Digital Trends Outlook 2015: Digital Business Ecosystems & the evolving role of the CIO

Milan, Rome, Luxembourg
March 14th 2014

in collaboration with
Prof. Omar El Sawy

of

IS EXECUTIVE COMMUNITY: PROCEEDINGS
Business and Technology Outlook Research Program

• Business  •  Technology  •  Outlook
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BTO Proceedings

- **Document**: «BTO Proceedings» is an output created and distributed in order to divulgate the research’s results, presented during IS Executive Community’s meetings. The document is presented in a suitable format that makes the consultation of contents agile and rapid and it’s produced by the BTO Research Team.

- **Purposes and goals**: BTO Proceedings offer an overview of the contents discussed during the Executive Community, highlighting the most important aspects and underlining the starting point of the research.

- **Abstract**: The topic of discussion of this session was “DIGITAL TRENDS OUTLOOK 2015: Digital Business Ecosystems & the evolving role of the CIO”

In the current economic environment, CIOs are playing an active role not only in defining business strategies, but also in the design and management of relationships between companies, customers and partners. In a digital and more interconnected world, corporate boundaries are increasingly blurred, leading to the replacement of the traditional supply chain in order to have more modern relational networks. Creating a Business Digital Ecosystem”. Companies and, in particular, CIOs have the duty to redefine their role within this ecosystem, acting on the level of integration of processes and making targeted investments. What is the role of the CIO in the management of economic relations in a Business Digital Ecosystem? How do you deal with interactions at intra-/inter-company and intra-/inter-functional level?

The meeting has taken place with the participation of Omar El Sawy, Professor of Data Science and Operations (USC Marshall School of Business, US)

- **Executive summary**: a small summary of the proceedings, covering all the topics discussed during the IS Executive Community’s meetings.
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CIOs have to look for signals from their competitive surroundings and study the industry mean in order to pursue a correct Digital Business Strategy and a correct Strategic Posture

— **Digital Business Strategy** —

<table>
<thead>
<tr>
<th>Two Strategic Postures</th>
<th>Two Strategic Decisions</th>
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<tr>
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<tr>
<td><strong>Convergent</strong></td>
<td><strong>IT investment</strong></td>
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<tr>
<td>Managers may believe that converging to the industry norms can make them less vulnerable to being singled out</td>
<td>Investments in IT infrastructure and IT applications are necessary for firms to develop their operational, dynamic and improvisational capabilities</td>
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<tr>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>Divergent</strong></td>
<td><strong>IT outsourcing</strong></td>
</tr>
<tr>
<td>Firms may tend to diverge from the industry norm as a means of differentiating their competitive positions</td>
<td>Outsourcing can be an effective strategy to benefit from vendors’ knowledge and production cost advantage</td>
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</table>

**FOCUS POINT:** Digital business strategy involves complex and interrelated factors that make it difficult for managers to foresee all investment outcomes or to determine the optimal levels of investments
The **Industry Environment** is influenced by different factors such as the turbulence, the competition and the growth. CIO’s must take into account all of them if they want to reach a satisfying **Digital Business Strategy**

---Ever Changing Environment---

**FOCUS POINT:** Managers need to continuously **monitor their IT investments** in a **proactive way** and make suitable adjustments in light of **emerging opportunities and threats.** In fact, it is not enough to simply react to changes; **proactivity** is the key to Digital Business Strategy
Having a Transparency Strategy has become essential for all the organizations. Since Internet and mobile technologies have drastically disrupted the typical transparency regimes making some firms better off and others worse off

— The Issue —

**Importance of Transparency Strategies**

- Any **managerial decision** not directly related to information disclosure can nevertheless **impact transparency**
- **Information disclosure** via the Internet cannot be easily restricted to its intended audience
- **Disclosure** of an informational element can have **unintended impact** on other informational elements

**Types of Transparency Strategies**

- **Disclose**: full revelation, information is available and easy to interpret
- **Distort**: Information is outdated, incomplete, inaccurate, or obfuscated
- **Bias**: Preferential display of information to the detriment of competitors
- **Conceal**: full opacity, information is not available

