Industry 4.0
Digital Supply Chain Management (SCM)
For Enabling Growth

KPMG in Thailand
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With you today

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Briefing’s objectives

1. Provide pragmatic advice on how to build a Digital Supply Chain Journey

2. Demonstrate how Digital Solutions can help towards superior Customer Experience and Operational Excellence

3. Discuss and learn from Leading Practices
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“Industry 4.0 – Digital SCM” introduction
Historical Review

1.0 – 1760-1840  the Steam Engine, steam power created the modern machines and the rise of industrial cities

2.0 – 1880-1920  Electric motors replace steam engines as power source of machines, with the electric grid. Factories and consumer products in mass production

3.0 – from 1960s  PLCs later NC/CNC took more control over the machines; Internet; cellular; anytime; anyplace; connectivity
Macro and Micro-economic trends are transforming global supply chains

**Globalization & Emerging Markets**
Increasing global footprints and extending supply chain network drive complexity

**Economic Volatility**
Financial, Market, Network and Supply instability

**New /Demanding Customers**
Brand loyalty driven by experience, convenience, price, quality and sustainability factors

**Supply Variability**
Volatile commodity prices and broad supplier base is increasing variability in supplier lead time and costs

**Policy and Regulations**
Higher focus on consumer protection driving product traceability and sustainability requirements

**Disruptive Events**
Natural disaster and political disruptions

**Product complexity and life cycle**
Product and pack configurations and shorter product lifecycles

**Digitization**
Emerging digital business models e.g. Artificial Intelligence (AI) blockchain
Practical steps for building your digital supply chain roadmap
Digital disruption is changing the world in which we live and work. This change is driving increasing expectations with customers, and the pace of change is unlikely to slow any time soon.
Industry 4.0 emerging technologies

Emerging tool sets form the basis of i4.0

Factory Floor

- **Robotics**: Enables new levels of automation and remote control
- **3D Printing**: Enables rapid prototyping, rapid design feedback, etc.
- **Sensor Technology**: Provides sophisticated operational data and automated control options

Communication and Storage

- **Communication Network Infrastructure**: Allows data transfer between machines and humans and extensive system integrations
- **Digital Supply Chains with Blockchain**: Real-time visibility to supply & demand to remove latency across network
- **3D Printing**: Enables rapid prototyping, rapid design feedback, etc.
- **Communication Network Infrastructure**: Allows data transfer between machines and humans and extensive system integrations
- **Big Data Platforms**: Stores, manipulates, and presents data, while also allowing new levels of operational control
- **Digital Supply Chains with Blockchain**: Real-time visibility to supply & demand to remove latency across network

Analysis

- **Artificial Intelligence (AI) & Machine Learning**: Enables new insights and decision making from large datasets
- **Digital Twin**: Provides digital replicas on which to diagnose issues and test operational changes
- **Augmented Reality (AR)/Virtual Reality (VR)**: Allows new visualizations of data to enhance worker productivity

IoT and Cloud

- **Digital Supply Chains with Blockchain**: Real-time visibility to supply & demand to remove latency across network

Cyber Security

Source(s): KPMG analysis based on research from news articles and industry publications

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Your digital journey

To deliver on changing customer expectations, every business needs a digital roadmap. The challenge is knowing where to start. A steadfast focus on core capabilities is vital.

Below are the five building blocks to a digital supply chain:

1. Define digital: Aim to make processes frictionless and decisions effortless

2. Start with performance: Focus on intended results not with data or technology

3. Focus on ROI and payback: smart sequence your initiatives

4. Develop your people: nurture and develop new capabilities

5. Partner for success: build an ecosystem
01 Define digital

What exactly is a digital strategy?

Building a market leading digital business is daunting. First, decide what digital means for you.
Starting your digital journey

Where to Start?
— There are a number of ways that digital technology can be applied across the value chain.
— Confusion, however, accompanies endless opportunity. Software solutions? Cloud-based technologies? Robotic innovations?
— It doesn’t have to be complicated. When it comes to the performance of a supply chain, it’s really just a function of two things; how efficient the Processes are, and how effective the Decision Making is.
The keys to getting started

No matter how well an organization streamlines its processes and optimizes its operating model, if it still makes bad decisions its performance will suffer.

Performance

Frictionless Processes

Companies need to define their performance ambition, before they look to the factors that hinder their ability to meet that ambition. The sole focus of any digital strategy should be to improve performance.

Effortless decisions
02
Start with performance not technology

Practical steps for building your digital roadmap

Start by designing a performance-led roadmap to identify where in the value chain offers the most performance gain by digital enhancement.
Steps to building a digital roadmap

New tech might seem like the convenient answer to many operational challenges, but it can be a distraction from the day-to-day performance of the core business.

Business leaders need to forget the hype surrounding the latest trends and innovations, and instead concentrate on core capabilities, the market realities of their business, and the customers it serves.
03 Focus on ROI and payback

Smart sequence your initiatives to deliver optimum benefit

Effective strategies reduce payback and increase ROI using three simultaneous initiatives: smart sequencing, “off the shelf” implementation, and differentiating with breakthrough innovation.
Governance and focus on ROI

Too often, funds will be released to invest in small-scale digital pilots before anyone has actually identified which areas of business performance they will enhance and the ROI or payback. The companies that have established governing teams are the ones that have made the most progress on their digital transformation journeys.

