User-centric mobile service provisioning: Technologies, economics, & regulations

Hong Chen

Rotterdam School of Management
hchen@rsm.nl

RSM
ERASMUS
UNIVERSITY

Outline

Introduction

User - centric service provisioning

Individual mobile services and tariffs

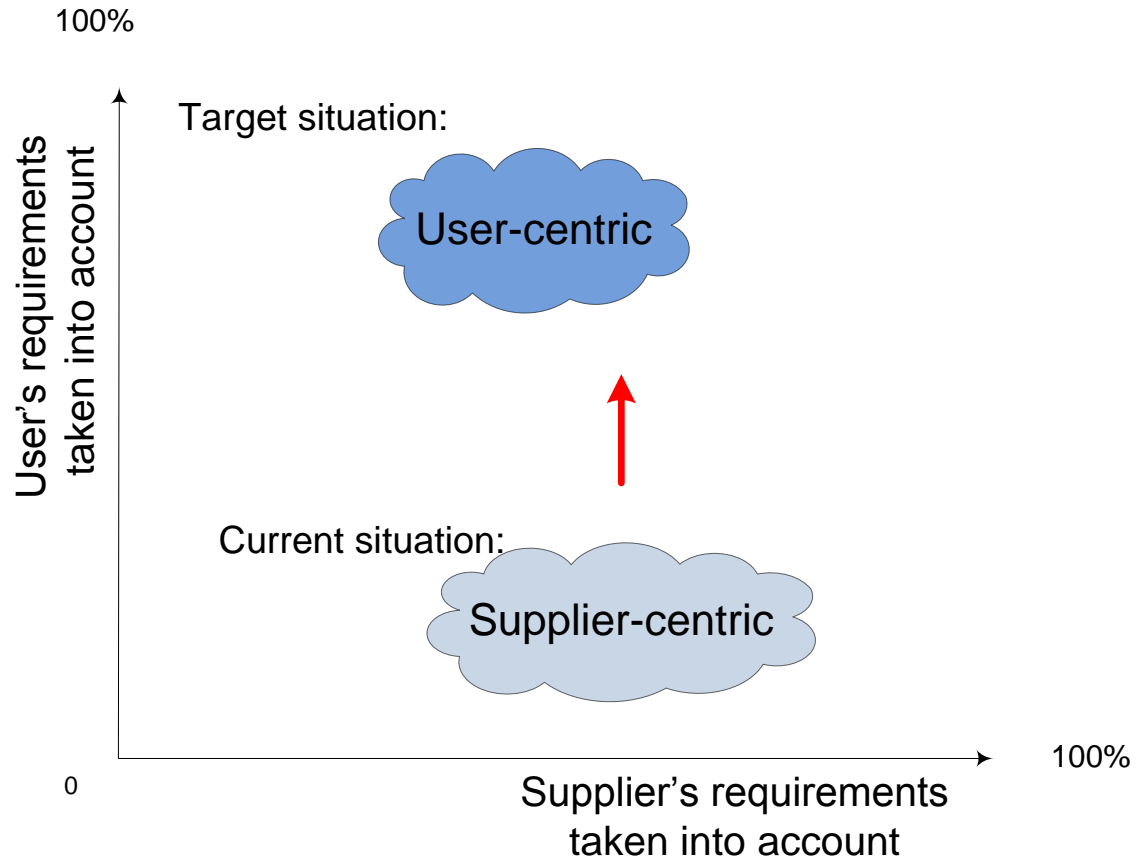Further research

Introduction

Supplier challenges

- Largely saturated markets (high churn rates , huge marketing & customer retention costs)
- Technology push and customer pull for converged service
- High pressure on overstaffed incumbent operators to reduce operational processes & costs
- Insufficient investments in service creation, in content access rights

User needs and expectations

- Specific services / bundles that meet their specific demands
- Reduce cost and simplify services / bundles
- Greater flexibility in contract length