FOCUS POINT: In order to **compete effectively** in a **digital business environment**, firms should **develop a transparency strategy** by selectively disclosing information outside the boundaries of the firm
Information is increasingly consumed and generated online by multiple sources while companies lack a single unit in charge of developing a transparency strategy, resulting in a distorted message

— Solutions —

Guidelines to Develop a Transparency Strategy

Have a Strategy | Lead the Strategy | Enable the Strategy with IT | Monitor Competitors

It is imperative in today’s digital world to have an explicit transparency strategy

The CEO must lead to ensure that there is a transparency strategy and that it is well aligned to the business strategy

A firm’s IT strategy and infrastructure can constrain or enable its transparency strategy

The CIO plays a key role in monitoring competitors’ innovations, designing a competitive response

FOCUS POINT: Even though organizations lack of single owner of transparency strategies, it is ever more important to define how to mitigate the effects of an increased availability of information. CIOs must make decisions about information disclosure both inside and outside the firm
Leveraging opportunities arising from technological advances, Digital Ecosystems develop and evolve following patterns typical in ecology, generating value for the economic environment.

— Background and Definition —

**Technological Definition**
Digital counterpart of biological ecosystem which is self-organizing, scalable and able to solve complex, dynamic problems.

**Ecology definition**
Digital environment populated by digital species or components (software, applications, business models, etc.).

**Economical definition**
Novel approach for the catalysis of sustainable development enabled by distributed and peer-to-peer operation in a common global environment.

**Multi-disciplinary definition**
A Digital Ecosystem is a self-organizing digital infrastructure aimed at creating a digital environment for networked organizations, supporting the cooperation and the development of open and adaptive technologies and business models.

**FOCUS POINT:** the design and maintenance of IS have become increasingly complex. The concept of “Digital Ecosystem” has emerged, comprising multiple and independent entities such as individuals, organizations, services, software and applications that share one or several missions and focus on the interactions and inter-relationships among them.
Digital Ecosystems are commonly described as open, loosely coupled, self-organizing digital environments in which the constituent agents or species are proactive and responsive for their own benefit

— Challenges —

1. Lack of standards

Establishing a uniform standard of system architecture is the first challenge. Digital Ecosystems’ multi-disciplinary nature requires appropriate distributed computing architectures which are developed to deal with software architectures within a single discipline.

2. Static description VS Dynamic interactions

Designing system models in Digital Ecosystems to represent a static description of entities and dynamic interactions is the second main issue. There are too many types of ever-changing interactions barely impossible to be statically represented.

3. ICT technologies don’t match Digital Ecosystems

Developing ICT enabling technologies for Digital Ecosystems remains another main problem, which includes research on and development of intelligent and autonomous infrastructures, advanced software development platforms and protocols to implement Digital Ecosystems.

A Digital Ecosystem is mainly characterized by its self-organization, scalability and sustainability. The dependency of technical, economic and social systems properties on each other makes them unique and requires proper measurements to monitor ecosystem performance.

4. Uniqueness of Digital Ecosystems

FOCUS POINT: Digital Ecosystems have gained a lot of attention recently but are still at an early stage. This means that most of the current features need to be studied and defined. Such a new concept leads to new challenges that must be taken into account.
When the adoption of Internet based technologies for organizations is on such a level that business services and the software components are supported by a pervasive software environment, the construction of a Digital Business Ecosystem is needed

— The Background —

Players of the Digital Business Ecosystem

- Suppliers
- Lead Producers
- Shareholders
- Competitors
- Customers
- Employees

Digital Business Ecosystem

FOCUS POINT: CIOs should always focus on the digital ecosystem’s players in order to exploit the full potential. It is not possible to focus just on the internal factors anymore; most of the business value nowadays comes from outside the boundaries of a company.
The success of any company depends on its ability to create and maintain relationships with the other players in the Ecosystem. CIOs must carry out the monitoring of the digital environment periodically.