Only 25% of supply chain practitioners state their digital projects are aligned under a single governance process
Gaining buy-in from the board

As many off the shelf digital applications or analytical tools can be slow and expensive, projects are often stuck at pilot stage because the business case for rolling out is simply not convincing.

“Gaining momentum early through great ROI, great payback, and great performance upticks as a result of deploying technology is what’s going to get the interest from the exec team and the board.”

– Dale Williams
Partner, Head of Operations Advisory, KPMG in the UK
Nurture new skills and capabilities to stay ahead

Effectively operating digital tools requires a specific skill set. Businesses need to consider how to source an agile model that empowers its people with skills and a supportive and prurient culture.
Invest in re-defining skills

Advances in technology will mean fewer staff have the necessary skills to utilize new advances. Business leaders need to invest in different skills and develop new capabilities in order to stay ahead.

There is a challenge around aligning cultures and speeds of large companies with those of start-ups.

– Vinod Kumar
Managing Director and Group CEO,
Tata Communications

Invest in new techniques for ideation, solution design, and implementation

Establish Digital Centers of Excellence (DCoEs) to develop cross-functionally learning
The winners will be those with the best ecosystems

No-one in the digital world is vertically integrated or possess a complete suite of in-house capability. Building an effective digital strategy with deep expertise relies on the ability to cultivate long-term partnerships and ecosystems.
Gaining buy-in from the board

“Having an ecosystem of start-ups and industry experts has allowed us to try new ideas, experiment, and build on our reputation for innovation, with minimal constraints.”

- Ed Gaze
  Senior Manager, Lloyd’s Lab Innovation
Ready for a culture shift?

Pioneering new digital projects with new partners will require a new approach. Businesses will have to adopt a forward-thinking outlook, and a culture that’s searching for new ways of working.

Be ready to contract differently within the ecosystem

Be willing to experiment and fail

Change working culture and approach when working with new partners
Digital SCM solution to support your industry 4.0 journey

Oracle
Intelligent Supply Chain Applications

Global Visibility & Deeper Insight

Detect

Digital Signals

Real-Time Monitoring & Predictions

Decide

Analytics & Deep Learning

Supply Chain Planning

Execute

Supply Chain & Manufacturing

Business Ecosystem

Unified Data Store
Digital Thread across Departments

Detect
- Analytics & Deep Learning
  - BI & AI / ML Applications
- Supply Chain Analytics
- Insights & Predictions
- Causal Analysis
- Demand Management
- Supply Planning
- Integrated Business Planning
- Supply Chain Planning
  - Planning Applications

Decide
- Digital Twins
- Trends & Anomaly Detection
- Asset, Fleet, Production Monitoring
- Equipment Diagnostics & Recommendations
- Real-Time Monitoring & Predictions
  - IOT Applications

Execute
- Product Innovation
- Sourcing & Procurement
- Supply Chain Collaboration
- Manufacturing & Costing
- Quality Management
- Maintenance & Service
- Order Management
- Inventory & WMS
- Transportation & Global Trade
- Supply Chain & Manufacturing
  - Business Applications

Unified Data Store
- Machine / Sensor Data
- Semi-Structured / Time Series Data
- Social, Audio, Video, Image Files
- Unstructured Data
- Structured / Relational Data
- Business IT Systems

Global Visibility
- Dashboards
- Mobile Apps
- Augmented Reality
- Social Collaboration
- Digital Assistants
- Blockchain Track & Trace

Industrial Gateways
- SCADA, OPC-UA
- MQTT, HTTP, etc.

Historians

Digital Signals

Business Ecosystem

External Systems

Business Networks

Data Pools

Market Intelligence

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Unify Your Logistics Systems

Visibility, Optimization and Orchestration

- Improve communication and event sharing across systems
- Increase visibility and traceability of your goods
- Optimize your decision-making
- Respond rapidly to changing business conditions

Global Trade Management
Transportation Management
IoT Fleet Monitoring
Warehouse Management
Future-Ready Logistics

Plan
- Global Trade Management
- Transportation Management
- Transportation Operational Planning

Execute
- WAVE & ALLOCATE
- SCHEDULE APPOINTMENTS
- PICK & PACK
- LOAD & SHIP
- MONITOR IN-TRANSIT STATUS
- AUDIT & PAY INVOICES

Settle
- WMS Workforce Management
- Logistics Business Intelligence
- Reduce logistics costs risk
- Improve inventory visibility
- Increase revenues
- Mitigate supply chain risk
Oracle Transportation Cloud

Manage, optimize, and control transportation from source to destination

**Plan**
- Optimize shipments: mode, carrier, route, equipment, and consolidation
- Reduce freight costs and increase product margins

**Execute**
- Collaborate with service providers and monitor in-transit shipments
- Improve on-time delivery and supply chain reliability

**Settle**
- Automate freight payment and customer billing
- Minimize profit leakage and improve cost visibility

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OTM + IoT: Key Features and Capabilities

**Connect Any Type of Vehicle**
Wide range of connectivity options (OBD2, J1939, Telematics, etc.) allow connecting any type of vehicle over any type of network.

