Enabling Predictive Business

**Visibility** into the product and asset life cycle, from design through maintenance, and collaborative innovation with value-chain partners and customers is critical to stay competitive, while maintaining a focus on **quality optimization** through IoT and digital twins. Closed loop, **continuous innovation** is possible due to smart products and assets that constantly feed back into the design process through networks of digital twins. The approach enables **predictive business** as well as quality operations, products, and assets.



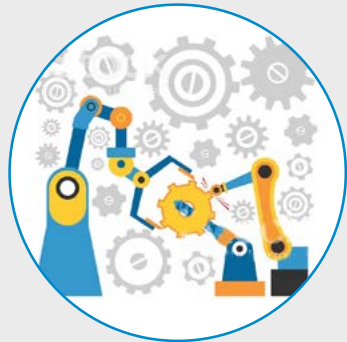
# Product Innovation Platform Framework



Source: IDC, 2018

# Meet Dynamic Customer Demand with Connected Manufacturing and Smart Automation

In a digital supply chain of one, manufacturing and supply chain operations are connected for smart automation so companies can more easily meet customer demand. This approach, with a closed loop back to product development and digital twins for planning, management, and improvement of supply chain execution and manufacturing processes, results in multiple benefits:



## Connected, smart automation

*tied to supply chain planning and to design and innovation consistently results in quality products and assets*



## Manufacturing becomes a strategic partner

*to the business, resulting in collaborative, flexible, quality manufacturing operations*

