Supply Chain Digitization & Industry 4.0
Latest Trends in Technologies

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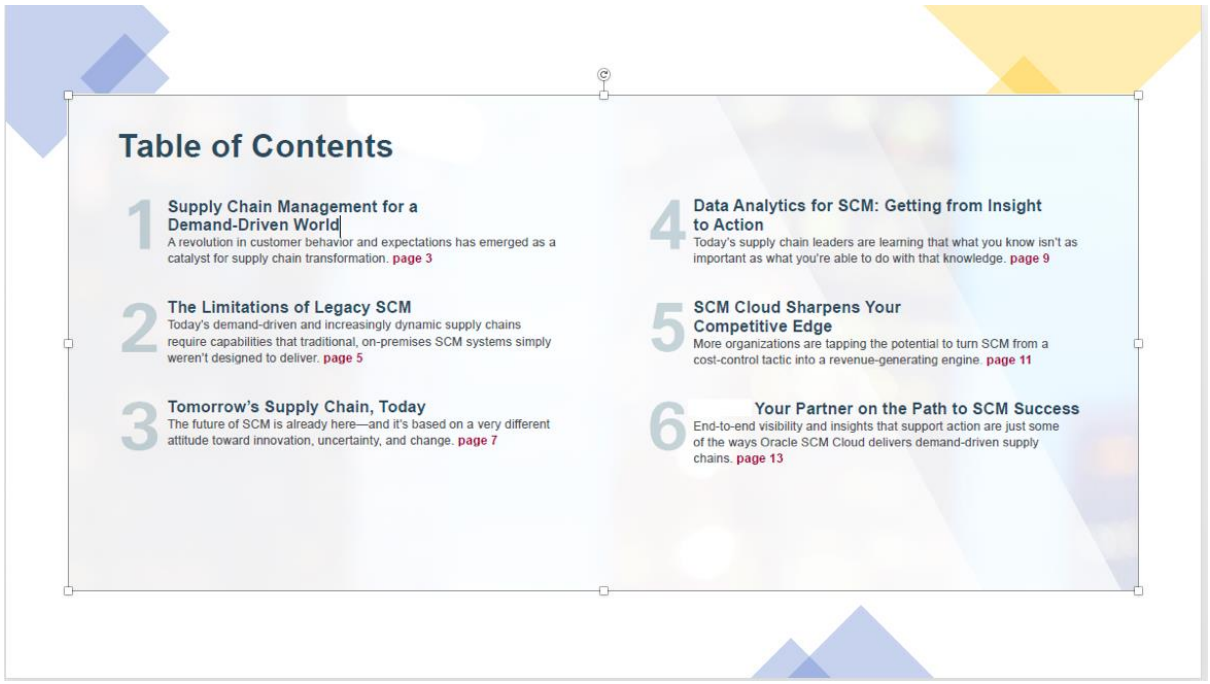
Summary:

In the current digital era its necessary for any domain expert to know about the **technology trends** and how the **digitization** is carried out in ease with necessary metrics to keep in mind.

The Below document fully explains about the **demand driven world** for SCM along with limitations of legacy SCM which will explain about the need for the current digital SCM with **AI/ML** playing a cutting edge in digital space. The Article also clearly explains the benefits of **enterprise data management** and its key to success in different industry verticals. Also, when it comes to digital its necessary to explain about the **Industry 4.0** and how **IOT** is playing a key role in betterment of smart manufacturing which takes to **Factory 4.0** and their implementation benefits. Finally, the author has explained about the need for **business transformation** and necessary levers to transform the business along with different **digital services** available in the industry.



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Supply Chain Management for a Demand-Driven World

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Supply chain has become the battleground for customer loyalty as companies respond to fast-changing demands and business conditions. New technologies enable deeper visibility and more precise control in supply chain management (SCM) for both B2B and B2C brands, and companies that adopt modern, cloud-based SCM systems are being rewarded with efficiency gains, higher productivity, and growing revenues and profits.

It's no surprise that the C-suite is paying more attention to SCM and raising expectations for top- and bottom-line contributions from supply chain managers. Two long-term trends are contributing to this shift:

1. Massive disruption: Over the past decade, market disruptors used technology as a virtual battering ram—knocking down barriers to competition and obliterating traditional order-to-deliver business models. This started in the B2C sector and has spread to B2B. While the rate of change may vary across industries, it's now clear that there's nowhere to hide from the realities of digital disruption.