User-centric service provisioning

100%

Target situation:

User-centric

Current situation:

Supplier-centric

User's requirements taken into account

0

100%

Supplier's requirements taken into account

Research challenges

Ensure ubiquitous service experience when user is on the move

Technologies

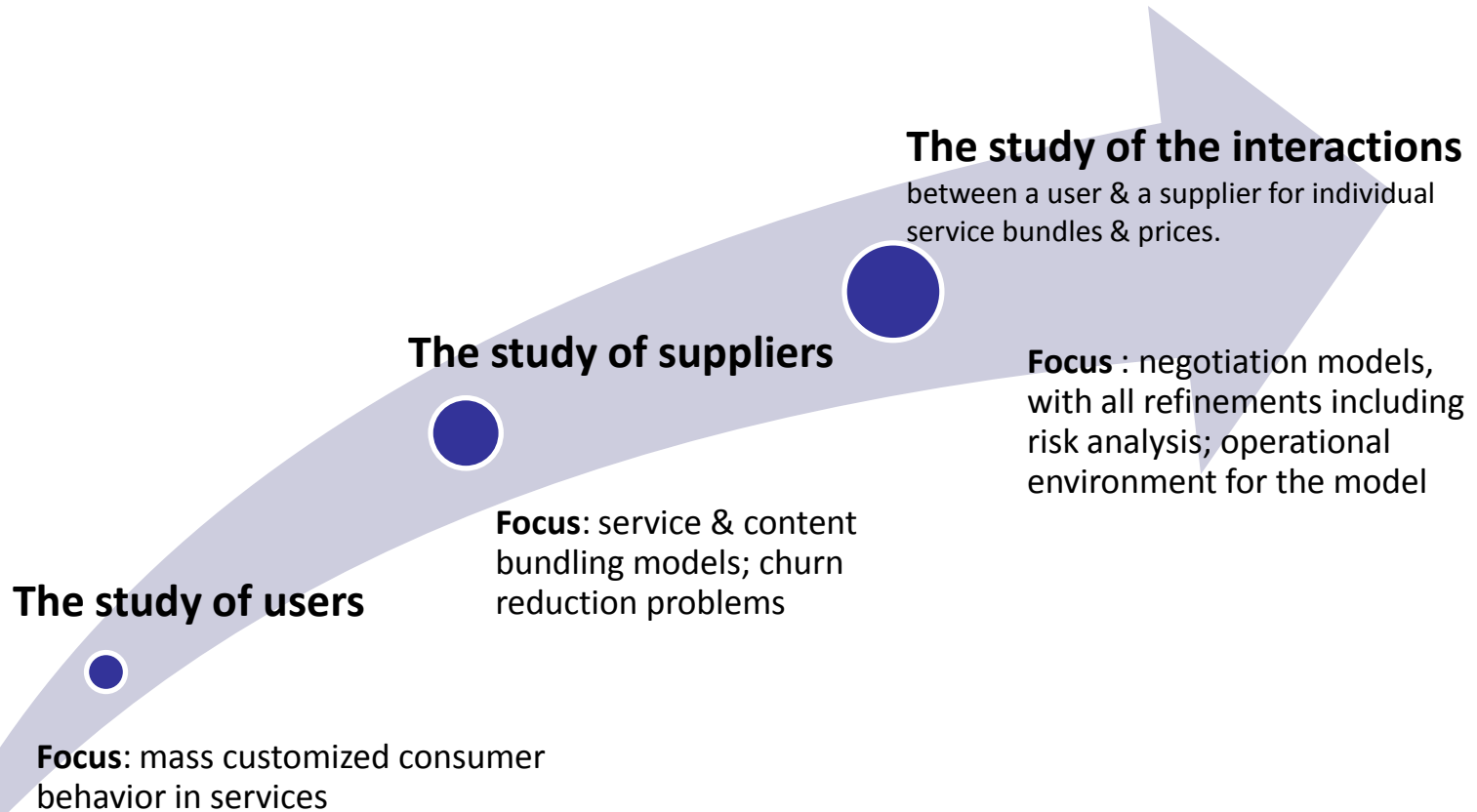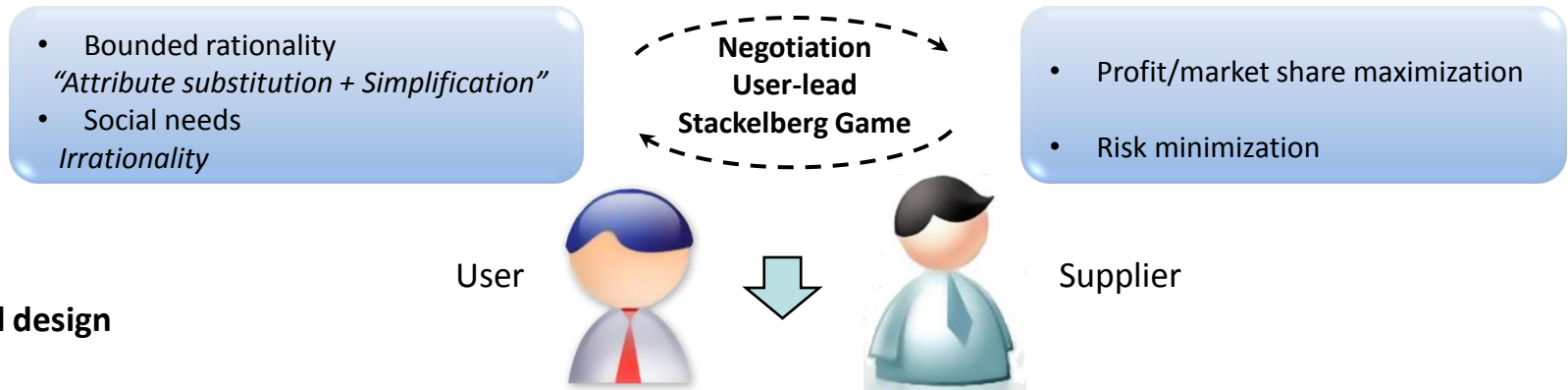Services and tariff individualization, business models, risks

