STOF Model & Mobile Ticketing

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Antero Juntunen / Doctoral Student
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STOF Model

- STOF: Service, Technology, Organization, Finance
- A framework for analyzing business models

Source: Bouwman et al., 2008
STOF Model

- Gives a holistic view of the business model of a service
- One problematic detail may be enough to cause an otherwise functional service to fail
- STOF Model can help in identifying the key points which could cause a service to fail
- Identifying these points early makes it easier and cheaper to fix any problems

Source: Bouwman et al., 2008
Service Domain: Important concepts

- Value proposition
- Customer, End User, Market Segment
- Context
- Pricing
- Effort (ease of use)
- Bundling

Source: Bouwman et al., 2008
Technology Domain: Important concepts

• Technical Architecture
  – Applications
  – Devices
  – Service Platforms
  – Backbone Infrastructure
  – Access Networks
• Data
• Technical Functionality
• Security
• Quality of Service
• System Integration

Source: Bouwman et al., 2008
Organization Domain: Important concepts

• Actors
• Roles
• Value Network
• Interactions and Relations
• Strategies and Goals
• Resources and Capabilities
• Value Activities
• Organizational Arrangements

Source: Bouwman et al., 2008
Finance Domain: Important concepts

• Revenues and Revenue Sources
• Costs and Cost Sources
• Performance Indicators
• Capital and Investment Sources
• Risks and Risk Sources
• Financial Arrangements

Source: Bouwman et al., 2008
STOF Method

- A step-by-step approach to designing business models for specific services
- Most useful in the early stages of service innovations
- Can be used with desk research, interviews, surveys, focus groups, etc.

Source: Bouwman et al., 2008
• Business models are not static, but they have to be changed over time
Mobile Ticketing
Research Methods

• Literature review
• 8 expert interviews
  – MNO
  – PTO
  – handset manufacturer
  – IT service company
• Theoretical framework: STOF Model
Introduction

- Travel cards: contactless smart card
- Short ranges (< 10 cm)
- ISO 14443 standard
- Commonly used in public transportation in numerous cities throughout the world

- The reader sees the phone as a travel card
- Near Field Communication (NFC)
  - Three modes: card emulation, reader/writer, peer-to-peer
- Many potential applications (mobile payment, access control, tag reader), ticketing a potential breakthrough service
Service Domain (1)

- NFC mobile ticketing brings concrete benefits to end users:
  - No need to carry an extra smart card with you
  - You’re less likely to forget your mobile phone
  - Purchasing tickets anywhere, anytime
  - Being able to check your tickets / value
  - Possible value-added services

- Using a mobile phone for ticketing should be at least as easy as using travel cards
Service Domain (2)

- Users should be able to choose from multiple payment options (e.g., pre-paid, real-time, post-paid)
- Smart posters or NFC tags may be used to help customers buy tickets
- Customer service should be arranged in a clear way for the user
- SMS-based ticketing has been used for spur-of-the-moment purchases - what about NFC?
- Adopting the service and buying the first ticket should be easy and quick as possible
Technology Domain

• NFC compatible with ISO 14443: existing reader infrastructure can be used
• A lack of NFC handsets currently on the market, which is a symptom of other issues such as unclear business models
• UICC ("SIM card") currently the choice for secure element
• Negative perceptions of the security and privacy with NFC handsets and RFID in general could be an issue
Organization domain (1)

- Public Transport Operators (PTOs) should benefit from mobile ticketing:
  - Reduced handling of cash
  - Remote ticket sales
  - Increased customer self-service and convenience

- Mobile Network Operators (MNOs) have multiple roles in the value network
  - Secure Element Issuer
  - Subsidizing Handsets
  - Transferring data
  - Possibly: Billing and Customer Service
Organization domain (2)

- Banks needed for more elaborate payment solutions as issuers of electronic money
- Friction between banks and MNOs one factor slowing NFC deployment:
  - Control of customers and applications
  - Revenue sharing
  - Security requirements and certification of UICCs
- Handset manufacturers balance between banks and MNOs and try to have options for different business models
Finance Domain

• MNOs make the biggest investments:
  – Ordering NFC handsets
  – New UICCs needed
• MNOs have agreed to not charge transaction fees
• MNOs may charge rent for applications residing on the UICC
  – Too high fees could make NFC services uneconomical
  – Banks as co-issuers of secure elements?
• PTOs don’t need to invest in new reader hardware
Conclusions (1)

Drivers

• Intuitive touch-based interaction of NFC mobile phones
• Mobile Ticketing provides real value for customers
• Compatibility with the legacy ticketing infrastructure
• Reduced costs in ticketing for PTOs
Conclusions (2)

Barriers

• Usability may always be an issue with mobile software, especially with multiple NFC applications
• Uncertainties with the value network and revenue sharing
• Limited availability of handsets: the most immediate barrier (chicken-and-egg problem)
• Negative perceptions of the security and privacy of NFC and RFID technologies
Suitable journals & conferences for telecommunication business

• Journals
  – Info - The journal of policy, regulation and strategy for telecommunications
  – IJMC - International Journal of Mobile Communications
  – IJESMA - International Journal of E-Services and Mobile Applications

• Conferences
  – HICSS - Hawaii International Conference on System Sciences
  – ICMB - International Conference on Mobile Business
  – ECIS - European Conference on Information Systems
References & contact information


- Contact us as sakari.luukkainen@aalto.fi and antero.juntunen@aalto.fi