2. Changing Expectations: Online companies such as Amazon and Deliveroo didn't just reshape their industries; they also set off a revolution in B2B buyer expectations for:

- Smaller and more frequent deliveries
- Free-of-charge services with real-time visibility into the location and status of goods
- Unique and personalized product and service "experiences"

These expectations require more agility and real-time processing than traditional SCM technology and practices can deliver.

By the end of 2018, fully
one-third of all companies
will find themselves disrupted by digitally enabled competition.[1]

The Limitations of Legacy SCM

2

Traditional, on-premises SCM employs a linear and fairly rigid approach to designing, sourcing, making, and delivering goods.

1. **Seller/supplier control:** Organizations built the products they believed customers would buy.
2. **"Push" distribution:** Products were distributed via channel partners for sale to consumers.
3. **Single-channel purchasing:** Customers typically purchased products through a single retail outlet or sales contact.

This paradigm no longer works as the marketplace has become connected. Today's demand-driven and increasingly dynamic supply chains require capabilities that legacy SCM systems simply weren't designed to deliver.

The Supply Chain of the Past

The Linear Paradigm

Where Legacy SCM Technology Fails

Fragility vs. agility: Agility is an incredibly valuable capability for today's supply chains because fast adjustments mean less disruption and enhanced service. Traditional, on-premises SCM technology is often prone to displays of fragility instead: demanding interventions, modifications, and workarounds to keep functioning as customer and business requirements change.

Demand and fulfillment: Third-party systems and processes to support specific channels are common in legacy SCM systems, and this creates challenges around visibility, service consistency, and an understanding of the true cost to serve. In an omnichannel environment, firms need (and customers increasingly expect) a consistent and seamless experience across channels and device types—a major challenge for systems architected for a single-channel world.

Fulfillment complexity: Agile businesses use multiple fulfillment models to reduce inventory costs, cut order lead times, and avoid lost sales. Here, too, a legacy SCM system may offer native support for certain fulfillment methods/channels but will rely on third-party tools, customizations, or bespoke development to work with others.

Visibility gaps: Buyers expect order and transaction data at their fingertips. Some of this information may be available using a legacy SCM system, but some of it is likely to be inaccessible or inaccurate.

Time-to-market and/or customization bottlenecks: Same-day fulfillment and customized products can be powerful differentiators, yet they can also be high-risk activities when integration gaps or data quality issues in legacy SCM systems result in companies making promises their manufacturing and fulfillment systems can't always keep.

Working Toward a Friction-Free Supply Chain

Oracle SCM Cloud users reported an average

90% reduction in cycle time
36% faster product delivery

Could your business benefit from these types of end-to-end efficiency gains?

Tomorrow's Supply Chain, Today

Traditional, on-premises SCM is tied to entrenched approaches; it forces businesses into reactive and defensive postures; and it equates change with cost, complexity, and risk. Modern SCM, on the other hand, enables innovative, proactive, and continuously improving supply chain practices. The essential elements of a modern, cloud-based SCM system reflect and reinforce the concept of building tomorrow's supply chain, today.

"People look at supply chain in pieces and it has to be looked at holistically. The way to truly analyze supply chain is point of order to point of fulfillment and doing that in as lean a way as possible."

—Karl Glassman, Chief Operating Officer, Leggett & Platt

What Does a Modern Supply Chain Require?

- Unified Open Architecture
- Powerful Cloud-Based Applications
- Easily Accessible Data
- Integrated Emerging Technologies
- Comfortable Road Map
- A Partner Who Understands Your Business
- Security
- Automatic Upgrades to the Latest Release

The 6 Defining Traits of SCM Cloud Applications

1. **Integrated.** Integration creates more efficient, low-friction supply chain processes and provides end-to-end visibility into those processes so you can solve problems instead of just moving them to another part of the enterprise.
2. **Demand-driven.** Analytics and reporting capabilities, for example, enable cost-effective manufacturing and distribution of customized products or services.
3. **Agile.** A cloud-based SCM system is not just responsive to change, but can also be an enabler for change—in the marketplace, in customer preferences, and in the environment where manufacturing and distribution takes place. It gives you the information to understand in real time what is changing and how to react.
4. **Intelligent.** As well as exception-based processing, modern, cloud-based SCM increasingly uses AI and machine learning to automate supply chain processes that previously required human monitoring and manual intervention.

