ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ

Ψηφιακή Οικονομία

Διάλεξη 2η: Introduction to Service Science

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Course Outline

- **Part I: Service Science**
  - **Introduction**
  - Basics of Network Economics
    - Supply Chains
    - Service Value Networks
  - Tools
    - Vensim

Service Science Management and Engineering (SSME)

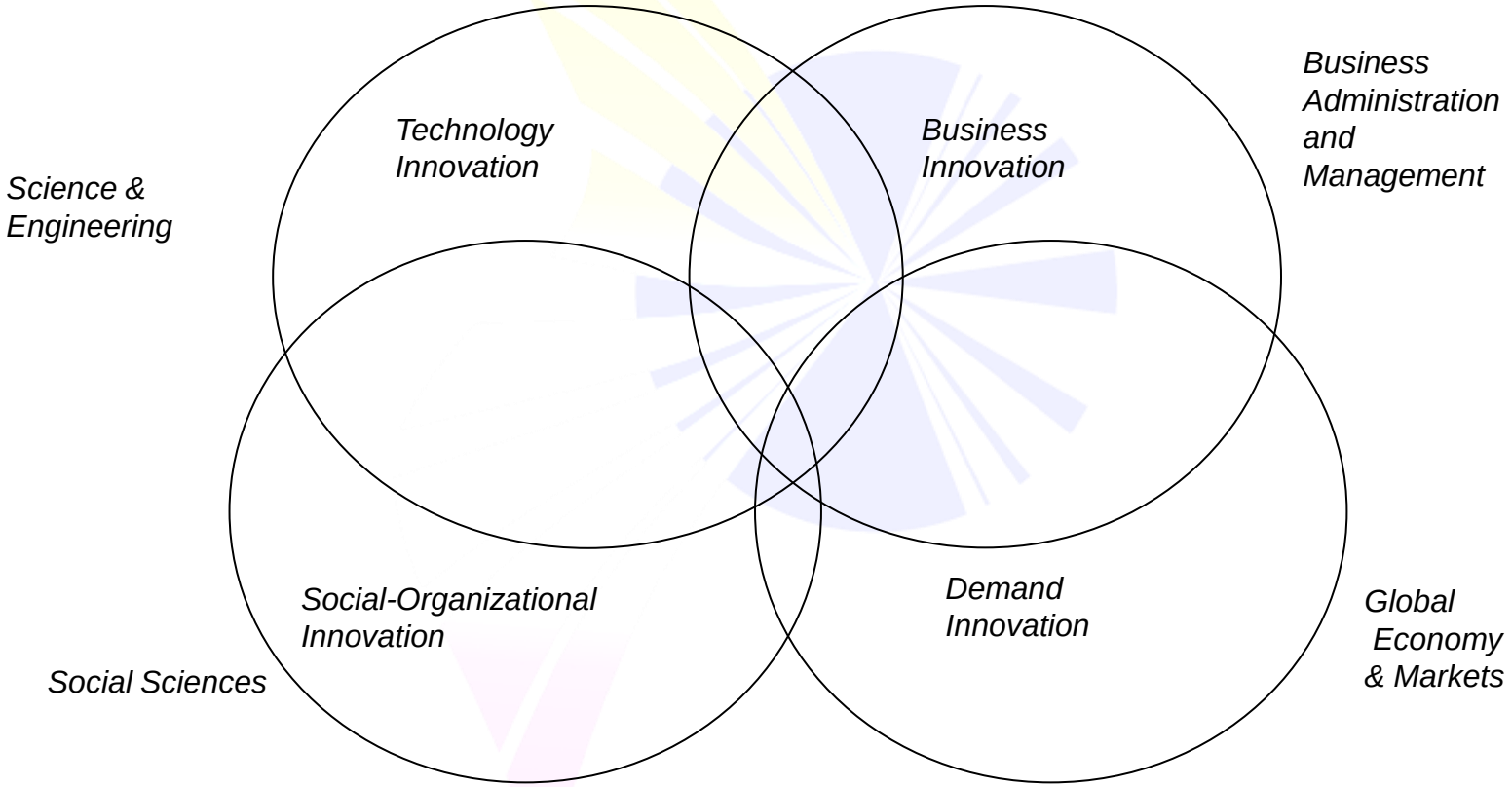
- SSME is the application of
  - Scientific, management, and engineering disciplines to tasks that one organization beneficially performs for and with another (i.e., services).
- SSME goal
  - Make productivity, quality, performance, compliance, growth, and learning improvements more predictable in (co-production) relationships.
- SSME is the study of service systems
  - Aimed at improving service systems

Why is SSME Important?

