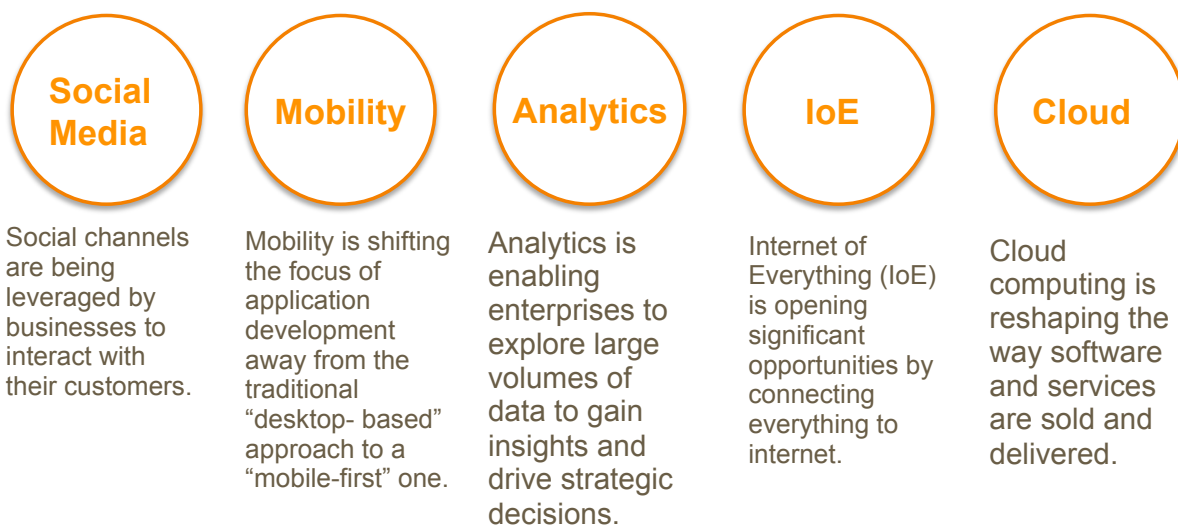Università di Roma

Tor Vergata

Corporate and Business Strategy

Digital transformation and its impact on strategy

Summary

- Digital Transformation

- Dimensions of digital transformation

- Five Domains of Strategy that Digital is Changing
  - Customers
  - Competition
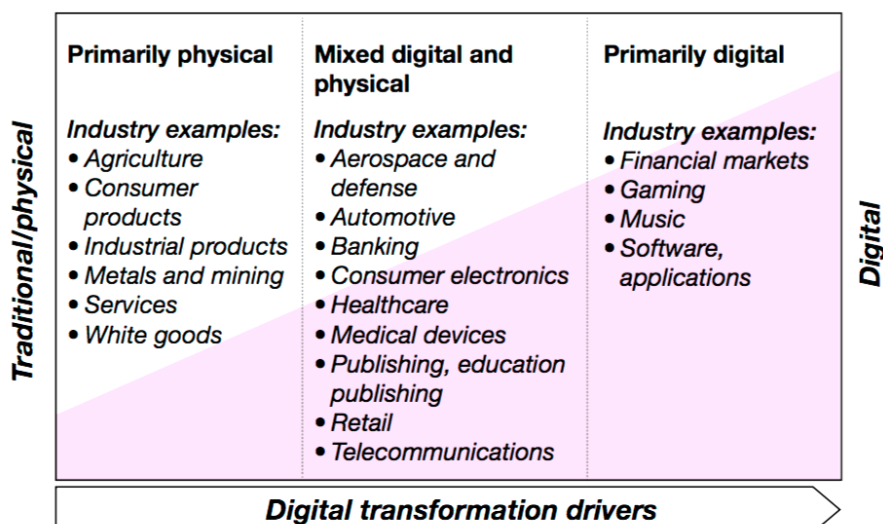 - Data
  - Innovation
  - Value

Drivers of Digital Transformation

Social Media

Mobility

Analytics

IoE

Cloud

Social channels are being leveraged by businesses to interact with their customers.

Mobility is shifting the focus of application development away from the traditional "desktop- based" approach to a "mobile-first" one.

Analytics is enabling enterprises to explore large volumes of data to gain insights and drive strategic decisions.

Internet of Everything (IoE) is opening significant opportunities by connecting everything to internet.

Cloud computing is reshaping the way software and services are sold and delivered.