— The Framework —

Steps for the Digital Business Ecosystem

**Creation:**
- Financial Analysis
- Value Creation and sharing
- Strategic decisions about market, competitors and future insights

**Monitoring:**
- Quantifiable parameters
- Competitive assets
- Current roles and strategies
- Future insights and trends

**Evaluation:**
- Productivity
- Robustness
- Niche creation

FOCUS POINT: The **business potential** of Digital Business Ecosystems is mainly given in terms of **added value** they provide, resulting from new **combinations of information**, products and services and **innovative integrations of resources, roles and relationships** among business experts.
When thinking of growing by acquisition, building an IT Infrastructure focused beyond the boundaries of a company can be very useful. CIOs and the IT play a central role in creating fertile ground for growth

— The “Ready to Acquire” case of Danisco —

Danisco’s Golden IT Integration Phases

Funded in 1989, Danisco CEO decided to grow by acquisition and in order to do so, he hired a new CIO with the task of creating a flexible IT infrastructure able to integrate newly acquired ones

What did Danisco do:
• Created a flexible IT infrastructure able to integrate external ones
• Studied the Digital Ecosystem
• Made working hand in hand business and IT in the search for competitors to acquire

What did Danisco gain:
• Reduced timing in the merger’s profitability
• Reduced risk of merger failure
• Expanded the scale and the scope of its business without losing its manageability

FOCUS POINT: Between 45% and 60% of the expected benefits from mergers and acquisitions depend directly on IT integration. CIOs should work next to the CEOs and plan together possible acquisitions. CIOs must carry out the feasibility test on possible mergers in terms of IT integration
**Digital Business Ecosystems**

The healthcare industry is a good example of how an IT shift toward the surrounded digital ecosystem can create and retain value. The potential of the presented value-creation framework is proved by its successful application to a healthcare firm

*—Kaiser Permanente: a success story—*

<table>
<thead>
<tr>
<th>Value Chains</th>
<th>Value Shops</th>
<th>Value Networks</th>
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<tbody>
<tr>
<td>Involves a <em>series of sequential horizontal processes</em></td>
<td>Based on <em>recursive feedback learning loops</em></td>
<td>Captures the <em>relationships between communities</em> value</td>
</tr>
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</table>

**Improved the effectiveness of IT-enabled healthcare delivery** for business and clinical processes.

- Cost savings, efficiencies
- Improved quality and satisfaction
- Remote digital patient/doctor interaction

**Better mobilization of IT-enabled resources**, knowledge and expertise to resolve healthcare problems.

- Faster resolution of medical enquiries
- Leveraging of scarce clinical resources
- Customization of healthcare delivery

**Building more effective facilitative exchanges** through IT enabled networks.

- Connecting members through social networks
- Networked knowledge
- Integration of medical services and wellness activities

**FOCUS POINT**: CIOs should *shift the focus of IT infrastructure* from the enterprise to the consumers enabling and easier interaction within the various players. IT infrastructures should be able to handle *rich, engaging and unpredictable interactions*
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Introduction

Profile

Vincenzo Morabito (Ph.D., Università Commerciale Luigi Bocconi) Research Scholar at the "Center for Information System Research" (MIT Sloan School of Management). Research Scholar at the "Decision and Information Science Department" (University of Florida). Responsible of the courses of Organization and IT Systems, IT Systems Management and Information Management at the Università Bocconi. Director of the IT Systems Management Master and Responsible of IT Systems Management. He has contributed to different research programs also supported by "Ministero dell'Università e della Ricerca Scientifica e Tecnologica".

Selected Publications:

The **Business and Technology Outlook** Research Program is now becoming global with new Companies in Luxembourg, Germany, UK and Brazil.
Activity schedule for 2014 includes collective meetings focused on topics of cross importance, selected accordingly with the needs of Community supporters.

