E-business

Lecture 3 Impact of information and communications technology ICT on business community:

PART 1 READING – CONSOLIDATION

Students should understand the difference between e-commerce and e-business
The layered paradigm of Internet ecosystem
What is a business model and types oft internet business models, their ways of value creation and sources of revenues

Internet ecosystem –layered approach

- **Layer 1 - the Internet infrastructure layer.**
- This includes trade in products and services that provide for the electronic infrastructure. It encompasses Internet backbone providers, **Internet service providers***, networking hardware and software (e.g. Cisco), PC and server manufacturers (e.g. Dell), security vendors (e.g. Norton) and fibre optic manufacturers (e.g. Corning)
- **Layer 2 - the Internet applications layer -**

  This includes products and services that build upon the infrastructure layer and make it technologically feasible to undertake business activities online.

  Categories include all software applications such as:
  browser and server software (e.g. Microsoft),
  multimedia (e.g. graphic design Adobe systems),
  Web building (e.g. Adobe),
  search engines (e.g. Google)
  multimedia (e.g. Macromedia),

  databases (e.g. Oracle), on-line training (e.g. Assymetrix, ilearn.to) and consultancy (e.g. Scient).

- **Layer 3 - the Internet intermediary layer**
- Internet intermediaries seek to increase the efficiency of electronic markets by facilitating the meeting of buyers and sellers and their interaction. Categories include

Web portals (e.g. Yahoo), brokerages (e.g. Schwab), content aggregators – news websites (e.g. ZDNet), market makers (e.g. IFX) and online advertising brokers (e.g. Doubleclick).

Layer 4 -the Internet commerce layer –

This layer concentrates on Web-based commerce transactions. It includes the new 'e-tailers' (e.g. Amazon.com), manufacturers (e.g. Dell), fee/subscription-based providers (e.g. Forrester) and online entertainment (e.g. Netflix, Disney) and professional services (e.g. KPMG)

The business model is a holistic management approach that reflects the fundamental value creation logic, value creation architecture and the functioning of a company (Timmers 1998). Here, various sub-models can be considered, which can be assigned to the strategic domain, the customer and market domain or the value creation domain. Since the late 1990s business models have evolved to an established management tool, and accordingly have gained an increasing importance within the scientific literature.

Internet business models

1. which consist primarily of the area of **Content**, focus its activities on the collection, selection, systematization, processing and distribution of information. These are allocated on their own online platforms. The central **value proposition** in this type of business model is the user tailored access to relevant content.
   Revenues are generated through advertising, subscriptions and charges for individual content. The variants of the content business model are distinguished by their different accents of entertainment and information services.

The Wall Street Journal online is an example of a company that focuses on this type of Internet business model.

2. In contrast, the Internet business model **Commerce** focuses on the initiation, support or handling of business transactions. A market platform that provides both sellers and buyers an efficient environment, in this context consequently represents **the value proposition. Revenues** will be achieved either directly through sales or as an intermediary through commissions. Further differentiation of this type of business

model is possible through the different phases of a purchase transaction which are supported by the online platform (initiation, negotiation, implementation).

Amazon is an example of a company for the Commerce model which both attains direct sales revenues as well as commissions from its marketplace platform.

3. Internet companies that specialize in the **Context** type of business model are characterized in their value creation mainly through the aggregation, sorting and processing of information. Thereby, the central **value proposition** is the reduction of intransparency as well as complexity between various Internet offers to the user that are manifested for example by a shorter information processing task. To a great extent **revenues** are achieved through advertising and as alternatives of the business model the search engine and catalogue approach is available.

Google is an example of a company that uses the Internet business model type Context.

4. Internet business models whose value creation is primarily focused on the provision of physical or virtual network infrastructure are assigned to the category **Connection**. This infrastructure provides the requirements for exchanging information over the Internet as a key **value proposition**. Basically it can be distinguished between two variants of this business model. First, there are IntraConnection providers that provide communication services within the Internet and in the broadest sense feature a community-concept. On the other hand, there are Inter-Connection companies that primarily establish and merchandise access to the physical networks. **Revenues** are realized in the Connection business model through advertising, subscriptions or time- or volume-based billing.