Source: EY. Imagining the Digital future How digital themes are transforming companies across industries February 2015

Digitalization of Product and Service

Degree of product and service digitization

Primarily physical	Mixed digital and physical	Primarily digital
Industry examples:	Industry examples:	Industry examples:
• Agriculture	• Aerospace and defense	• Financial markets
• Consumer products	• Automotive	• Gaming
• Industrial products	• Banking	• Music
• Metals and mining	• Consumer electronics	• Software, applications
• Services	• Healthcare	
• White goods	• Medical devices	
	• Publishing, education publishing	
	• Retail	
	• Telecommunications	

Traditional/physical → Digital

Digital transformation drivers

Source: IBM Institute for Business Value analysis.

Internet and competitive strategy

Porter defines industry attractiveness as "long term return on invested capital"

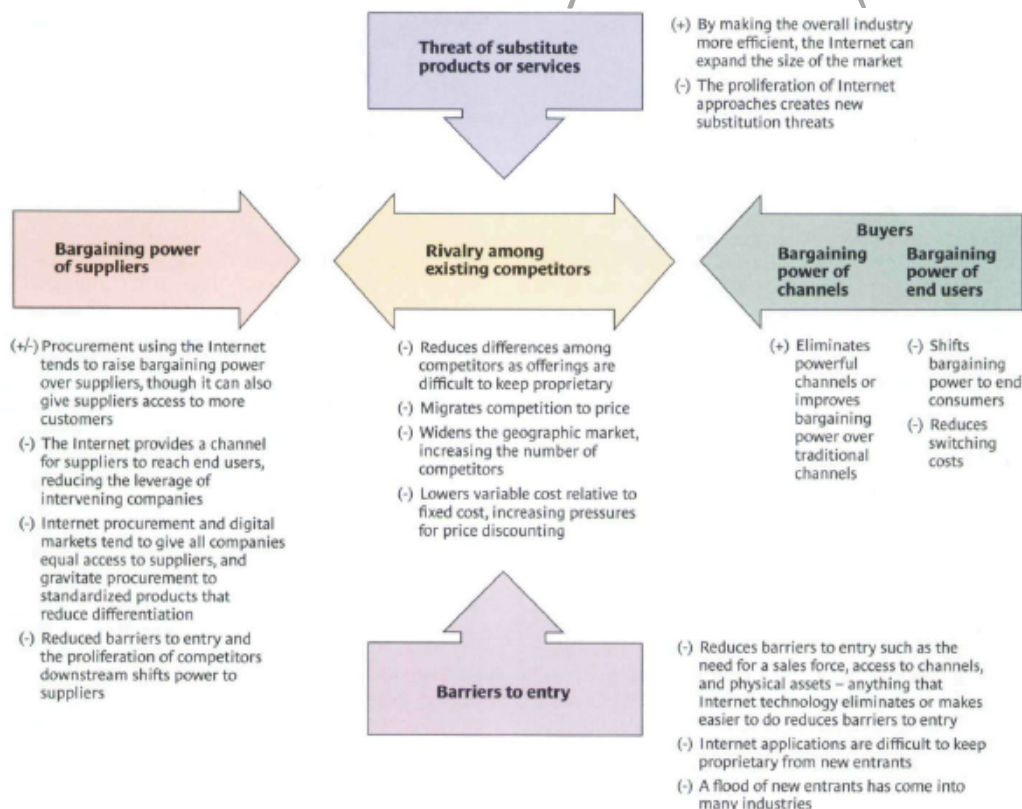… depending on the level of the competitive forces playing in the industry.

Internet is changing the scenario in many industries as it can be used to:

Operate at a lower cost, increasing operational effectiveness

Command a premium price, achieving a unique strategic positioning

At a first step this analysis can be done according to a traditional approach but the increase of the digitalization call for a ridefinition of the business models

Internet and industry structure (Porter)

Threat of substitute products or services

(+) By making the overall industry more efficient, the Internet can expand the size of the market

(-) The proliferation of Internet approaches creates new substitution threats

Bargaining power of suppliers

Rivalry among existing competitors

Buyers

Bargaining power of channels

Bargaining power of end users

(+/-) Procurement using the Internet tends to raise bargaining power over suppliers, though it can also give suppliers access to more customers

(-) The Internet provides a channel for suppliers to reach end users, reducing the leverage of intervening companies

(-) Internet procurement and digital markets tend to give all companies equal access to suppliers, and gravitate procurement to standardized products that reduce differentiation

(-) Reduced barriers to entry and the proliferation of competitors downstream shifts power to suppliers