Learn More About How Intelligent Applications Enable Modern SCM. View the Adaptive, Intelligent Supply Chain video for a deep-dive review of how technology is reshaping SCM—as a discipline and as an enterprise application.

5. **User experience.** Cloud-based SCM is responsive and intuitive, and gives users the ability to personalize their workspaces so that data can be presented in a way that naturally adds value.
6. **Open platform.** Cloud-based SCM assumes that technology innovation will continue to drive rapid and often unpredictable change. It implements open standards and modular architectures to accommodate upgrades and improvements, to minimize change-related disruptions, facilitate integration with other applications, and always keep you on the current release.

SCM Cloud Essentials

Modern SCM uses three capabilities to ensure that data-driven insights can support fast and effective supply chain execution.

1. Orchestration | **2. Responsiveness** | **3. Clarity**

From: Juggling disparate technology and processes

To: Leveraging single cloud technology for end-to-end processes

The Result: Unified planning, analytics, and process orchestration with easier implementation, use, and upgrades

SCM Cloud Essentials

Modern SCM uses three capabilities to ensure that data-driven insights can support fast and effective supply chain execution.

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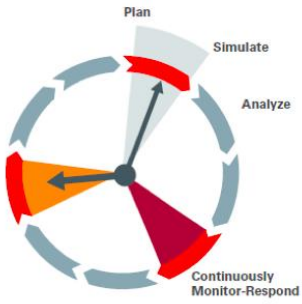
From: From waiting on sequential and disconnected batch planning

To: To continuously responding to changes

The Result: Rapid monitoring, simulation, and response capabilities enhance the quality and speed of decision-making



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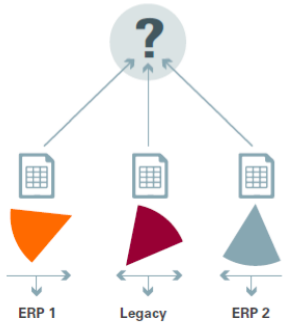
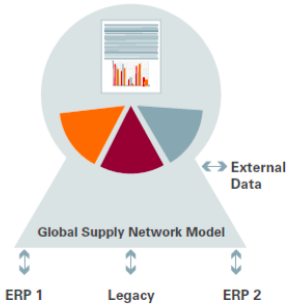


From: From reconciling multiple plans and receiving delayed reports

To: To dynamically analyzing and acting on one version of the truth

The Result: End-to-end visibility with flexible segmentation improves planner productivity and business agility



Embrace AI to Discover the Value in Big Data

"Analysis paralysis" is a risk for any company that taps into the massive stores of structured and unstructured data readily available today. AI (what Oracle refers to as "adaptive intelligence") avoids this dilemma by assessing relevance and business value, and identifying correlations that might otherwise go unnoticed, rather than simply crunching numbers.

Consider one example of how AI informs supply chain action:

Oracle Adaptive Intelligence Apps

How Adaptive Intelligence Apps Link Insights to Action for SCM

AI learns and adapts based upon outcomes—i.e., how you adjust recommended actions and upon supplier/partner responses to recommended actions.

Data and Insights	Decisions and Action
Oracle Data Cloud → 5+ billion anonymous consumer/business profiles → 45,000+ dimensions to group profiles	Best-fit candidate profiles
	Best-fit suppliers
	Best freight providers
	Inventory optimization
	Delivery optimization
Organizational Data → Supplier history → Financial ratios → Outstanding invoices	**Targeted dynamic discounting**
	Dynamic payment-term decisions
	Invoice discount rates
	Real-time cash flow optimization
	Identification and alerting to potentially fraudulent suppliers

SCM Cloud Sharpens Your Competitive Edge

5

Any time a business considers a technology investment, one question takes center stage: Do the numbers make sense? According to research data from a number of sources, the answer across a wide range of potential business benefits is an unqualified "Yes."

Supply Chain Excellence by the Numbers

Learn more →

Success with SCM Cloud: Examples from the Field

Individual customer examples provide another perspective on the benefits of solutions such as Oracle SCM Cloud. Supply chain excellence can appear in any number of ways—but ultimately, the numbers always tell the same story.