**Real-time in-transit Location**
Get real-time location of vehicles. Easy to use dashboard for business-users for real-time visibility.

**Complete Visibility**
Get a complete picture of vehicle location, route, health, driving behavior, fuel consumption and other important metrics.

**Shipment Tracking**
Track shipments in real-time using a business-user friendly dashboard that highlights relevant shipment KPIs.

**Real Time Shipment in OTM**
Automatic geofences to get insights for shipment arrival, departure times, delays and ETA.

Plan shipments in Oracle Transportation Management and automatically push shipments to IoT Fleet Monitoring Cloud.
OTM + IoT: Key Features and Capabilities

Geofence
- Geofences to Monitor Usage
  - Quickly create geofences and use built-in geospatial analytics to monitor unauthorized movement, route-optimization, vehicle thefts, arrival and departure notifications

KPI’s & Dashboard
- Real-time Fault Detection
  - Instant visibility into vehicle faults on dashboard with color-coded indicators for faults
- Incidents & Warnings Management
  - Built-in incidents and warnings management allows tracking issues that need attention

Mobile App
- Mobile App for Carriers and Shippers
  - Drivers view assigned itinerary, start and complete trips and shipments, view past trips, trip and shipment summary
- Onboard 3rd Party drivers without any registration using shipment links, to allow tracking of shipment location via Mobile GPS (for the duration of shipment only)
IoT Applications

Asset Monitoring
- Asset intelligence and performance monitoring

Production Monitoring
- Factory performance and equipment prognostics

Fleet Monitoring
- Cargo and fleet monitoring

Connected Worker
- Worker health and safety

Service Monitoring
- Differentiated service experience
SCM Applications using Blockchain & IoT

- **Intelligent Track and Trace**
  - Monitor transactions and movement of assets or goods across organizations

- **Lot Lineage and Provenance**
  - Pedigree, Serialization and Genealogy of product components

- **Intelligent Cold Chain**
  - Comprehensive Track and Trace system for food and pharmaceuticals safety

- **Warranty and Usage Tracking**
  - Product usage tracking for Rental, Warranty, Service, & Insurance for high-value assets

**Smart Contracts, Distributed Ledger on Blockchain Platform**
- Shipment Notifications, Bill of Lading, Manufacturing work orders
- Purchase order, Sales order
- Service records, Warranty information
- Assets, Equipment and cargo conditions, Predictive Insights

**Other Systems**
- Supply Chain
- ERP
- HCM
- Customer Experience
- Internet of Things

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I have a critical order that my customer deeply cares about.

I need to be able to track the progress of that order throughout my supply chain in real time.

I receive raw material from my suppliers, I manufacture the product and ship it to my distributors.
End-to-End Supply Chain Visibility: Supply Chain Tracing

Receive raw material from my suppliers, manufacture the product and ship it to my distributors.

How do I resolve a dispute about a transaction between my partners?

Need to be able to trace a particular order or a particular transaction throughout my supply chain.
Panel discussion
Starting point of SCM transformation in Industry 4.0

The journey to value starts with one critical question - Why?

Do you know why the journey should begin?

- Before embarking on an improvised journey, need to ask ‘Why?’
- Know why you are pursuing change
- Know where you want to play on the value-chain spectrum
- Integrating i4.0 across the enterprise — reshaping the value chain into an interconnected value network.

What does a performance-led approach look like?

Starting with performance ensures that all digital activities and projects are driven by strategy — not by technology or data.

1. Performance
2. Interventions
3. People and Personas
4. What help do they need?
5. Data, tools and technology
6. Smart Sequence in an agile way

value
complexity
The i4.0 enablers that are crucial to success

Focus new skills, change management, governance, cyber security and new metrics and incentives

Integrate workforce innovation, skills development and dynamic culture

Create programs for seamless and continuous i4.0 transition

New governance frameworks for ‘digital employees’ and their relationships with cognitive technologies

Articulate the i4.0 vision and sustain employees confident engagement

Intelligent and modern change management
## Key take-aways

1. Be bold. The i4.0 leaders are closing the gap between their i4.0 ambition and their activity.

2. Think big. Driving enterprise value from i4.0 requires scale and cross-functional integration through lifecycle integration.

3. Start and end with performance. Profound value is available from i4.0-driven performance improvements.

4. Plan ahead. You can’t buy excellence in i4.0; it takes work and a smart strategic roadmap.

5. Assess yourself. Understand where you stand versus your competitors.
How KPMG can help

1. Identify what your business should look like and where it will compete.
2. Create your unique digital transformation vision, strategy and roadmap.
3. Take a holistic approach that leads with value and performance.
4. Implement process and technology changes to your business and operating models.

"With deep leadership in key areas such as strategy, data and analytics, cybersecurity, intelligent automation, change and risk management, and supply chain/operational excellence, we cover all the elements of Digital Supply Chain Transformation journey from strategy through implementation."
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