(-) Reduces differences among competitors as offerings are difficult to keep proprietary

(-) Migrates competition to price

(-) Widens the geographic market, increasing the number of competitors

(-) Lowers variable cost relative to fixed cost, increasing pressures for price discounting

(+) Eliminates powerful channels or improves bargaining power over traditional channels

(-) Shifts bargaining power to end consumers

(-) Reduces switching costs

Barriers to entry

(-) Reduces barriers to entry such as the need for a sales force, access to channels, and physical assets – anything that Internet technology eliminates or makes easier to do reduces barriers to entry

(-) Internet applications are difficult to keep proprietary from new entrants

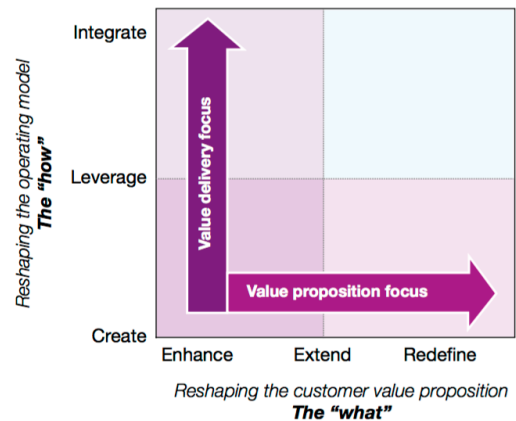(-) A flood of new entrants has come into many industries

Dimensions of digital transformation

What do businesses need to do to get ahead of the widespread forces for change in our digital age?

a. Reconfiguring the customer value proposition (what is being offered)

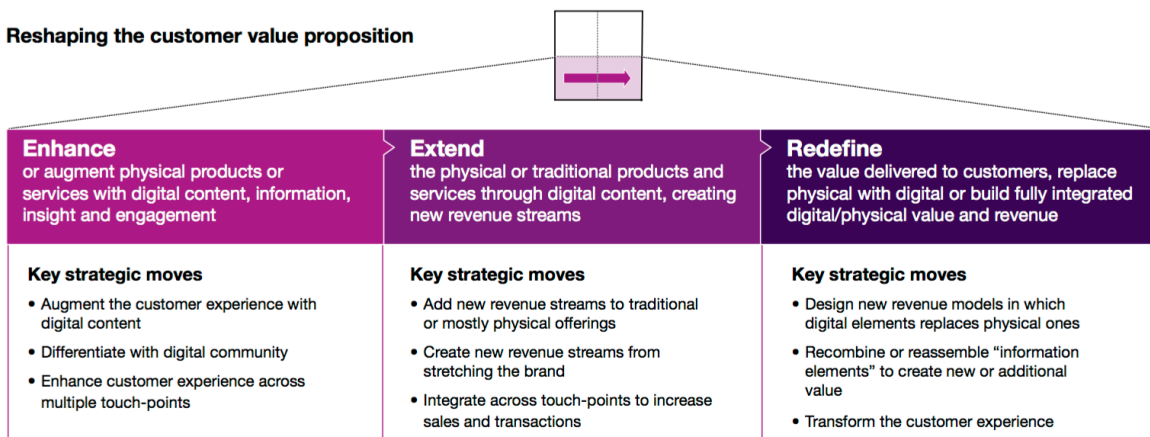b. Reshaping the operating model

(how it is delivered).

Elements of digital transformation

Reshaping the operating model — The "how"

Integrate
Leverage
Create

Value delivery focus

Value proposition focus

Enhance   Extend   Redefine

Reshaping the customer value proposition
The "what"

Source: IBM Institute for Business Value analysis.

Dimensions of digital transformation

Reshaping the customer value proposition

Enhance	Extend	Redefine
or augment physical products or services with digital content, information, insight and engagement	the physical or traditional products and services through digital content, creating new revenue streams	the value delivered to customers, replace physical with digital or build fully integrated digital/physical value and revenue
Key strategic moves	**Key strategic moves**	**Key strategic moves**
• Augment the customer experience with digital content • Differentiate with digital community • Enhance customer experience across multiple touch-points	• Add new revenue streams to traditional or mostly physical offerings • Create new revenue streams from stretching the brand • Integrate across touch-points to increase sales and transactions	• Design new revenue models in which digital elements replaces physical ones • Recombine or reassemble "information elements" to create new or additional value • Transform the customer experience

Source: IBM Institute for Business Value analysis.