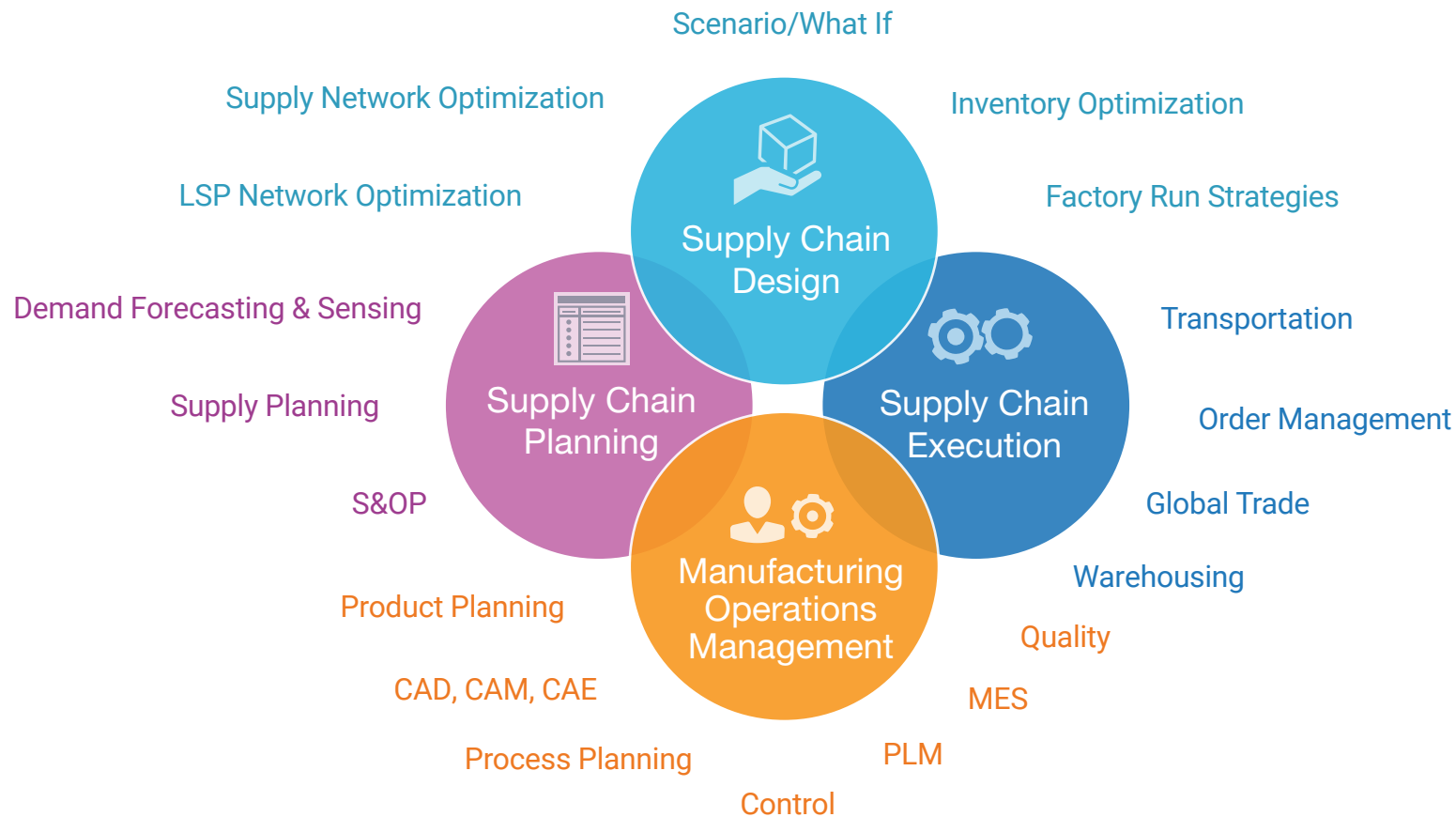


## Supply chain risk is modeled with manufacturing capability

*resulting in optimal production and time to market*







# Connected Manufacturing and Operations





Source: IDC, 2018

# Achieve Total Supply Chain Visibility, Predictive Analytics, and Decision Support

**A holistic digital supply chain of one unifies structured and unstructured data and knowledge** from IoT as well as legacy and new systems, data, and processes, thus connecting and providing total visibility of product and asset, supply chain, manufacturing, and customer processes.

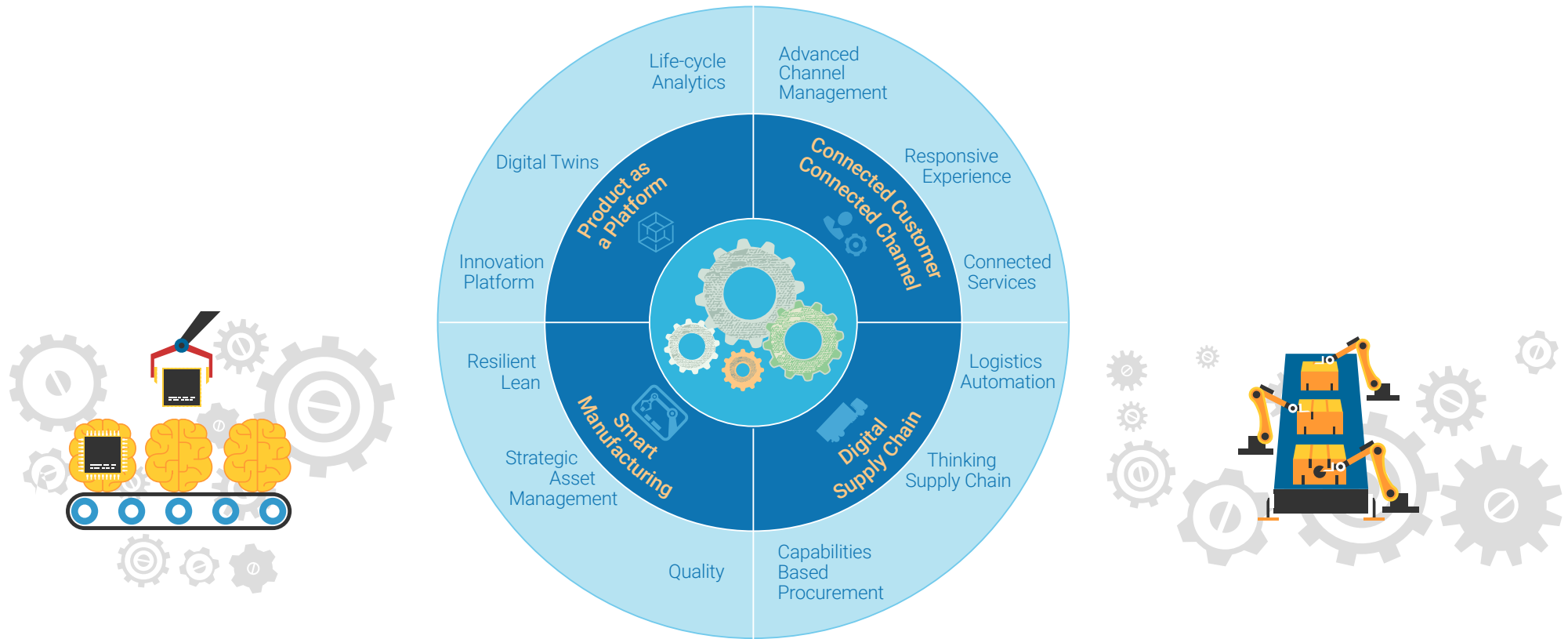


**Cloud, blockchain, machine learning, and analytics** enable the internal and external team to make faster, more accurate decisions to maintain high levels of enterprise quality and meet customer needs more accurately.