Nature's Bounty Co. accelerated innovation by adopting Oracle SCM Cloud

BlocPower uses Oracle SCM Cloud to help fight climate change with IoT

Supply Chain Excellence by the Numbers

Different organizations naturally have different priorities for how they improve supply chain performance and how those gains benefit the business as a whole. With a modern SCM solution like Oracle SCM Cloud, however, the benefits are clear whether your priority is operational efficiency, cost reduction, customer experience, or even revenue impact (1):

Operational Efficiency Gains
28% increase in supply chain team productivity

Operational Speed & Agility
36% faster product delivery; **90%** reduction in cycle time

Cost Savings
Average total cost savings **35%**; average material cost savings **6%**

Business Performance Gains
1.6% average revenue growth; **6%** average gross profit growth

Companies that take a more strategic approach, creating an optimal manufacturing and distribution network (2):

- Improve plant output by up to **25%**
- Improve inventory turns by up to **40%**
- Experience on-time and in-full deliveries **96%** of the time
- Decrease stock shortages by **10%** to **30%**
- Increase gross margins by **6%** to **10%**

Your Partner on the Path to SCM Success

All products that make up the Oracle SCM Cloud are delivered using secure and massively scalable Oracle-owned and operated cloud platforms. Each product is fully integrated and connected; each offers a modern, personalized user experience.

- Product Lifecycle Management Cloud →
- Supply Chain Planning Cloud →
- Procurement Cloud →
- Logistics Cloud →
- Order Management Cloud →
- Manufacturing Cloud →
- Inventory Management Cloud →
- Internet of Things →
- Maintenance Cloud →

Insights That Support Action
Oracle SCM Cloud provides the advanced reporting and analytics capabilities required to implement a modern, demand-driven supply chain. It also provides the end-to-end visibility and process orchestration that enable an agile, responsive, and efficient approach to SCM.

An SCM Investment That Pays
Cloud ensures your SCM applications are always up to date, delivering the platform necessary to adopt new innovations such as IoT, AI/ML, and blockchain. Do the research, run the numbers, and discover the true value of an investment in Oracle SCM Cloud.

End-to-End Visibility for Business Process Excellence
Oracle SCM Cloud enables you to take control of complex, global supply chains. Gain the end-to-end visibility you need to implement a variety of integrated business processes:

1. Ideation to Commercialization
2. Source to Settle
3. Order to Cash
4. Plan to Produce
5. Maintain to Optimize

Realizing the Benefits of Enterprise Data Management

Many organizations are still using manual process like spreadsheets, email, and in-person meetings to govern structural changes across enterprise systems.

FEI Webcast Poling Results, 11/12017.

Have you ever sat in a meeting where everyone has a different number for the same performance measure? This typically results in spending the next hour trying to reconcile the differences rather than making the important business decisions required.

Upon further analysis, it is likely everyone will have the right number according to the system from which it was derived. The differences can likely be attributed to inconsistent hierarchical master data across these systems. It has existed ever since organizations start implementing more than one business system. But today, the problem is magnified across the many systems most organizations have and by the large numbers of changes today's business environment generates.

It is therefore essential for organizations to effectively manage hierarchical master data across multiple information systems. Organizations need to move beyond the mix of email, spreadsheets and adhoc systems that many currently rely on to execute this extremely important function. Numerous organizations are looking for enterprise software solutions like Oracle Enterprise Data Management Cloud to help them effectively manage these problems without relying on manual processes.


The Benefits of Good Enterprise Data Management
Easy change management
Ensures data alignment
Enables simple governance