Dimensions of digital transformation

Reshaping the operating model

Create	Leverage	Integrate
the basic digital delivery capabilities required to improve operations and engage customers across multiple touch-points	by using information across channels and organizational structures, while optimizing capabilities within each element	and fully optimize all elements of the value delivery around customer touch-points and deliver efficiency/effectiveness

Source: IBM Institute for Business Value analysis.

The Enterprise IT system is a strategic leverage for the "How" of the digital transformation, as long as there are these conditions:
* deploy a consistent technology platform
* keep on innovating and coming up with better ways of working
* use the IT platform to propagate these business innovations widely and reliably.

Categories of IT applications

IT applications can be classified based on their impact on activities and processes

IT Category	Definition	Characteristics	Examples
Function IT	IT that assists with the execution of discrete tasks	• Can be adopted without complements • Impact increases when complements are in place	Simulators, spreadsheets, computer-aided design, and statistical software
Network IT	IT that facilitates interactions without specifying their parameters	• Doesn't impose complements but lets them emerge over time • Doesn't specify tasks or sequences • Accepts data in many formats • Use is optional	E-mail, instant messaging, wikis, blogs, and mashups
Enterprise IT	IT that specifies business processes	• Imposes complements throughout the organization • Defines tasks and sequences • Mandates data formats • Use is mandatory	Software for enterprise resource planning, customer resource management, and supply chain management

Source: McAfee, Mastering the three worlds of IT

Types of Information Systems

- **Transaction Processing System** (TPS)
  Goal: increasing efficiency/productivity;

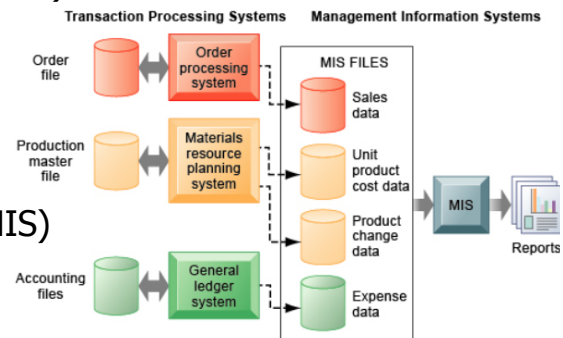 Data source: internal;

  Data: very detailed.

- **Management Information System** (MIS)
  Goal: increasing efficiency/effectiveness;
  Data source: mainly internal;
  Data: synthesis, with possible drilling-in.

- **Executive Support System** (ESS)
  Goal: improve effectiveness;
  Data source: mainly external;
  Data: very broad (potentially detailed on key topics).

ERP - Definition

ERP is an integrated Enterprise IT system.
It has has grown from MRP (Material Requirements Planning) driven by a need for stronger integration between the functional enterprise silos that dominated firms (legacy IT systems).

ERP (enterprise resource planning):
"*framework for organizing, defining, and standardizing the business processes necessary to effectively plan and control an organization so the organization can use its internal knowledge to seek external advantage*".
Source: The Eleventh Edition of the APICS Dictionary (Blackstone and Cox, 2005)

With the rise of e-Business and the need to integrate multiple sources of information within the enterprise, ERP software has emerged as the standard reference for enterprise IT systems as well as the required building block for digital transformation.

ERP System structure

ERP provides the backbone for an enterprise-wide information system.

At the core of this ES is a **central database** which draws data from and feeds data into **modular applications** that operate on a common computing platform