--- Program ---

1. **Digital Trends Outlook 2015: Digital Business Ecosystems & the evolving role of the CIO**
   
   *14 March*

2. **GLOBAL DIGITAL OUTLOOK**
   
   *9 June*

3. **Data Managing Companies: Managing Information to extract value**
   
   *September*

4. **Managing Change: Enabling the right environment for Digital Innovation**
   
   *November*
In line with the topic, it was presented the volume “Trends and Challenges in Digital Business Innovation” which summarizes to managers, from an academic perspective, what’s “hot” – every year – in digital business research and practice

— Supporting Materials —

CONTENTS AND OBJECTIVES

- Current Business Digital Ecosystems require companies to consider strategic trends from three different perspectives:
  - Digital Systems trends, facing Technology Challenges and the «why» question
  - Digital Management trends, facing Governance Challenges and the «what» question
  - Digital Innovation Trends, facing the Transformation Challenges and the «how» question

- The Digital Business leader action must:
  - Generate value from new technologies, transforming IT infrastructures into digital business platforms
  - Manage talents, effectively exploiting digital work and collaboration
  - Promote business agility, not only efficiency; thus, constructing dynamically a company digital business identity through innovative business models and an effective digital governance

The new strategic role of IT as the “guardian” of digital business assets of the company is to become the interpreter of the digital business innovation “desires” of the organization.
The session had present an overview of the main trends of digital innovation, with a focus on the phenomenon of Digital Business Ecosystems

— Executive Summary —

- Firms are becoming increasingly digital and interconnected and their boundaries are getting blurrier. Exchanges with stakeholders are fundamental as well as the network of relations which enables cooperation and knowledge sharing.

- Business Models are changing and value is mostly generated outside the boundaries of a company. Business to Business (B2B) environments are becoming the center of value creation and value sharing, while customers expect to pay ever less.

- When talking about Digital Ecosystems, integration, interoperability and level of IT investments are some of the aspects companies must take into account and use to pursue a correct digital business strategy.

- Companies must study their surrounding environment and re-define their role and span of influence. A correct «positioning» inside an ecosystem with a self-organized structure is the key to a long term success.

CIOs must be able to find a fit for their companies inside ever changing Digital Business Ecosystems, manage relations and exchanges at a cross-functional and cross-organizational level and define the right amount of resources to invest.
To rationalize the topic, was presented the **BTO Collection**, an assortment of articles selected by the research group

--- **Supporting Materials** ---

<table>
<thead>
<tr>
<th>SELECTED CONTRIBUTION</th>
<th>AIM OF THE CONTRIBUTION</th>
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<tr>
<td><strong>1 DIGITAL BUSINESS STRATEGY</strong></td>
<td>✓ CIOs have to <strong>look for signals</strong> from their <strong>competitive surroundings</strong> and <strong>study</strong> the <strong>industry mean</strong> in order to pursue a correct <strong>Digital Business Strategy</strong> and a correct <strong>“Strategic Posture”</strong>. ✓ Firms should <strong>develop a transparency strategy</strong> by selectively disclosing information outside the boundaries of the firm.</td>
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<td>2. “Importance of having a Transparency Strategy”</td>
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<td><strong>2 DIGITAL BUSINESS FOCUS</strong></td>
<td>✓ CIOs should always focus on the digital <strong>ecosystem’s players</strong> in order to exploit the full potential. ✓ The business value nowadays comes from <strong>outside the boundaries of a company</strong>.</td>
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<tr>
<td>3. “Business Digital Ecosystem: importance and challenges”</td>
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<td>4. “Players in the Business Digital Ecosystem and steps for its creation”</td>
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<td><strong>3 DIGITAL BUSINESS APPLICATION</strong></td>
<td>✓ A health care case study shows how to realize, capture and assess <strong>new strategic value</strong> by transforming the way <strong>IT-enabled services</strong> are delivered to a <strong>very large number of consumers</strong>. ✓ A second contribution shows how <strong>benefits</strong> from <strong>mergers &amp; acquisitions</strong> depend directly on <strong>IT integration</strong>. To this end, <strong>CIOs</strong> has to work next to the <strong>CEOs</strong> to <strong>plan together</strong> possible acquisitions.</td>
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<td>5. “Realizing Strategic Value Through Center-Edge Digital Transformation in Consumer-Centric Industries”</td>
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<td>6. “Ready to Acquire: the IT resources required for a growth-by-acquisition Business Strategy”</td>
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BTO Community aims to offer to IT Executives strategic insights on digital business innovation from three key perspectives, Digital Technology, Management and Innovation

— Areas of Research —

Focus on **new technologies and paradigms**

Focus on **managerial challenges and opportunities**

Focus on how companies have carried out «**Innovation in Practice**»
IT Consumerization, multisided-platforms and digital business metrics are changing the way companies manage IT asset and procurement, interact with customers, and decide on «what’s next?»
IT Consumerization, multisided-platforms and digital business metrics are changing the way companies manage IT asset and procurement, interact with customers, and decide on «what’s next?»
The complexity of Digital Ecosystems needs managerial skills and capabilities empowering the seizing of digital options and envisioning new business scenarios.