What Is Enterprise Data?
Enterprise data classifies transactional and analytical data. It reflects how an enterprise measures its value, and is usually shared across multiple business functions, regions and systems. It often includes application-specific metadata, alternate business perspectives, corporate dimensions, hierarchies, reference data and master data assets.
Examples of enterprise data include:
Chart of accounts
Organization or cost center structures
Legal entity & ownership hierarchies
Smart lists and attribute dimensions
Items and product hierarchies
Customer or vendor hierarchies
Market segments and product categories
Why is Enterprise Data Management Important?
Data is usually shared across many enterprise systems. For example: John (Sales Representative) who works in California (Territory) sells 10,000 (Quantity) of a new widget (Product) to a customer (Customer) based in New York (Geography) for $50,000 (Total Sale) on December 15, 2017 (Date). Taken together, this information is about one transaction, but included in the transaction are individual elements of master data—Sales Representative, Territory, Quantity, Product, Customer, Geography, Total Sale and Date.
These individual elements must be identified and changes to them must be managed across the enterprise to ensure data integrity. For instance, John could be moved to a different territory or the territory could be assigned to a different geography. Without good enterprise data management, transaction data cannot be analyzed or reported in a meaningful way.
Enterprise Data is Shared Across Many Enterprise Systems
Sales Territories, Accounts, Entities, Cost Centers, Geographies, Channels...
Consolidation
Planning
Data Warehouse
HR
Procurement
Accounting
Marketing
Analytical
Operational

Today's Enterprise Data Management Challenges

Additional Resources

Video:
Ameren Drives IT Transformation with Enterprise Data Governance

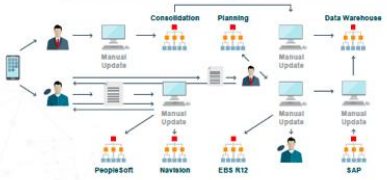
Ameren's transformation of legacy systems included the replacement of general ledger system, internal andexternal reporting systems, planning and budgeting tools, payroll distribution system, a major upgrade to fixed asset and project systems.

How do most enterprises manage enterprise data today? Remarkably for something so important, they do it through conversations, telephone calls, spreadsheets and e-mail. For example, if a departmental manager wants to add another cost center, or if management wants to move facilities from human resources to finance, the business decision must first be approved by all the relevant decision makers. This takes time.

Once the change is approved, IT receives the request to make the change and ensure that it ripples through all of the enterprise's transactional systems, data warehouses, business intelligence and enterprise performance management solutions. Because changes are made manually, often the end result is a lot of people making a lot of mistakes with a lot of mission critical data—mistakes that go undiscovered due to a lack of visibility or traceability in the process.

This is compounded by the sheer number of changes that take place in enterprises today. We constantly cite the increasing rate of change in business which inevitably leads to increasing change in enterprise data.

Manual Data Management Leads to Mistakes and Lack of Visibility and Traceability



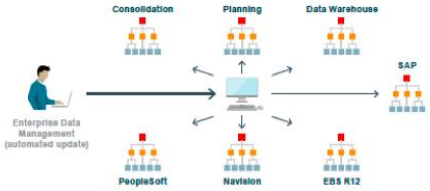
Modern Enterprise Data Management

Modern Enterprise Data Management minimizes the time spent synchronizing information by helping business users manage changes—the result is they spend less time reconciling the numbers and more time on the business issues at hand.

As organizations grow and evolve, the number of systems they have increases, therefore it becomes essential to manage hierarchical master data. These systems, and the resultant information silos, increase with mergers and acquisitions, departmental initiatives, or just due to legacy system proliferation. Data consistency, integrity, quality and accuracy suffer. And, noone trusts the information and insight that ensues.

The modern approach being taken by many world-class organizations is to centralize hierarchical master data within apurpose built system. This provides enterprises with a solution to build consistency despite endless changes within the underlying transactional and analytical systems.

Enterprise Data Management Provides Consistency, Alignment and Compliance



Modern Enterprise Data Management

World-class performers experience significant benefits from taking a modern, agile approach to enterprise data management across their entire business systems landscape.

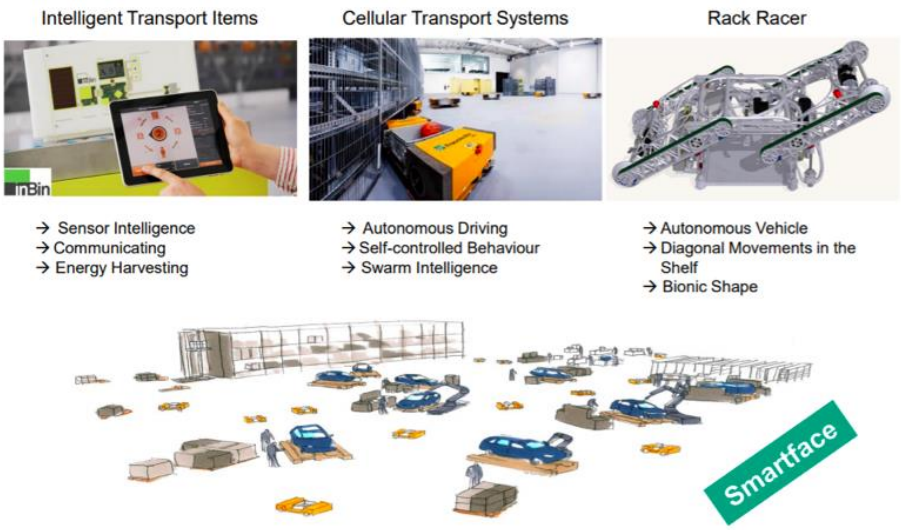
Key characteristics of this approach include:

- Eliminating the need for a formal, upfront data governance program and initiative that requires burdensome commitments including executive sponsorship, agreement on terms and definitions, enterprise policies, and a host of other coordination costs between Business and IT to orchestrate people, time and resources across lines of businesses, divisions or geographies.
- Taking an elastic approach to managing enterprise data that is evolutionary, iterative, incremental and flexible. One that does not force mastering to achieve desired outcomes, but is fit for purpose based upon desired scope: peer-to-peer within a small workgroup, application-to-application to support local alignment, or enterprise-wide to enable global mastering initiatives as desired based upon the aspirations, capabilities, and maturity of an organization at a point in time.
- Facilitating easy-to-use, web-based, self-service experiences for streamlined application maintenance, collaborative change management, faster data sharing, and accelerated new application development.
- Utilizing a request-driven approach to all change management and data hygiene activities in an easy-to-use, self-service experience that promotes timely, accurate changes across a spectrum of business users.
- Employing a business-driven approach to snapshot historical versions, branch off production data sets to explore what-if scenarios, and merge approved plans into production in a timely manner to drive value among connected business applications.
- Comparing alternate business perspectives within and across applications to understand differences, and rationalize on a fit-for-purpose basis.
- Streamlining last mile integration with connected business applications, across public, private, and hybrid cloud environments.
- Have fully transparent activity trails that enable regulatory compliance and risk mitigation.

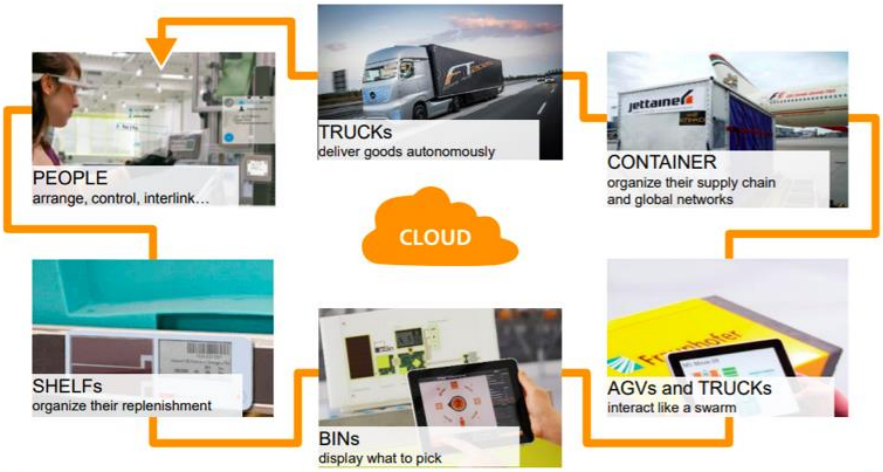
LOGISTICS 4.0 AND THE INTERNET OF THINGS

Workshop “Platforms for connected Factories of the Future”

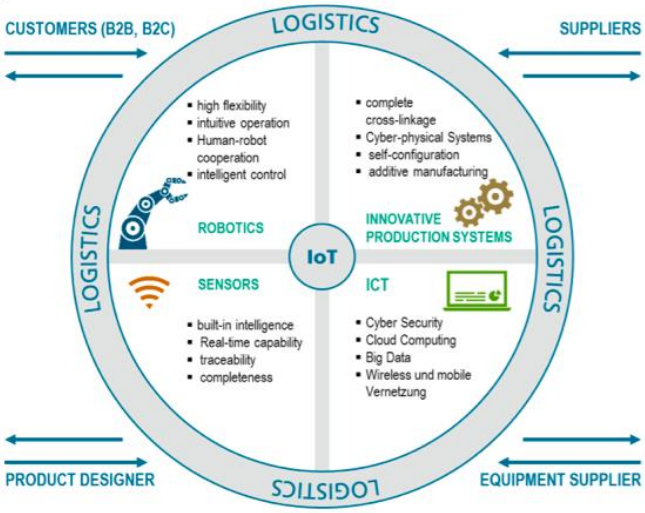
Industrie 4.0: Developments towards Smart Factory



Logistics 4.0 · Internet of Things · Everything is autonomous!