ERP is based on a **common business model** standardizing business processes and data definitions into a unified IT environment.
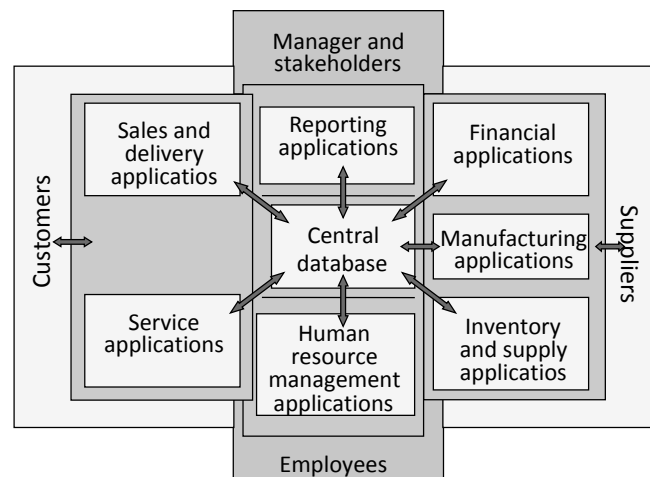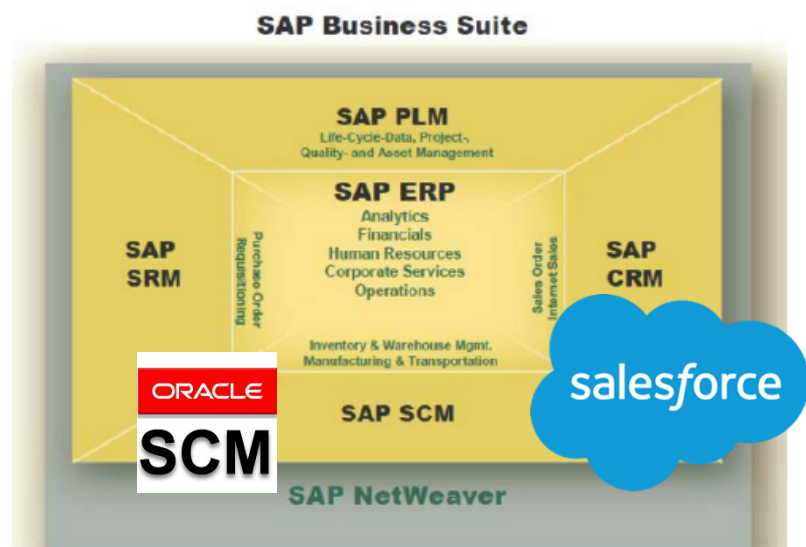

Source: Davenport, Putting the Enterprise into the Enterprise System

ERP system as an extended platform

ERP systems can be used as an extended platform to integrate:

1. Downstream: **CRM**
   Customer Relationship Management

2. Upstream: **SRM**
   Supplier Relationship Management

3. Development: **PLM**
   Product Life-cycle Management

4. Operations: **SCM**
   Supply Chain Management

ERP can also be the platform for
- Business Analytics
- Process Mining
- Enterprise Social Media
- interface with IoT (Internet of Things)
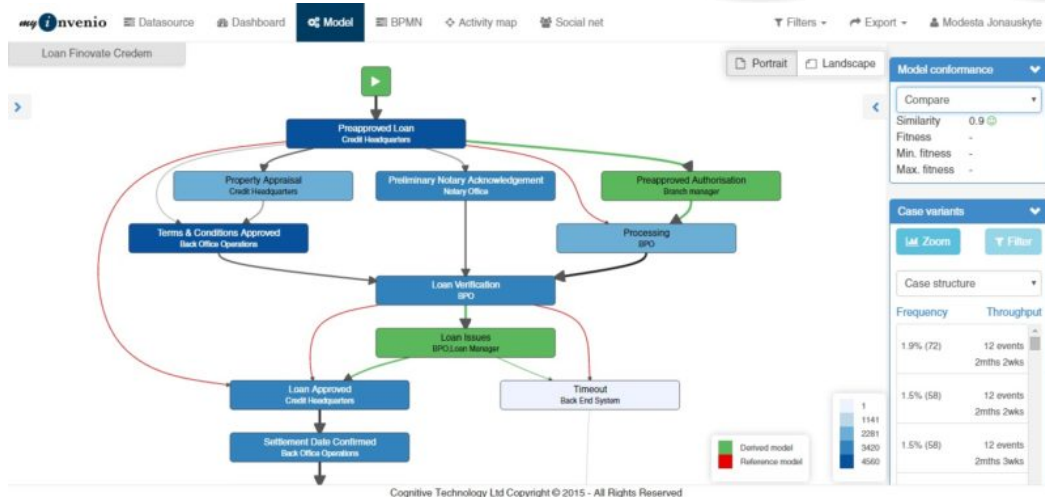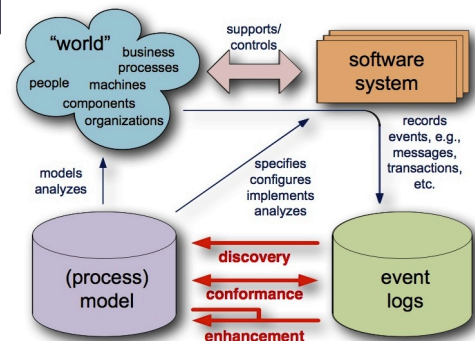
... towards business analytics
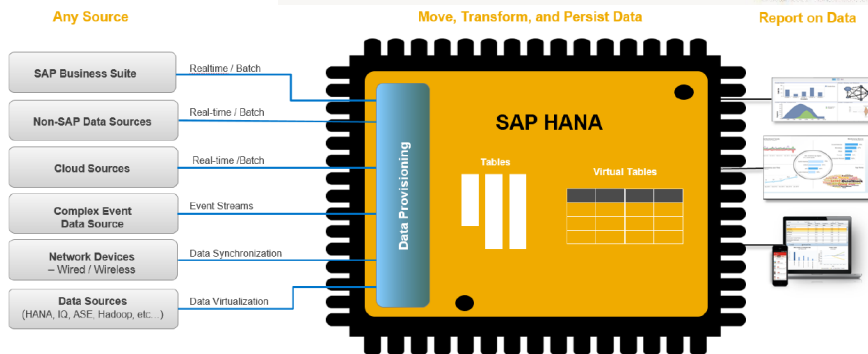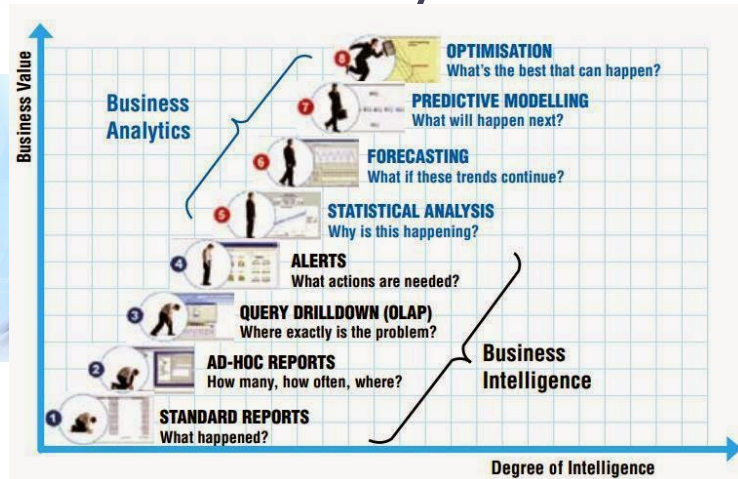
... towards process mining