**Areas of Research**

- **Analytics based innovation**
- **Managing Change**
- **Building Digital Innovation Capabilities**
- **Designing metrics for digital innovation**
- **Mobility and digital innovation**

**Digital Ecosystem**

- Digital Business Organization
- Digital Technology Trends
- Digital Management Trends
- Digital Innovation Trends

**Digital Business Metrics**

- Digital Project Management Office
- Collaborative design
- Multi-Sided Platform Models
- Digital trust
- 3D printing
- Application Programming Interface
- Business Insight
- Masssive Digital Education Systems
- Internet of Everything
- User empowerment
- IT Security
- Digital Business Metrics
- Real-time analytics
- Mobile enterprise
- Digital trust
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The complexity of Digital Ecosystems needs managerial skills and capabilities empowering the seizing of digital options and envisioning new business scenarios.
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Omar El Sawy

USC Marshall School of Business:
Professor of Data Science and Operations

Profile

Omar A. El Sawy is Professor of Information Systems in the Data Sciences and Operations Department at the Marshall School of Business at the University of Southern California. He specializes in digital business strategy in turbulent environments and teaches in the MBA program and executive programs. In 2012, he was the recipient of the Marshall School's Evan C. Thompson Award for Teaching and Learning Innovation. From 2001 to 2007, he served as Director of Research at the Institute for Communication Technologies Management (CTM) where he oversaw and led an industry-sponsored research program that focused on understanding the drivers of wireless applications, future-casting the adoption of new applications in the networked digital industry and business models for digital platforms in new market-spaces. He holds a Ph.D. from Stanford Business School, an MBA from the American University in Cairo, and a BSEE in Telecommunications from Cairo University.

Research Areas of Interest

- Designing and Managing IT-based Value Chains and Capabilities for dynamic Environments
- Business Process Transformation
- Business Models for interactive digital platforms
- Designing vigilant information systems for fast-response environments

Publications:

The Next Generation of Digital Business Ecosystems & the Evolving Role of the CIO

Objective

Understanding the Next Generation of Digital Business Ecosystems, what Business Model Innovation that will Generate, and what that means for the Role of the CIO
Segment #1
Game Changers for the Next Generation Digital Enterprise

Segment #2
Managerial MindShift #1 The Ecosystem Perspective

Segment #3
Managerial MindShift #2 Digital Business Models

Segment #4
The Impact of the Internet of Things as Digital Disruptor

Segment #5
Implications for the Evolving Role of the CIO

Segment #6
Discussion of Challenges & Opportunities
Segment #1 Game Changers for the Next Generation Digital Enterprise

1. Primacy of the Digital Customer Experience

2. Distributed Co-Creation of Value at the Edge

3. Continuous Sense and Respond Experimentation

- **Direct Connection** from the Edge
- **Engagement** is Part of the **Product**
- From Value-in-Exchange to **Value-in-Experience**
- **Social Media** Changes the Rules
- **Augmented Reality** links the Physical World
- **Omni-Channel** & **Multi-Modal Devices**
- **Personalization** & **Rich Identity**
- From Search to **Discovery**

The Evolving Mobile Device…

Entertainment Computing Augmented Reality

Messaging Voice
Segment #1 Game Changers for the Next Generation Digital Enterprise

1. **Prosumer** rather than Consumer
2. **Open Innovation** & **Crowd-Sourcing**
3. Learning among Customers & Citizens generates **Priceless Value**
4. New Roles and forms of **Customer Support**
5. Emergence of the Bottom of the Pyramid as a **Growing Source of Value**