Facebook is an example of a company that is primarily characterized by Intra-Connection and Vodafone is an example of the Inter-Connection model.

PART 2 READING /WATCHING – CONSOLIDATION

Students should describe milestones in economic history

Historical perspective – knowledge-based economy

Economic history can be divided into three eras:

- **The industrial revolution**.
  From the late eighteenth century onwards, knowledge was applied to tools, processes and products
- **The productivity revolution**.
  From 1880 until World War II knowledge was applied to work
- **The management revolution**.
  From World War II onwards, knowledge applied to knowledge itself; **all economic and social transactions are driven by technology**

  The Third Industrial Revolution utilized electronics and information technology to automate production and manufacturing, it is ongoing process.

READING 2

Technology-driven revolution 4.0

Students should be able to define:
• Cloud
• Big Data
• Nanotechnology and examples of its application
• Biotechnology and examples of its application
• Main features of Technology-driven revolution 4.0
• Emerging trends in e-commerce – social commerce and value creation and sources of revenues

MAIN FEATURES: the convergence and complementarity of emerging technology domains, including**:**

- Nanotechnology -**the use of matter on an atomic, molecular, and supramolecular scale for industrial purposes.**

  Nanotechnology is helping to considerably improve, even revolutionize, many technology and industry sectors: information technology, homeland security, medicine, transportation, energy, food safety, and environmental science, among many others. Described below is a sampling of the rapidly growing list of benefits and applications of nanotechnology.

  Many benefits of nanotechnology depend on the fact that it is possible to tailor the structures of materials at extremely small scales to achieve specific properties, thus greatly extending the materials science toolkit. Using nanotechnology, materials can effectively be made stronger, lighter, more durable, more reactive, more sieve-like, or better electrical conductors, among many other traits. Many everyday commercial products are currently on the market and in daily use that rely on nanoscale materials and processes:

  - Nanoscale additives to or surface treatments of fabrics can provide lightweight ballistic energy deflection in personal body armor, or can help them resist wrinkling, staining, and bacterial growth.
  - Clear nanoscale films on eyeglasses, computer and camera displays, windows, and other surfaces can make them water- and residue-repellent, antireflective, self-cleaning, resistant to ultraviolet or infrared light, antifog, antimicrobial, scratch-resistant, or electrically conductive.
  - Nanoscale materials are beginning to enable washable, durable "smart fabrics" equipped with flexible nanoscale sensors and electronics with capabilities for health monitoring, solar energy capture, and energy harvesting through movement.
  - Lightweighting of cars, trucks, airplanes, boats, and space craft could lead to significant fuel savings.

  Source: Applications of Nanotechnology | National Nanotechnology Initiative

- **Biotechnology** - What is understood by the integration of Biotechnology and the Industry 4.0 is the incorporation of digital systems and technologies (big data, IoT, cloud computing, advanced robotics, virtual simulation, artificial intelligence, 3D printing) to Biotechnology activities, in order to allow the integration of physical

systems with virtual systems (cyber-physical systems). It has been used by large Biotechnology companies, and partly also by academic laboratories. But compared to manufacturing and service industries, Biotechnology needs to evolve in the automation of research laboratories for productivity and quality to improve exponentially. A fully-automated laboratory uses robots or other networked computer devices to monitor experiments and gather more accurate data.

There are three fields of biotech: agricultural biotechnology, which includes the development of genetically modified crops; industrial biotechnology, which includes the production of chemicals, paper and textiles; and medical biotechnology.

What are the main themes around biotechnology?

Big Data

The rapid evolution of big data technologies, including AI and Machine Learning, will have a major impact on the biotechnology sector; the need to process and analyze the vast volumes of data generated both in the research phase, and subsequently in the application phase means that the effective exploitation of advances in data science will become an increasingly significant differentiator.

Cloud

Cloud computing offers small firms the ability to get access to computing power at a scale that was, until relatively recently, only available to the largest organizations. Cloud computing allows small organizations to compete with much larger competitors where it comes to the processing and analysis of data on a large scale.

Robotics and 3D Printing

The building of automated manufacturing systems and the creation of novel devices and machines has been made easier, quicker, and less expensive thanks to innovations in the fields of robotics and 3D Printing. Indeed, 3D printing is already being directly applied to biotech in the form of bio-printing human tissue and human organs.