**A network of digital twins visually communicates information** about products, manufacturing, supply chain, service, and customers for program, scenario, and role-based analysis, and ultimately better collaboration across your business network.

# Digital Transformation in Discrete Manufacturing: Creating the Use Case Roadmap



Source: IDC, 2018





# Monetize Connected Products through Customer Centricity and 3rd Platform Technology

**How do manufacturers monetize connected products that are increasingly smarter due to artificial intelligence (AI)?** With revenue drivers such as software, content, and additional services wrapped around products, that is a big question on the minds of manufacturers today.



**This need for a customer-centric approach** is partly why there is an interest and investment in AI, machine learning, and analytics, and why manufacturers are investing in 3rd Platform technology – cloud, mobile, big data/analytics, and social. Through this customer engagement platform approach, manufacturers are striving to allow open innovation and meet customer needs, enable rapid customization and configuration, and monetize product and asset performance, use, and quality information to deliver content and services that resonate with the customer.

## 3rd Platform Impact on the Customer

Technology	Platform Implications
 <p>Cloud</p>	<p><b>Innovation:</b> Rapid collaboration, processing power for complex models  <b>Operations:</b> Visibility of multiple products or assets, supply network visibility</p> <p><b>Customer:</b> Speed of content (software, digital) processing, and ensuring quality</p>
 <p>Mobile</p>	<p><b>Innovation:</b> Rapid collaboration internally and externally, design and service visualization  <b>Operations:</b> Supply network visibility, optimization, demand sensing</p> <p><b>Customer:</b> Open innovation, mass customization and configuration</p>
 <p>Big Data/ Analytics</p>	<p><b>Innovation:</b> Product quality management, enabling better service and design  <b>Operations:</b> Manufacturing and supply network quality, demand planning</p> <p><b>Customer:</b> Optimization of digital content and marketing offering, meet customer need</p>
 <p>Social</p>	<p><b>Innovation:</b> Open innovation with customers and partners  <b>Operations:</b> Communication with supply network and manufacturing</p> <p><b>Customer:</b> Sensing customer preference, community building to enhance future monetization efforts</p>

# Plan for the Digital Supply Chain of One

## How do you get started?

Establish an open digital innovation system that connects internal and external platforms and people, driven by business process and strategic priority

## Who in your organization is involved?

It is an internal and external effort across domains



## Why should you care?

Complexity of products, assets, and demand for quality performance and unique experiences drives the need for a holistic view

## What are the steps?

Strategic alignment technically and organizationally is required across products, supply chain, manufacturing, customers, and service/asset management

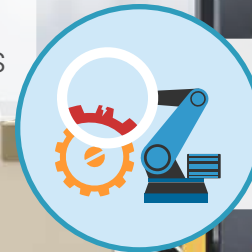
Source: IDC, 2018

# Accelerate Toward a Digital Supply Chain of One

A digitally transformed supply chain of one enables continuous delivery of compelling product/service experiences across a varied ecosystem of suppliers, partners, and customers. Most customers are immature with regards to transforming their supply chains and are not yet at a fully orchestrated stage. There are multiple considerations as you embark on this transformation journey:



Identify where you are and establish a path for transformation, bridging between old and new systems