3. The Growing **Internet of Things, Data, & People**
4. Big Data: Not just Volume, but **Velocity & Variety**
5. Continuous Data Streams generate **Self-Awareness**
6. Running **Digital Probes** with Enterprise Environment
7. **Real-Time Learning** Experiments
8. Sense-and-Respond Mode of Management & **New Product Development**

Figure 1: Center-Edge IT Deployment: Evolution from Push Mode to Fully Engaged

Initial Push Mode for Center-Edge IT Deployment

- Complex core service processes carried out by highly trained professionals
- Edge service processes for interacting with consumers

Evolution to Customer Co-Creation Mode for Center-Edge IT Deployment

- Emphasis is on IT deployment at the center of the ecosystem to make value chain digital processes effective before activating consumer interaction
- Consumers become increasingly digitally engaged and help to co-create value in the digital ecosystem
Segment #2 Managerial MindShift #1 – The Ecosystems Perspective

1. The Ecological Approach to Strategy & Creating Common Shared Value

2. Strategy as Ecology: Why it is Critical for Digital Business – It’s an API World


The Evolution of Business Strategy Repertoire

1980s
- Porter Model
- Competitive Advantage
- Barriers to Entry

Early 1990s
- Strategy as Movement
- Bhide, Stalk & Hout
- Process Execution
- Fast Response
- End-to-End Processes

Mid 1990s
- Strategy as Capability
- Resource-Based View
- Jay Barney
- Developing Distinctive Competences
- Learning Approaches

Late 1990s
- Strategy as Dynamic Capability
- Teece, Eisenhardt
- Reconfiguring Resources
- Flexibility
- Turbulent Environment

Early 2000s
- Strategy as Value Chain Synchronization
- Process Integration
- Synchronization
- Information Sharing
- Seamless Visibility
- Collaborative Advantage

Mid 2000s
- Strategy as Ecology
- New Market Spaces
- Creating Shared Value
- Disruptive Technologies
- Partnering for new Business Ecosystem
- Hyper-turbulence
Segment #2 Managerial MindShift #1 – The Ecosystems Perspective

Strategy as Ecology

Your enterprise’s success depends on business ecosystem vitality & your role in it!

Health of ecosystem?

Understanding your role in it?

Developing a strategy to match your role!

Expanding the vision to Business Ecosystems

Turbulence Level of Business Environment

Scope of Strategic Focus

Enterprise Focus

Supply Chain Focus

Business Ecosystem Focus

1980s

1990s

2000s
Segment #2 Managerial MindShift #1 – The Ecosystems Perspective

Strategy as Ecology

- Success depends on managing assets & resources that your enterprise does not own or control. Gain strategic advantage by giving up control!
- Beyond outsourcing -- and involves new marketspaces with new rules & new players & new business models
- Involves actively shape the workings of an enterprise’s entire business ecosystem – & improving their own performance in the process
- Both creating value and business platforms ---- and sharing value with stakeholders

The Digital Enterprise of 2020 is both Connected to the Community Ecosystem and is Porous …
Segment #2 Managerial MindShift #1 – The Ecosystems Perspective

Corporate Social Responsibility vs. Corporate Shared Value

**CSR**
- Value: doing good
- Citizenship, philanthropy, sustainability
- Discretionary or in response to external pressure
- Separate from profit maximization
- Agenda is determined by external reporting and personal preferences
- Impact limited by corporate footprint and CSR budget
- **Example:** Fair trade purchasing

**CSV**
- Value: economic and societal benefits relative to cost
- Joint company and community value creation
- Integral to competing
- Integral to profit maximization
- Agenda is company specific and internally generated
- Realigns the entire company budget
- **Example:** Transforming procurement to increase quality and yield

Creating Common Shared Value for the Community in an Emerging Digital World

- Cultural Heritage
- Social Leverage
- Knowledge Networks
- Digital Platforms
- Infrastructure Upkeep
- Environmental Renewal
- Community Economics
- Talent Development

