Integrating Standards Education into the Business School Curriculum

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Workshop on
Strategic Standards Management:
A Neglected Competitive Underpinning
UCLA, June 4-5, 2013

Supported By:
Challenges and Approaches for a Business School audience

• Business Students are not technical or not interested in technical stuff at all

• Identification of Target Course

• Must be relevant to topics covered in class

• Interesting and Empathetic Contexts

• Stealthy Insertion of Standards-related topics

• Easy Adoption by Instructors

• Dissemination

BUS 188 Business Systems and Policy Undergraduate Core – 500 / semester
Common Topics covered by the Top Five Textbooks and areas where Case Studies with Standards themes could be inserted

X = topic covered, O = topic not covered

<table>
<thead>
<tr>
<th>Topics</th>
<th>Baltzan and Philips</th>
<th>Stair and Reynolds</th>
<th>Gallagher</th>
<th>Krosnke</th>
<th>Laudon and Laudon</th>
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<tbody>
<tr>
<td>Strategy and IS</td>
<td>X</td>
<td>X</td>
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<tr>
<td>- Competitive Advantage</td>
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<td>- Value Chain</td>
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<td>- Porter's 5 forces model</td>
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<tr>
<td>Hardware and Software</td>
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<td>X</td>
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<td>Database</td>
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<td>Data Communication</td>
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<td>Business Processes, Business Process Reengineering and Management</td>
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<td>Project Management, System Development</td>
<td>X</td>
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<td>IS Security &amp; Privacy</td>
<td>X</td>
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<td>Classifications and Roles</td>
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<td>X</td>
<td>O</td>
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<td>- B2B, C2C, B2C etc</td>
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<td>- Collaborative IS</td>
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<td>- ERP, MRP, CRM</td>
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<td>- KM System, BI, Data Mining</td>
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<td>Trending</td>
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<td>- Cloud computing</td>
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<td>- Service Oriented</td>
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<td>- Architecture</td>
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<td>- Social Media IS</td>
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<td>- Mobile payments</td>
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<td>- Outsourcing and globalization</td>
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<td>- Wireless technology</td>
<td>X Integrated with topics</td>
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Examples of Case Studies:

- How/why are standards a competitive advantage?
- How do standards such as BPMN change the value chain?
- How can standards reduce the costs and risks of customers and suppliers?
- Compatibility of standards: Proprietary Standards vs. Open Standards
- Standardization of designing and implementing databases.
- The role of standards in Internet communication, wireless and mobile communication, implications for the market of communication equipment and services.
- Standards for documenting business processes such as BPMN.
- System development and deployment of standards, enterprise capabilities and standards, implications for competitive advantage, and answering the question: How do standards change the game?
- Security standards – domestic, international, government vs. private enterprises, privacy standards vs. cybersecurity standards.
- eCommerce standards, information interchange standards for enterprise communication and transaction services.

This is the most exciting and challenging area where we are targeting most of our efforts. The reason being that we are seeing greater parts of the business world being integrated with these topics. For example, integrating strategy and operations, and technology. The topics we are targeting in this project will be business payments, globalization, standardization, competition, and cloud computing.
Case 1: Software Defined Network
“Is it real or is it SDN?” 1 of 2

Is it real or is it SDN?¹

Cisco Systems, Inc. had been the bellwether for the telecommunication industry since it was founded in 1984 and went public in 1990. It had been the industry providing the infrastructure for the nascent Internet and grew into a business with $46B in revenue in 2012. It had gone through ups and downs in the sometimes-turbulent industry and had rebranded its name to Cisco Systems, Inc. to shed some of its reputation as a company to a “solution” company. Today Cisco Systems has in its portfolio routers, switches, wireless infrastructure, software, services, and entertainment.

The later part of 1990’s and early part of 2000’s can be characterized as the Internet bubble when wealth was created based on unreasonable promises of quick money based on unrealistic business plans and materialize and the dot-com bubble burst in March 2000. This led to newly started dot-com companies and the demand for network equipment. Cisco Systems was hit hard and it had to re-group after having to write down a huge amount of worth of network equipment inventory. Cisco Systems suffered a great deal of experience, retrenched, and re-strategized. It actually gained market share as the industry consolidated and its competition shrank.

At the end of the 2000 decade, Cisco Systems was back in form and it entered into the consumer market by acquiring companies with technology that connect high-speed networks to home networks. It also entered the market for delivering high volume digital contents such as teleconferencing and streaming media.