- The world is becoming networked, dependent on information and information technology
- Science will provide tools and methods to study services and develop solutions to problems that span multiple disciplines
- Graduates may be solution designers, consultants, engineers, scientists, and managers who will grow into becoming entrepreneurs, executives, researchers, and practitioners

Service Innovation is Inherently Multidisciplinary

Knowledge sources driving service innovations…



SSME = Service Sciences, Management, and Engineering

How to Define Services?

- *The Economist: a service is* “anything sold in trade that cannot be dropped on your foot.”
- As an **economic** category, a service is the non-material equivalent of a good – that may be used or consumed but not owned
- In a **technological** sense, a service is one or more software programs, devices and networks working together to supply an end-user a coherent application

Examples of Service Business

- Accounting
- Government
- Legal Services
- Medical
- Banking
- Transportation
- Consulting
- Education
- Entertainment
- Public Services
- Real Estate
- Hospitality

Source: SSME Harry Perros (http://www4.ncsu.edu/~hp/SSME.pdf)

Service Characteristics

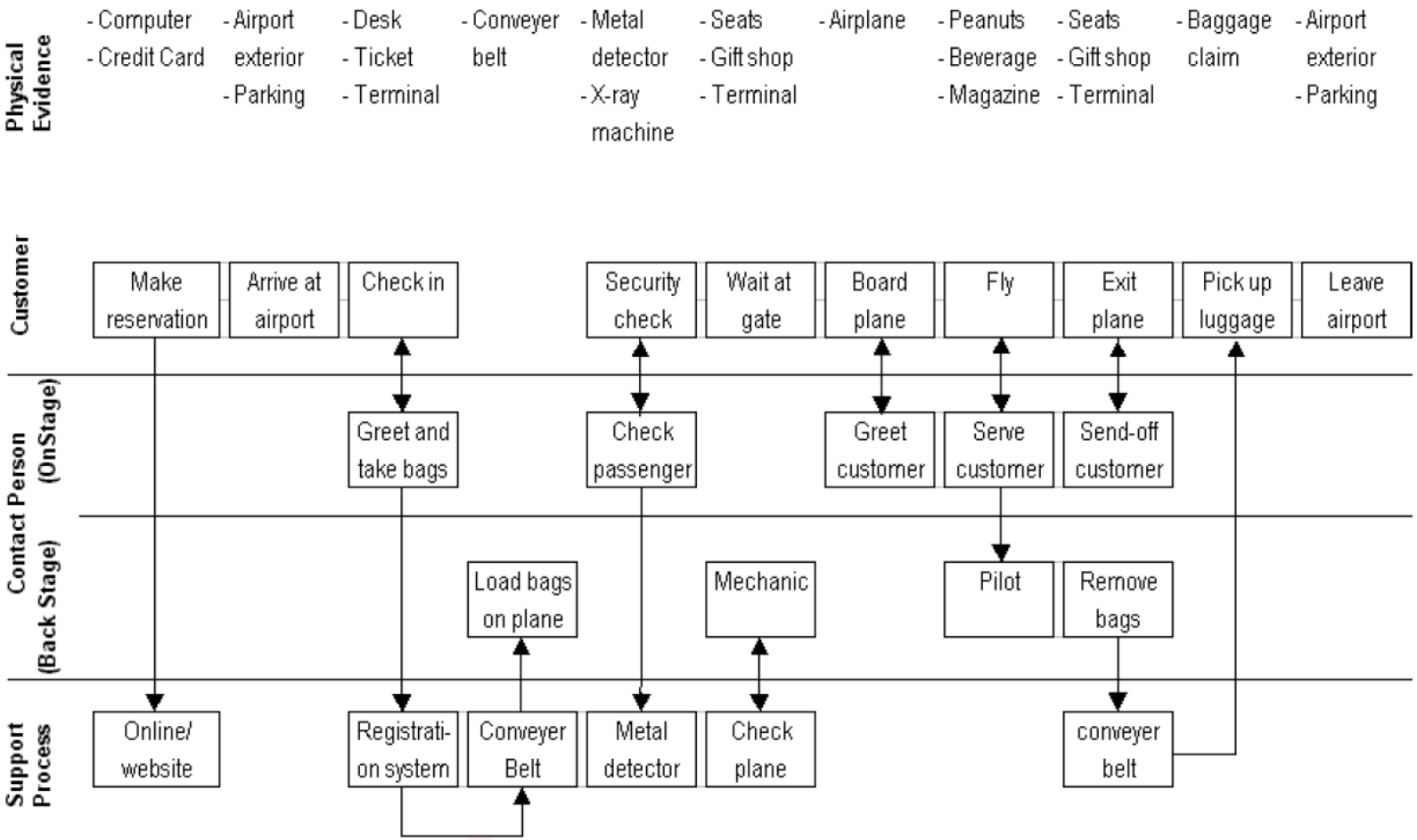
- Services are co-produced by the customer and the provider
  - The customer provides content: self, belongings, information
- Simultaneous production and consumption
  - Major portions of a service cannot begin until the essential customer inputs are received
- Time perishable capacity
  - the capacity to produce a service is perishable if it is not consumed: if no demand is present we can not produce and then store the product in inventory for future demand
  - e.g. in an airline, if no one is sitting in a particular seat during a flight, the capacity on that flight cannot be held until later demand