**Common Shared Value**
Segment #2 Managerial MindShift #1 – The Ecosystems Perspective

Matching Strategy to the Environment

<table>
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<td>Keystone Strategy</td>
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<td>Commodity Strategy</td>
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<tr>
<td>Dominator Strategy</td>
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</table>

The API World

- APIs (Application Programming Interfaces) work behind the scenes to expose or project data & functionality for use by apps and the developers who create them.
- Example: Google Maps
- Example: Netflix
- Example: Walgreen's
Segment #3 Managerial MindShift #2 – Digital Business Models

1. From Information Systems to Digital Business Models

2. VISOR Business Model Framework: A Multi-Functional Multi-Partner Mindset

3. Synching Digital Business Models with their Digital Business Ecosystems

The Changing Role of IT

IT as Tool

Connection View (~1970-95)

IT as Environment

Immersion View (~1990-2011)

IT as Fabric

Fusion View (~2005-?)

El Sawy, Communications of AIS, 2003
Segment #3 Managerial MindShift #2 – Digital Business Models

IT as Tool

Connection View (~1970-95)

- IT as **separable artifact** from work & people
- Think of apps like **spreadsheets, database queries, reporting**
- Mostly **focused inside** the enterprise
- **Applications** connected to work, but **not critically coupled**

Connection View

First Gear: IT as a Tool

Design Focus is on the IT System

- **Information Systems Design**
- **Supporting the Business**
Segment #3 Managerial MindShift #2 – Digital Business Models

**IT as Environment**

- IT is immersed as part of the business environment
- IT & work processes highly interdependent
- There is need to change the way we work to take advantage of IT
- IT includes ubiquitous network connectivity and inter-organizational connections
- Applications are highly connected to work such as CRM, ERP, SCM,…

**Immersion View** (~1991-2012)

**Second Gear: IT as Environment**

Design Focus is on Business Processes & Work Systems

- **Work Systems & Practices**
- **Running the Business**
Segment #3 Managerial MindShift #2 – Digital Business Models

**IT as Fabric**

*Fusion View (~2005-?)*

- IT is fused within the business environment in a way that modulates work in hidden ways
- IT indistinguishable and part of work fabric
- Think of SOA, mobile apps, social networks
- Cannot disentangle the technology
- Direct connection to customer through digital platform
- Highly interactive and real-time

**Fusion View**

Third Gear: IT as Fabric

Design Focus is on Business Models for Digital Platforms

Managing Digital Business Models

Digitally-Enabled Products & Services

Designing the Business
Segment #3 Managerial MindShift #2 – Digital Business Models

What is a Digital Business Model?

- Formulation & Sharing of Strategy
- Business Strategy
- Business Models
- Business Operations
- Execution of Strategic Measures (Design)
- Conduct of day-to-day Business operations

What Changes with a Digital Business Model?

- Customer Interface Experience is Critical
- Many more Heterogeneous Partners engaged in Delivery
- Much more Innovation possible with New types of business models
- More Complexity & Data Generated
- Cross-industry disruptions
VISOR is a business model framework to clearly define how a company can evaluate the viability of a new technology-enabled product introduction or service offering.

The VISOR Business Model Framework defines 5 variables that companies must establish to assess the viability of any offering:

- **Value Proposition**
- **Interfaces**
- **Service Platforms**
- **Organizing Model**
- **Revenue/Cost Sharing**

The VISOR Framework for Digital Business Models (USC)

It’s a Framework, not a Religion!
Segment #3 Managerial MindShift #2 – Digital Business Models

Caution!

A Business Model is Connected to --- but not the Same as Strategy !

Business Model is “almost” an Operational Model

Different forms of strategic postures

Environmental Turbulence !!