IPR issues in converged services; multi-channels

Economics

Regulations

Individual mobile services and tariffs

The study of the interactions
between a user & a supplier for individual
service bundles & prices.

The study of suppliers

Focus : negotiation models,
with all refinements including
risk analysis; operational
environment for the model

Focus: service & content
bundling models; churn
reduction problems

The study of users

Focus: mass customized consumer
behavior in services

RSM
ERASMUS
UNIVERSITY

Design

Conceptual framework

- Bounded rationality
  "Attribute substitution + Simplification"
- Social needs
  Irrationality

**Negotiation
User-lead
Stackelberg Game**

- Profit/market share maximization

- Risk minimization

User

Supplier

Computational design

Service perceptual space

- Utility function (distance-based)
- Constraints
- Decision rules
  - "Close enough" to my preferences

**Negotiation game
Algorithms**

Service design space

- Utility function (Δprofit)
- Constraints
- Decision rules
  - Maximum profit with minimum risk at user group level

Operator business model : OPEX, CAPEX, Profit
Operator model characteristics:
- Non-linearities and discontinuity
- Switching between different access technologies
- Service specific CRM, OSS, billing aspects
- Manpower costs

Computational evaluation (I)

Case 1: ♫ mSinging

Provides music & vocal training to users via wireless technologies

Case 2: $ Generic

Basic mobile service bundle that has voice , SMS and data download

College students

An operator assisted by teachers

Ordinary user

A mobile operator

Computing deterministic utilities

- Computational games: Pareto, Stackelberg equilibria
- Discrete computational games with discrete decisions: exhaustive search
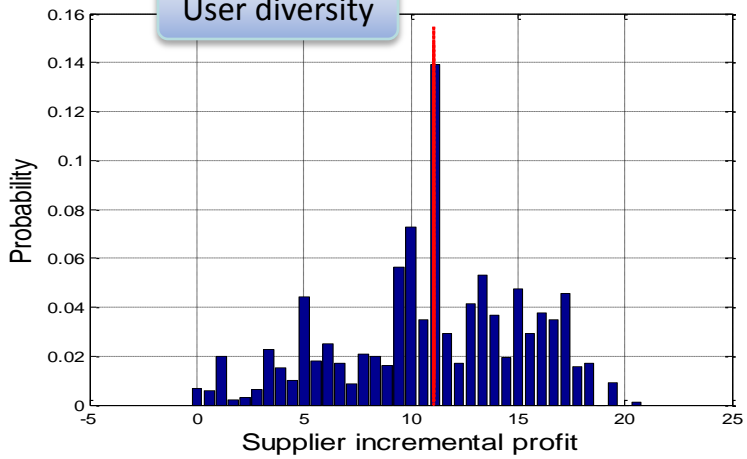
Sequential constrained optimizations

Handling user-lead uncertainties

- Value at Risk
- Extreme value theory

Monte Carlo simulation

Computational evaluation (II)

User diversity

Negotiation

Users always win

- Outcomes: reach an agreement, user quits, supplier quits
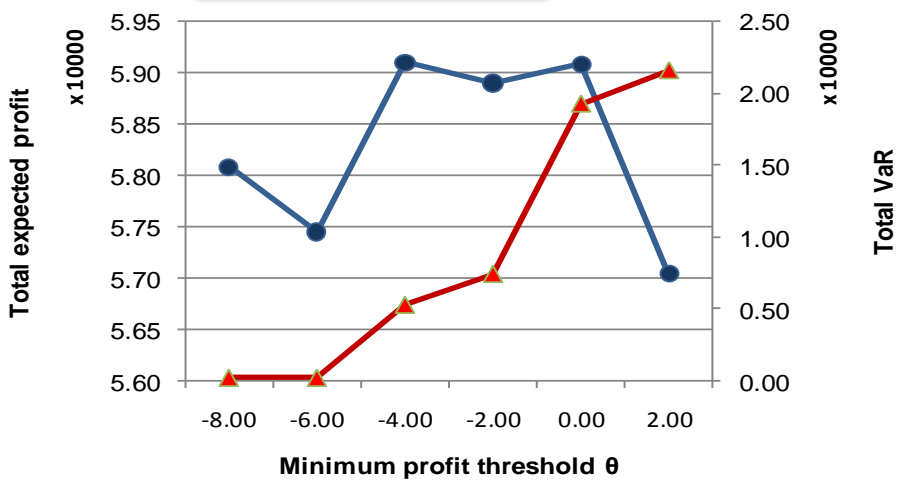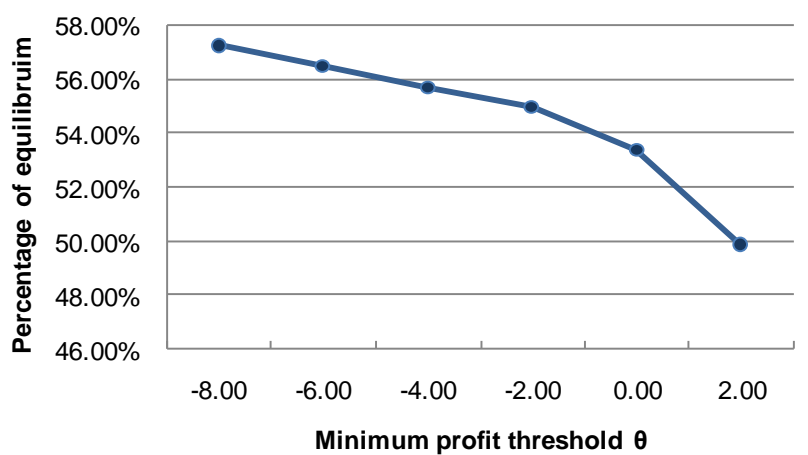- Gain in utility (closer to wishes): +163% (mSinging), +37% (generic)
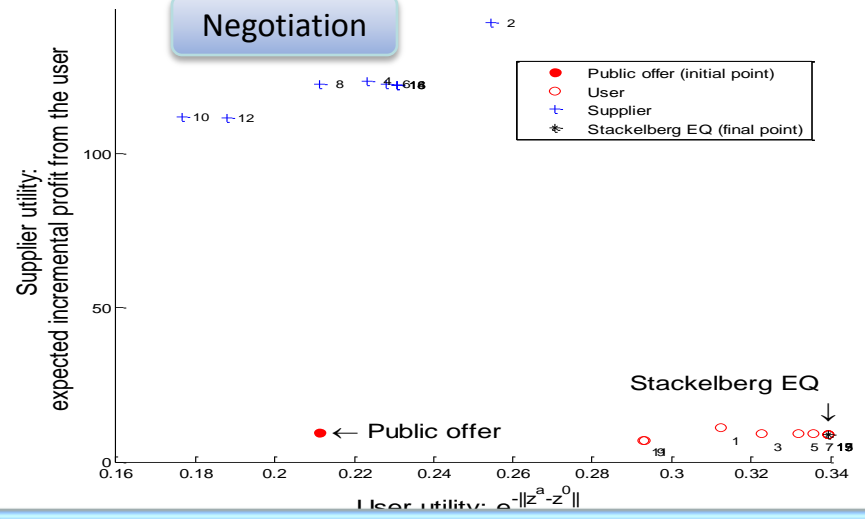
Supplier gains on average