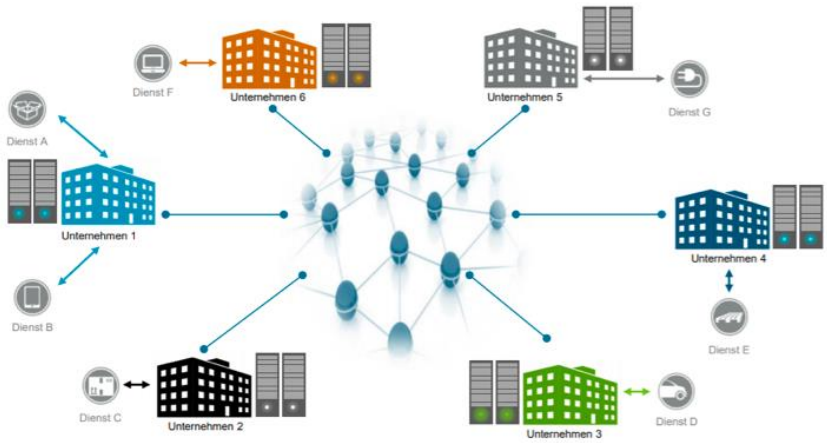


Significant future areas for the implementation of industry 4.0

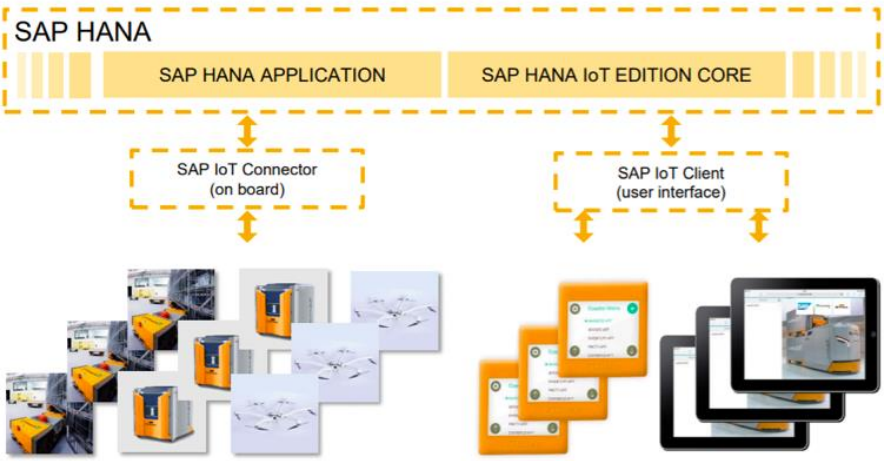


Industrial Data Space: on demand networking

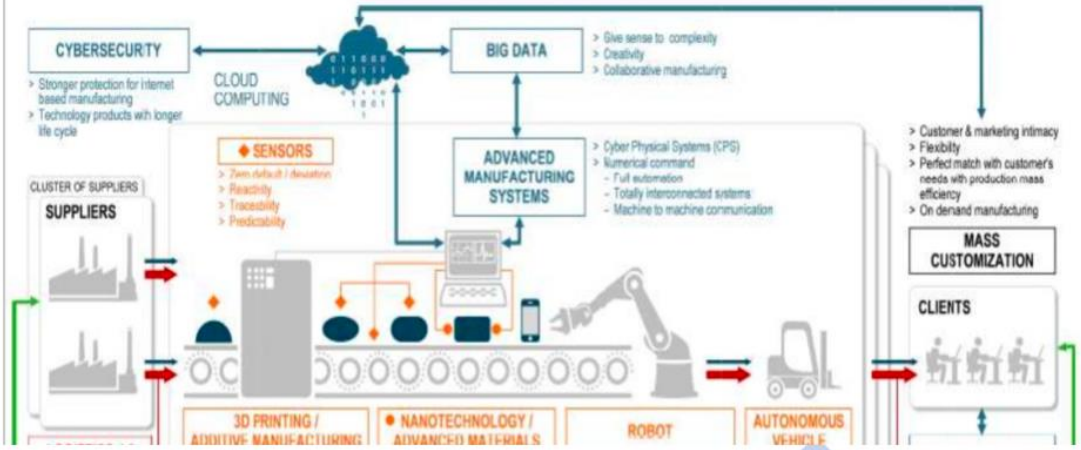
All data are protected and under Control of their owners. No central platform.
Data and services are linked and shared on demand.