The YIN & YANG of Digital Ecosystem Strategy & Digital Business Models

Digital Ecosystem Dynamics & Disruptive Niche Creation

Designing Digital Business Models & New Forms of Value Co-Creation
Digital Business Ecosystems

Segment #3 Managerial MindShift #2 – Digital Business Models

Elements of Generating Business Models for Interactive Digital Media & Services

Select a Business Model Theme for generating Value

Choose your Perspective & Scope in the Digital Business Ecosystem

Use Insights from Consumer Studies & Scan for Game Changers

Generate a Populated Business Model through VISOR

Choose Partnering & Value Protection Strategy
Segment #4 The Impact of the Internet of Things as Digital Disruptor

1. Smart Homes & Offices & Devices that Learn

2. Telematics & the New Automobile Digital Ecosystem

3. Wearable Devices & Digital Health

Three “Internets” are growing…

El Sawy, Communications of AIS, 2003
Segment #4 The Impact of the Internet of Things as Digital Disruptor

Example#1: Smart Homes & Offices with Devices that Learn

NEST  www.nest.com introduces 2nd Gen Learning Thermostat Which Learns the temperature preference of users

**Auto-Schedule**
Learns the temperatures you like and programs itself to create a customized schedule for your home.

**Auto-Away**
Automatically switches to an energy-efficient temperature when you’re not home.

**Nest Leaf**
Notifies you when you make a temperature adjustment that helps conserve energy.

**Tension #1: Fly-By-Wire vs. Decision Support**
How Should Auto-Schedule vs. Nest Leaf be managed? Both options in play

**Tension #2: Data Ownership vs. Profitability**
Who owns the data? The homeowner, the resident, Google, the power utility, the local city government?

**Tension #3: MetaData vs. Individualized Data**
Given Google’s ability to personalize search and advertising, will the IOT in the smart home trigger new advertising business models?

**Tension #4: Personal Privacy vs. Public Good**
Will Conservation groups and power utilities have a say on how your settings are managed and how you share your data
Segment #4 The Impact of the Internet of Things as Digital Disruptor

Scenarios for Smart Home Powered by IOT for NEST & Google?

- **Entertainment + Energy** on same IOT Platform
- Home Automation Software Vendors push for [Open API Platforms](#)
- Apps such as [SmartThings provide new services](#) through IOT
- Open API Platforms accelerate the **extensibility of services**
- NEST ecosystem becomes the IOT learning lab for Google & others
- We learn more about discovery mode versus search mode due to IOT mode of operation

What will this mean for the Enterprise of 2020?

- IOT platform learning will **transfer to other segments** of such as offices, factories, hospitals, airports
- New applications in **“physical-based” industries** such as agriculture and transportation. See for example water management [http://driblet.co/](http://driblet.co/)
- A bigger portion of the Enterprise will be managed by fly-by-wire and this will require **much organizational change and rethinking**
- “**Devices that learn us**” will become a dominant paradigm
- [Augmented reality paradigm](#) for the IOT world will link the physical and digital world
Segment #4 The Impact of the Internet of Things as Digital Disruptor

Example #2: Telematics & The New Automobile Ecosystem

Volvo Cars Corporation

“Nowadays, you don’t sell a car. You sell a transportation solution, and it should be as efficient and smooth as possible. Looking into the future, we might say we don’t sell a transportation solution, we sell an experience.”

Shifting From a B2B to a “B2B+B2C” Business Model
Segment #4 The Impact of the Internet of Things as Digital Disruptor

Example #3: Wearable Devices & Digital Health

A NEW WELLNESS ECOSYSTEM EMERGES …!!
Segment #4 The Impact of the Internet of Things as Digital Disruptor

Implication of the Internet of Things for digital business ecosystems & business model Innovation?

- **New ecosystem** configurations
- Devices that generate **tons of data** and learn from that
- **Customers and devices** will collaborate together
- **Much value** will be created through the edges of networks
- **New business models** will be created

Customer & Device Co-Creation Mode for the IOT: A New Paradigm for the Enterprise in 2020

Complex Core Service Processes carried out by Highly-Trained Professionals

Edge Service Processes for interacting with Customers & Devices

*Customers & Devices help to co-create value with the enterprise in new digital ecosystems through new modes of learning and engagement … From B2B to B2B&C&D!*
Segment #5 The evolving Role of the CIO

1. Business Development Executive?

2. Platform Manager? Chief Digital Officer?

3. Chief Device Officer? Chief Big Data Officer?

Segment #6 Discussion on Challenges and Opportunities
Research and Innovation for Business