Customer satisfaction: review of literature and application to the product-service systems

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Goals

- to provide ideas and suggestions for how customer satisfaction with PSS can be evaluated.
  - Overview of existing concepts and schools of thoughts from different disciplines.
  - Presentation of frameworks and tools that are used for understanding consumer satisfaction with products and services.
  - Evaluation of frameworks' applicability for estimating customer satisfaction with PSSs.
  - Suggestions on how these tools could be used in the PSS context.

Methodology

Disciplines
- Business management & marketing
- Economics
- Social studies
- Psychology
- Environmental studies

Attitudes
- Consumer behaviour

Behaviours
- Acceptance

Methods
- Techniques

Kano Model of Customer Satisfaction

Satisfaction

Unfulfilled requirements

Surprise and delight attributes (unspoken) → Fulfilled requirements

Basic or expected attributes (spoken) → Unfulfilled requirements

Kano et al. (1996)
Innovation framework

- first knowledge of an innovation
- forming an attitude toward the innovation
- decision to adopt or reject
- implementation of the new idea
- confirmation of this decision

Time of adoption of innovation

2% innovators
13.5% Early adopters
34% Early majority
34% Late majority
16% laggards

(Rogers 1995)

Service Quality Model

- Expected service
- Perceived service quality
- Corporate image
- Technical solutions
- Technical quality
- Business rules
- Conspicuousness
- Employe's technical ability

(Grönroos 1982)

The Total Perceived Quality

- Expected quality
- Total Perceived Quality
- Experienced quality
- Market communication
- Image
- Word-of-mouth
- Customer needs
- Functional quality
- Technical quality

(Grönroos 1988)
The SERVQUAL model

Determinants of service quality:
- Access
- Communication
- Competence
- Courtesy
- Credibility
- Reliability
- Responsiveness
- Security
- Tangibles
- Understanding the customer

Word of mouth
Personal needs
Past experiences

Expected service
Perceived service
Perceived service quality

(Parasuraman, Berry et al. 1985)

Toolbox for measuring customer satisfaction

- Customer satisfaction surveys
- In-depth interviews
- Focus group interviews
- Observations
- Mystery shopping
- Psychographic portrait of customers

Kano Model of Customer Satisfaction

Satisfaction
Unfulfilled requirements
Dissatisfaction

Performance attributes (spoken)
Basic or expected attributes (unspoken)
Surprise and delight attributes (unspoken)

Fulfilled requirements

Kano et al. (1996)

Data collection methods for different attributes

Unspoken
- Dissatisfies
  - Fundamental national factors
  - Critical incident techniques
  - Detection studies

- Core Benefits
  - Interviews
  - Focus groups

Spoken
- Delighters
  - User groups
  - Customer partnerships
  - Comparing the non-comparables

- Differentiators
  - Interviews
  - Focus groups
  - Benchmarking
  - Surveys

Basic
Performance/Delight
Service Attribute Dual Importance Grid (Jacobs 1999)

Motivational importance

- Surprise and delight attributes
- Performance attributes
- Basic or expected attributes
- Billing accuracy
- Other attributes (low influence)

Direct importance

- Personal assistance
- Service reliability

Why PSS: system

Provide system solutions seeking the perfection in integrating system elements along with improving resource and functional efficiency of each element.

- Extraction
- Design
- Production
- Sale
- Use
- End-of-life
- EPR principle
- Life Cycle Assessment
- Flow analysis
- Water and waste management
- Technical regulations

Why PSS: ownership structure

Assumption: type of ownership influences the volume and speed of the material flow in an economy

- Producer responsibility
- Consumer responsibility

Why PSS: ownership structure

Producer responsibility

- Resource
- Design
- Manufacture
- Sale
- Use
- End-of-life

- Offer
PSS is a system of **products, services, supporting networks (actors) and infrastructure** that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business models.

**Defining PSS**

- **Product**
  - Products
  - Technologies

- **Service**
  - Person-based services
  - Technical, knowledge, information services

- **Infrastructure**
  - Support technology
  - Ambient conditions
  - Spatial layout
  - Signs, artefacts

- **Networks**
  - Partners and suppliers of service provider

**Mapping PSS from consumer perspective**

- line of interaction: customer actions
- line of visibility: “on-stage” contact and employee actions
- line of internal interaction: “backstage” contact and employee actions
- support processes

Zeithaml and Bitner (1996)

**Evaluating satisfaction with PSS**

**Conclusions from the study**

- Product is not just a function, but a complex system
- Consumer is a moody creature
- Changing design of PSS may change behaviour
- Problem is not in tools, but in analysis frameworks
- Complex system requires combination of tools
- Evaluating PSS based on attributes of each dimension: products, services, infrastructures, and networks
- Every discipline deals with consumption
- Multi-disciplinary area – concerted effort