Social Manufacturing and Logistics
Humans and Machines in joint Social Networks



FACTORY 4.0 gives an overview of the firm as an interconnected global system on a microeconomic level. Our graph depicts the key factors: outside the factory we see a 4.0 supplier network, resources of the future, new customer demands and the means to meet them. Inside the factory, we envision new production technologies, new materials and new ways of storing, processing and sharing data.



The Age of Digitalization Transforming What's Right For Your Business

Harnessing full potential of business transformation

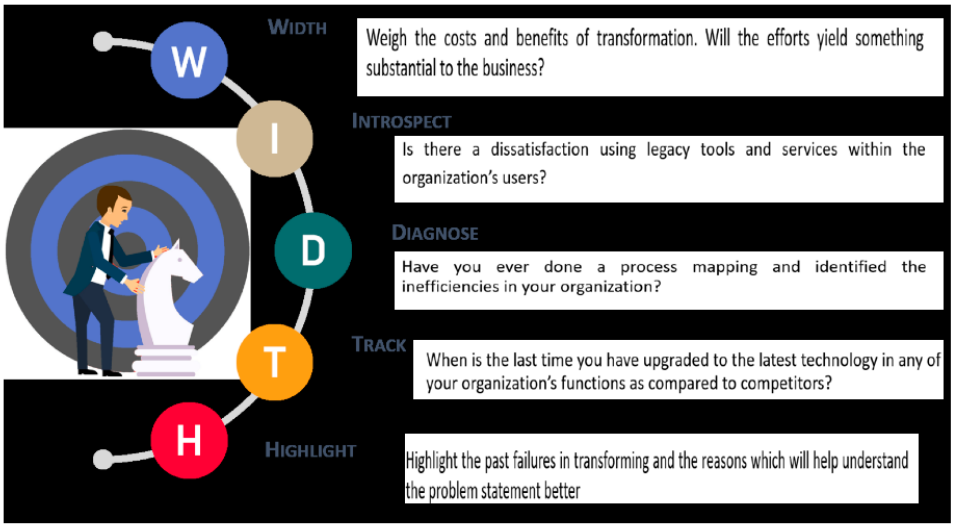
- With the advent of new technologies, the past decade has fuelled the organization's efforts for transforming their current business practices from multiple directions. Be it Operations, IT, Supply chain, or Sales, the potential to scale and achieve efficiency through a transformation project using big data, cloud, machine learning or even a simple tool upgrade is high. However, without understanding the end goal and the possible disruptions brought upon by the changes, any transformation exercise will always be a costly gamble!

Business Transformation : A story of Turnaround

A fortune 500 company intended to transform their P2P process by adopting a standard tool, which did not yield the intended results due to its top down approach and was unsuccessful in gaining confidence from its end-users. The team could quickly turnaround it into a success story by approaching it from a perspective of below ***five pillars of successful transformation***

- Many organizations often look at digital transformation as a standalone exercise carried out by specialized teams who may have successful transformation experience in similar projects. Often observed, the project planning in conducted in silos with fragmented teams whose priorities, problems, skills, ways of working are different from those of the organization. While this might fast-track the project, an integrated approach taking into consideration the five pillars of a successful transformation (depicted below) will yield better results ,in terms of user satisfaction and improved odds of success. If done in any other way, the digital transformation will prove to be a mere technology upgrade exercise and fails to harness its full potential.

Do you see a reason to transform Your Business?



• From our experience - Our top tips for Transformations

Business Transformational available services in Industry