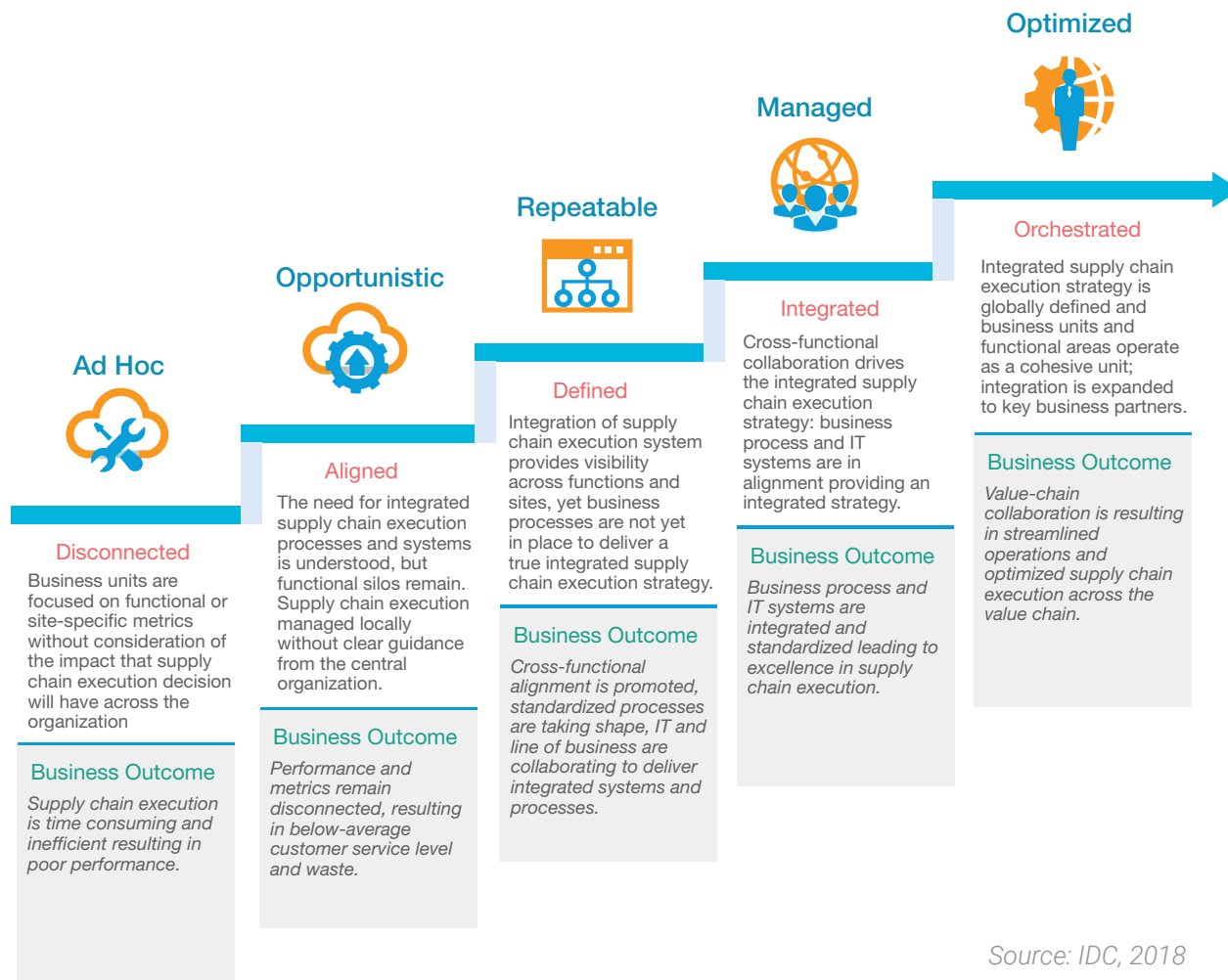


The starting point and focus differs depending on industry and company



3rd Platform technologies – cloud, mobile, big data/analytics, social, IoT, and blockchain – enable connectivity between products, supply chains, manufacturing, service, and customers, and power the digital supply chain of one

# Supply Chain Execution MaturityScape



Source: IDC, 2018



# Understand What Leaders Focus On



## Product and Service Innovation

*Enhance product portfolio, quality, performance, service delivery*

**Product innovation** – product design and quality

**Service innovation** – warranty, customer service

**Connected product** – remote operations, preventative maintenance, consumables

“ Our customer wants us to have more information about them, and we need to give them something back. ”

– Kevin Plank, CEO of Under Armour



## Connected Supply Chain Execution and Planning

*Improve supply chain orchestration*

**Assets or inventory management**

**Logistics** – inbound and outbound

**Visibility and tracking**

**Risk and resiliency**

“ Everyone has to collaborate a lot more – OEM/Tier 1/Tier 2 – up front and through the life cycle of the car. ”

– Jensen Huang, CEO of NVIDIA



## Smart Manufacturing / Industry 4.0

*Improve factory performance in the plant*

**Production or asset optimization**

**Preventative and predictive maintenance**

**Energy management**

**Safe workforce**

“ Manufacturing is more than just putting parts together. It's coming up with ideas, testing principles, and perfecting the engineering, as well as final assembly. ”

– James Dyson, CEO of Dyson

# Essential Guidance

1

For a digital supply chain of one, define “supply chain” to extend digitally to product innovation, manufacturing, customer, and service systems and processes.

2

A digital innovation platform, with customer centricity, predictive analytics, smart automation, and total visibility, powers a digital supply chain of one.

3

3rd Platform technologies are necessary ingredients to enable rapid, accurate decision making through massive amounts of structured and unstructured data.

4

Understanding customer and consumer needs and sensing changing demand needs to be combined with the ability to flexibly customize and deliver.

5

Establish a digital supply chain of one to manage complexity and orchestrate your internal and external constituents from product design through service and maintenance.