Source: What is biotechnology in business and why does it matter? (verdict.co.uk)

Biotechnology and Industry 4.0: The professionals of the future, by Gilson José da Silva1, Antonio Carlos Massabni

WATCHING, QUESTIONS FOR DISCUSSION

The following tutorial can be helpful to get familiar with basic terms:

1. Big Data In 5 Minutes | What Is Big Data?| Introduction To Big Data |Big Data Explained |Simplilearn

https://www.youtube.com/watch?v=bAyrObl7TYE

2. What is the Fourth Industrial Revolution?

https://www.youtube.com/watch?v=kpW9JcWxKq0

then

1. Describe what attitudes do the speakers present in this video?
2. What significant shifts are expected in 4th IR?

PART 3 READING 3

Future trend – social commerce

What is social commerce?

We are in the midst of a radical global technological and economic transformation. The fast proliferation and wide-adoption of Web 2.0 technologies have given rise to a new class of customers, called **social customers**. Social customers are technologically empowered, digitally resourceful, and globally connected.

Social commerce is the use of social media platforms like Facebook and Instagram to market and sell products and services. This type of selling model lets customers complete purchases without leaving social media apps.

Shoppers can use social commerce to:

- Discover brands
- Research products
- Interact with customer support
- Purchase items

Social commerce is a more convenient and interactive shopping experience which may explain why it's becoming increasingly popular.

Social commerce differs from traditional social media marketing strategies where shoppers view a brand's content and visit their website to start shopping. Instead, social platforms like Facebook Shops and Instagram Shops act as virtual storefronts.

Social commerce is booming because social media usage is. Research shows the typical social media user now spends about 15% of their waking life on social platforms, with 10% of US adults having an addiction to at least one app.

Currently, in the US, Gen Z and millennials are the most likely social network users to have made at least one purchase via a social channel.

Social commerce is a simple way to promote and sell products. For example, while scrolling on Instagram you may see a set of skin care products, tap **Shop Now**, add it to your shopping cart, and check out within the app.

Social commerce and ecommerce are not the same. Ecommerce is a shopping experience that takes place on a website or branded app. These sites are usually built on ecommerce platforms like Shopify. Consumers can access these sites on any internet-enabled device, such as a desktop, tablet, or mobile device.

Social commerce is a subset of ecommerce and refers to shoppers making their purchases within social media platforms—everything from product research to checkout happens within the social media platform.

With social commerce, brands can sell through their social media platforms. There's no requirement to have their own ecommerce site to get set up with social media platforms' native selling tools. But, online retailers that do have a website with an online store can benefit from directing leads to their website too.

Social commerce is sometimes confused with social selling. But social selling is the process of building relationships to later make a sale. Social selling can take place offline or online but often takes place through social media platforms.

Changes in the social commerce context necessitate companies **to expand their thinking beyond the goal of optimizing a two-way relationship between an enterprise and a customer (e.g., one-to-one interaction via closed, well-defined channels) to include the simultaneous interactions that customers have among themselves and with other companies including their competitor companies on social platforms, which we term ''many-to-many'' interactions in the service ecosystem**.

WATCHING, QUESTIONS FOR DISCUSSION

Questions:

What is the business model of Pinduoduo?*

What are advantages of social commerce and Chinese approach to e-commerce?

What makes PDD's successful and competitive to established western e-commerce businesses?

Please watch two short films and give answers to the above questions.
What is Pinduoduo? https://www.youtube.com/watch?v=7eiP0tLquFE
Then, What's 'Social Commerce'? What Does China's Pinduodo Do?

https://www.youtube.com/watch?v=F24Qd_sCMEk&t=243s

*Pinduoduo Inc. is the largest agriculture-focused technology platform in China and also the biggest online shopping platform in terms of the number of active users (In March 2021 it surpasses Alibaba also). It has created a platform that connects farmers and distributors with consumers directly through its interactive shopping experience CM consumer to manufacturers commerce. It was founded in 2015 and today has become China's highly competitive online marketplace for agricultural products with annual revenue of $9,000mn as of 2020.