… towards social media features

SAP Jam Collaboration for HR

Revolutionize work, simplify your business

Social collaboration streamlines HR business processes across organization – bringing people together to drive companywide
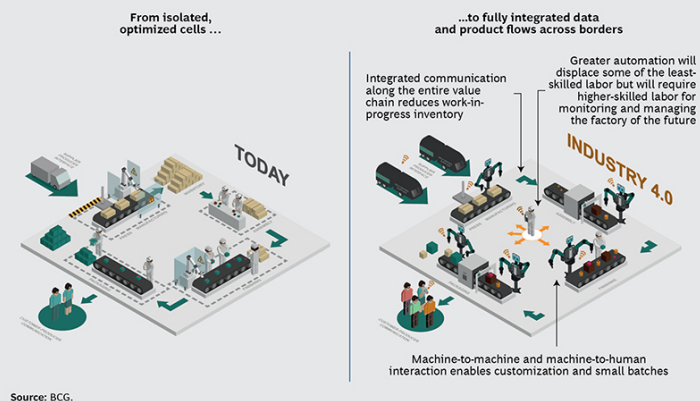
Da:	**SAP Jam** noreply@sapjam.com
Oggetto:	[SAP Jam] Daily alert for November 22, 2017
Data:	22 novembre 2017 09:32
A:	Corrado Cerruti corrado.cerruti@uniroma2.it

Here are the SAP Jam alerts you requested.
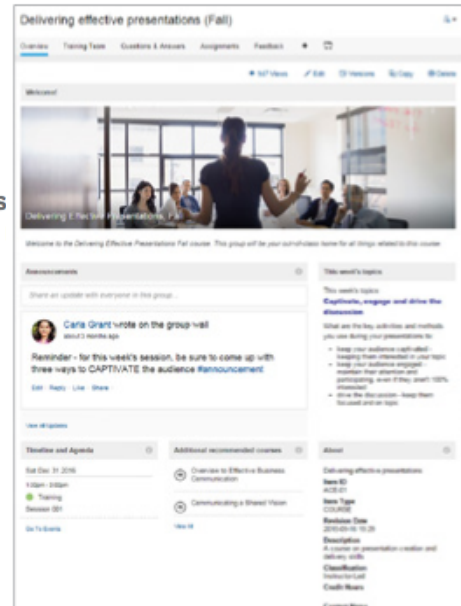
… towards Industry 4.0 IoT

EXHIBIT 2 | Industry 4.0 Is Changing Traditional Manufacturing Relationships

From isolated, optimized cells …

…to fully integrated data and product flows across borders

Integrated communication along the entire value chain reduces work-in-progress inventory

Greater automation will displace some of the least-skilled labor but will require higher-skilled labor for monitoring and managing the factory of the future

TODAY

INDUSTRY 4.0

Machine-to-machine and machine-to-human interaction enables customization and small batches

Source: BCG.