Source: SSME Harry Perros (http://www4.ncsu.edu/~hp/SSME.pdf)

Service Characteristics

- Production process
  - Pre-production process (Hospital: supplies, training staff)
  - Production phase (Hospital: surgery, administering medication)
  - Post-production (Hospital: patient follow-up)
- Service blueprint
  - Can be used to depict the different parts of the service (front office/back office), their interdependence, the customer inputs, and service outputs
- Customer proximity
  - The location where the service is provided has to be near where the customer provides the inputs

Blueprint for Flying



Goods versus Services

- Tangibles (stored in inventories)
- Value added (set prices based on added costs)

- Transactions
- Maximizing profits
- Costs: raw materials, labour, equipment

- Intangibles (immediate consumption)
- Value proposition (value is co-created by providers and customers)

- Relations
- Financial feedback
- Costs: development, marketing, technical support

Source: Robert Lusch et al, "Marketing as Service-Exchange: Taking a Leadership Role in Global Marketing Management, 2006"

How to Define Service Systems?

- Service systems comprise service providers and service clients working together to co-create **value** in complex value chains or networks
- Service science combines social science, business and engineering to provide theory and practice around service innovation
- Traditional economy shifts to the service and information-based economy

Source: Jim Spohrer et al, "Steps Toward a Science of Service Systems 2007"

Historical Perspective – Why Today's Complex Service Systems

- *Rural economies*: mainly used market places
- *Industrial economies*: mainly used hierarchies + market places
- *Service economies today*: mainly use ICT enabled around-the-globe networks:
  - Global cheap communications (abundant bandwidth, VOIP, teleconferencing, collaborative tools, etc.)
  - ICT enabled contract management and monitoring;
  - Mechanisms for trust building in global networks (reputation/recommendation systems, third party registries, etc.)
  - More flexibility than in vertical organizations

How to Define the Value of a Service?

- Value for whom?
  - For the customer: credibility of result, tangible and memorable experience, attentiveness, responsiveness and speed, ease of use, consistency, willingness to pay;
  - For the provider: cost, productivity, capacity utilization, barrier to entry
  - For the provider's employee: compensation and tips, working conditions, participation initiative, sense of belonging, self-esteem, challenge
- A successful service co-creates value for both provider and consumer

Source: James Teboul, "Service is Front Stage, 2006"

Open Design and Research Issues for Service Systems/Networks

- How can we make sure that business objectives (customer satisfaction, market share, time to delivery, etc.) for each participant to the service network and for the whole network, are **observed, as the network is designed/operated?**
- Can we translate "business pains" to:
  - Either redesign of business processes (solution engineering),
  - and/or to redesign of the whole Service Net
- Can I answer the following questions:
  - How is my service net doing compared to my own or the net's business objectives?
  - What if I (a service net partner) added/removed/modified links?
  - What if I participated in another value net?
  - Are there opportunities for forming new service nets around new, possibly innovative service propositions?
- We therefore need tools, models and methodologies to study Service Networks

What kind of Models do we need for Service Networks?

- We need mathematical and simulation models to study and predict performance of service networks, study competition between them, winning strategies, etc
- We need visual models to visualize their size, which ones are the important participants, etc
- We need programming models to study the structure and behavior of service networks, to understand the interaction dynamics among participants

Τέλος Ενότητας

Χρηματοδότηση

•Το παρόν εκπαιδευτικό υλικό έχει αναπτυχθεί στα πλαίσια του εκπαιδευτικού έργου του διδάσκοντα.

•Το έργο «**Ανοικτά Ακαδημαϊκά Μαθήματα στο Πανεπιστήμιο Κρήτης**» έχει χρηματοδοτήσει μόνο τη αναδιαμόρφωση του εκπαιδευτικού υλικού.

•Το έργο υλοποιείται στο πλαίσιο του Επιχειρησιακού Προγράμματος «Εκπαίδευση και Δια Βίου Μάθηση» και συγχρηματοδοτείται από την Ευρωπαϊκή Ένωση (Ευρωπαϊκό Κοινωνικό Ταμείο) και από εθνικούς πόρους.

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Ευρωπαϊκό Κοινωνικό Ταμείο

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επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ
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ΕΣΠΑ 2007-2013
πρόγραμμα για την ανάπτυξη
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Σημειώματα

Σημείωμα αδειοδότησης

Σημείωμα Αναφοράς