During this period the telecommunication industry was undergoing a lot of technological changes and cost cutting in infrastructure procurement became the mantra of many enterprises and government agencies. One of the major technological advances that received industry-wide adoption was virtualization.

Virtualization refers to the creation of one or more guest virtual machines on a host machine that is provisioned to operate like a real machine with its operating system and stack components. This is done with a combination of hardware and software capabilities in order to maximize the host machine’s resources as well as minimize the proliferation of physical servers with concomitant space, power and environmental requirements. Virtualization has been used with mainframe computer systems for quite a while but it has become more popular recently with new advances in virtualization software and hardware.

¹Cisco Systems has been mentioned as a notable example of a company that has been successful in the software-defined networking (SDN) market.
Case 1: Software Defined Network
“Is it real or is it SDN?” 2 of 2

Is it real or is it SDN?¹

Cisco Systems, Inc. had been the bellwether for the telecommunication network industry since it was founded in 1984 and went public in 1990. It had been a dominant player in the industry providing the infrastructure for the nascent Internet in its early days and had grown into the largest network equipment manufacturer in the world. In 2000, it introduced an SDN architecture with OpenFlow which was an open API for network devices. However, the industry was skeptical about the potential benefits of SDN.

At the end of the 2000 decade, Cisco Systems was back in form as it forayed into the consumer market by acquiring companies with technology that connect high-speed networks to home networks. It also entered the market for delivering high volume digital contents such as teleconferencing and streaming media.

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Discussion Points

• Industry Competitive Analysis – Michael Porter
  Disruptive Technology
  Competing Standards/Approaches
  ONE, OpenFlow, OpenDayLight

Openness? Open API’s; How Open is Open?

Industry Collaborative Projects
“Keep your friends close but your enemies closer”
Case 2: Electric Car Charging Stations

Power Politics: Competing Charging Standards Could Threaten Adoption of Electric Vehicles

Can a new, global standard take on an existing, widespread fast-charging system? Plus, a timeline of electric-vehicle milestones

By Nick Chambers

To most Americans electric cars are as new a concept as the first combustion vehicles were to horse-and-buggy drivers in the early years of the 20th century. But to the organizations around the world that have been working to make modern electric cars a consumer reality, it has taken decades to get to this point. In fact, the electric car industry is old enough now that it has developed its own internal conflicts—the biggest of which centers on vehicle charging. Unfortunately, engineering groups and
Case 3: Wireless Payment – Wallet Share

Discussion Points
- U. S. Market fragmentation
- Security & Privacy concerns
- SWOT analysis of different methods
- Consumer’s Role with the Technology
- Global Markets

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Rest of the World</th>
<th>US Share</th>
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<tbody>
<tr>
<td>Mobile Payments (2012)</td>
<td>$12.8 billion</td>
<td>$90 billion</td>
<td>14%</td>
</tr>
<tr>
<td>Mobile Payments (2017)</td>
<td>$171 billion</td>
<td>$646 billion</td>
<td>14%</td>
</tr>
<tr>
<td>GDP</td>
<td>$15 trillion</td>
<td>$83 trillion</td>
<td>18.07%</td>
</tr>
<tr>
<td>Ecommerce</td>
<td>$231 billion</td>
<td>$1000 billion</td>
<td>23%</td>
</tr>
<tr>
<td>Mobile payment as a percentage of ecommerce</td>
<td>5.5%</td>
<td>9.0%</td>
<td>-</td>
</tr>
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</table>

Table 1: Mobile Payment Market

Unfortunately even after owning his phone for whole year, George still was carrying his wallet. Mobile payment are a subset of larger electronic payment ecosystem, where a payment is initiated using a mobile device. Mobile payments date back to 1997 when Ccke introduced the first touchless vending machines based on Simple Messaging Service (SMS) payments. Initially, the system was used for simple tasks like downloading ring tones and buying movie tickets, using SMS, and payments were billed directly to the customer’s mobile account. The big push came from some Asian countries, like Japan and Philippines, where commercial mobile commerce platforms were launched, and Europe, where mobile parking payments, train ticketing, and flight bookings were taking form. In 2002, the European Telecom Standards Institute issued the first guidelines, “Mobile Commerce (M-Comm); Requirements for Payment Methods for Mobile Commerce”. However, these requirements were minimal and basically laid down the essential features needed to support a mobile payment platform.
Standards-essential Patents
IP and FRAND discussions

Success Story of Standards-compliant Active RFID Deployment

Battle over wireless power standards
By Chris Nuttall in San Francisco