SAP Leonardo IoT Bridge					
Connected **Products**	Connected **Assets**	Connected **Fleet**	Connected **Infrastructure**	Connected **Markets**	Connected **People**
Product Insights	Fixed Asset Insights	Mobile Asset Insights	Building Insights	Market Insights	People and Work
Goods and Equipment	Manufacturing Execution	Logistics Safety	Construction	Rural Areas	People and Health
Supply Networks	Manufacturing Networks	Logistics Networks	Energy Grids	Urban Areas	People and Homes

SAP Leonardo IoT Edge Computing	**SAP Leonardo IoT Foundation**
	SAP Cloud Platform / SAP HANA Platform
	IaaS (*GCP*, AWS, Azure + SAP DC)

Dimensions of digital transformation

Transformative Digital Vision

THE "HOW" IS THE WAY THAT SENIOR EXECUTIVES DRIVE CHANGE THROUGHOUT THE ORGANIZATION. THIS INCLUDES CREATING AND COMMUNICATING VISION, ESTABLISHING GOVERNANCE AND MEASUREMENT MECHANISMS, AND BUILDING A DIGITAL-READY CULTURE.

THE "WHAT" IS SPECIFIC SET OF DIGITAL TRANSFORMATION ELEMENTS IMPLEMENTED BY THE ORGANIZATION, INCLUDING THE STRATEGIC ASSETS AND DIGITAL INVESTMENTS THAT ARE USED TO CREATE THOSE ELEMENTS.

Coordination models for digital transformation

Approaches to digital transformation

FASHIONISTAS
- Many advanced digital features (such as social, mobile) in silos
- No overarching vision
- Underdeveloped coordination
- Digital culture may exist in silos

DIGIRATI
- Strong overarching digital vision
- Good governance
- Many digital initiatives generating business value in measurable ways
- Strong Digital culture

BEGINNERS
- Management skeptical of the business value of advanced digital technologies
- May carry out some experimentation
- Immature digital culture

CONSERVATIVES
- Overarching digital vision exists, but may be underdeveloped
- Few advanced digital features, though traditional digital capabilities many be mature.
- Strong digital governance across silos
- Taking active steps to build digital skills and culture
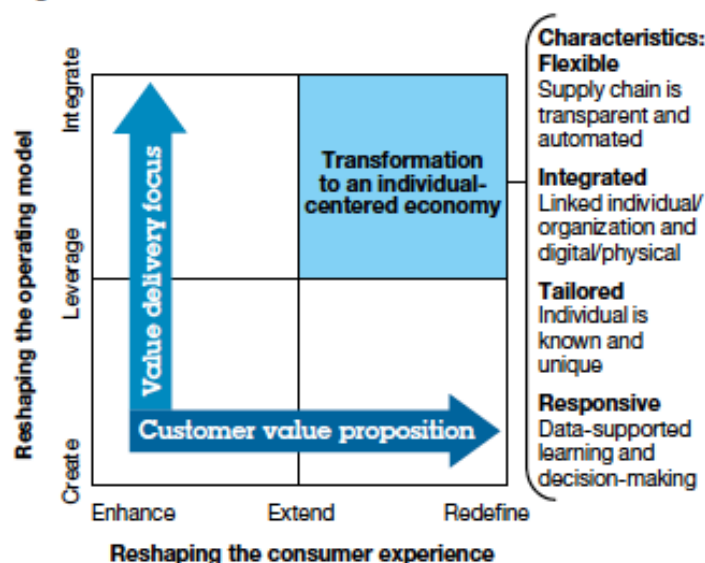
Digital intensity

Transformation management intensity

© 2011 MIT Center for Digital Business and Capgemini Consulting

The essence of digital transformation

Digital transformation framework

Reshaping the operating model — Integrate, Leverage, Create

Value delivery focus

Transformation to an individual-centered economy

Customer value proposition

Reshaping the consumer experience — Enhance, Extend, Redefine

Characteristics:

Flexible
Supply chain is transparent and automated

Integrated
Linked individual/organization and digital/physical

Tailored
Individual is known and unique

Responsive
Data-supported learning and decision-making

Source: IBM Institute for Business Value analysis; "Digital transformation: Creating new business models where digital meets physical." IBM Institute for Business Value.
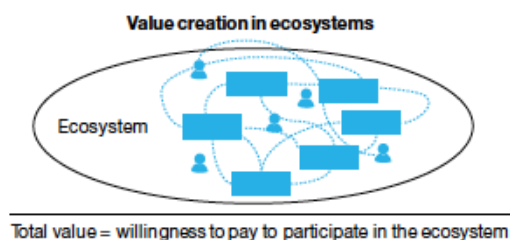
The value chain/industry changes

Value chains will fragment

New technologies will make value chains more transparent and easier to decompose (see Figure 4). In the past, value chain disruptions often involved replacing whole value chains or big chunks of value chains, such as replacing traditional banking processes with Internet-based, virtual banking. Next generation value chain disruption will involve contesting more specific elements or functions within value chains.
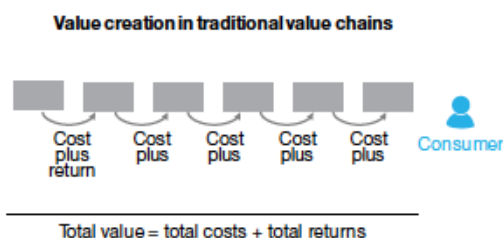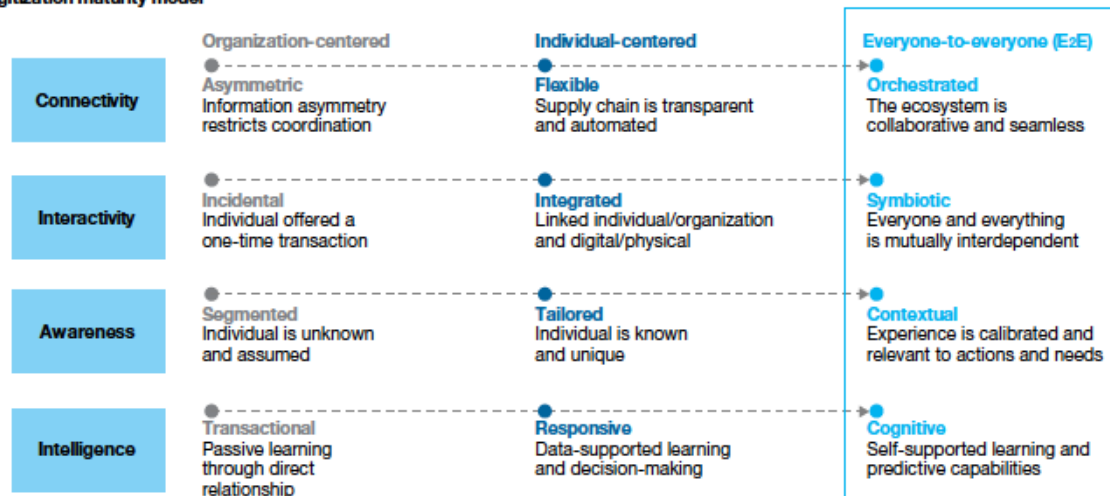
Industries will converge

As specific functions in value chains are contested, new competitors will emerge. Functional specialists from one industry will begin competing in specific value chain functions of other industries. This cannibalization across industries will begin to drive industry convergence (see Figure 5).

Value creation in traditional value chains

Cost plus return — Cost plus — Cost plus — Cost plus — Cost plus — Consumer

Total value = total costs + total returns

Value creation in ecosystems

Ecosystem

Total value = willingness to pay to participate in the ecosystem

Digital transformation trends

Digitization maturity model

	Organization-centered	Individual-centered	Everyone-to-everyone (E2E)
Connectivity	Asymmetric — Information asymmetry restricts coordination	Flexible — Supply chain is transparent and automated	Orchestrated — The ecosystem is collaborative and seamless
Interactivity	Incidental — Individual offered a one-time transaction	Integrated — Linked individual/organization and digital/physical	Symbiotic — Everyone and everything is mutually interdependent
Awareness	Segmented — Individual is unknown and assumed	Tailored — Individual is known and unique	Contextual — Experience is calibrated and relevant to actions and needs
Intelligence	Transactional — Passive learning through direct relationship	Responsive — Data-supported learning and decision-making	Cognitive — Self-supported learning and predictive capabilities

Source: IBM Institute for Business Value analysis.