- Gain in profit, +9% (mSinging); +142% (generic)
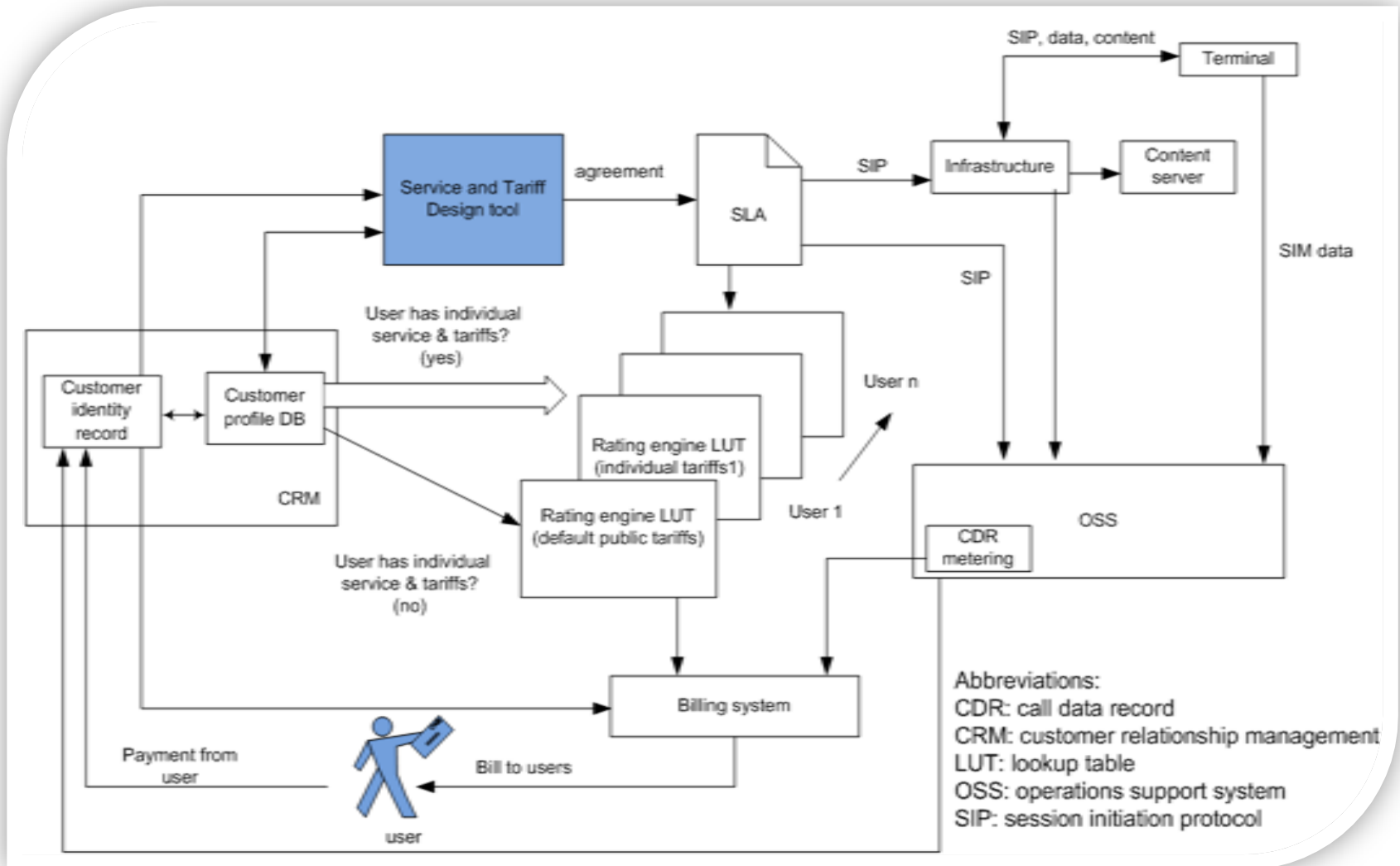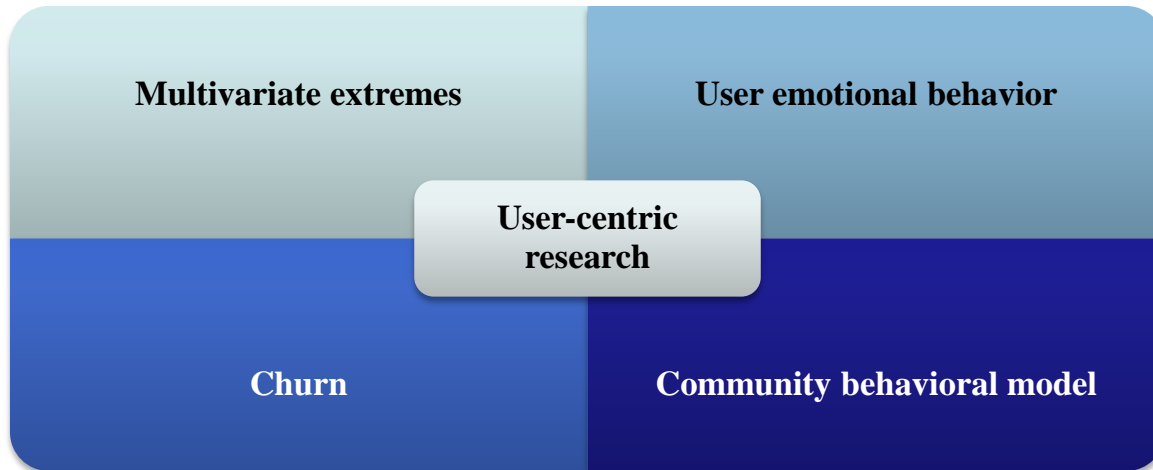- Higher flexibility in Risk vs. profit / market share

Expected profit & risk

Rate of deals

Implementation in existing telecom & billing system

Further research issues in individual services & tariffs

Thank you!