

# T-110.6130 Systems Engineering in Data Communications Software

## Networking Business Research

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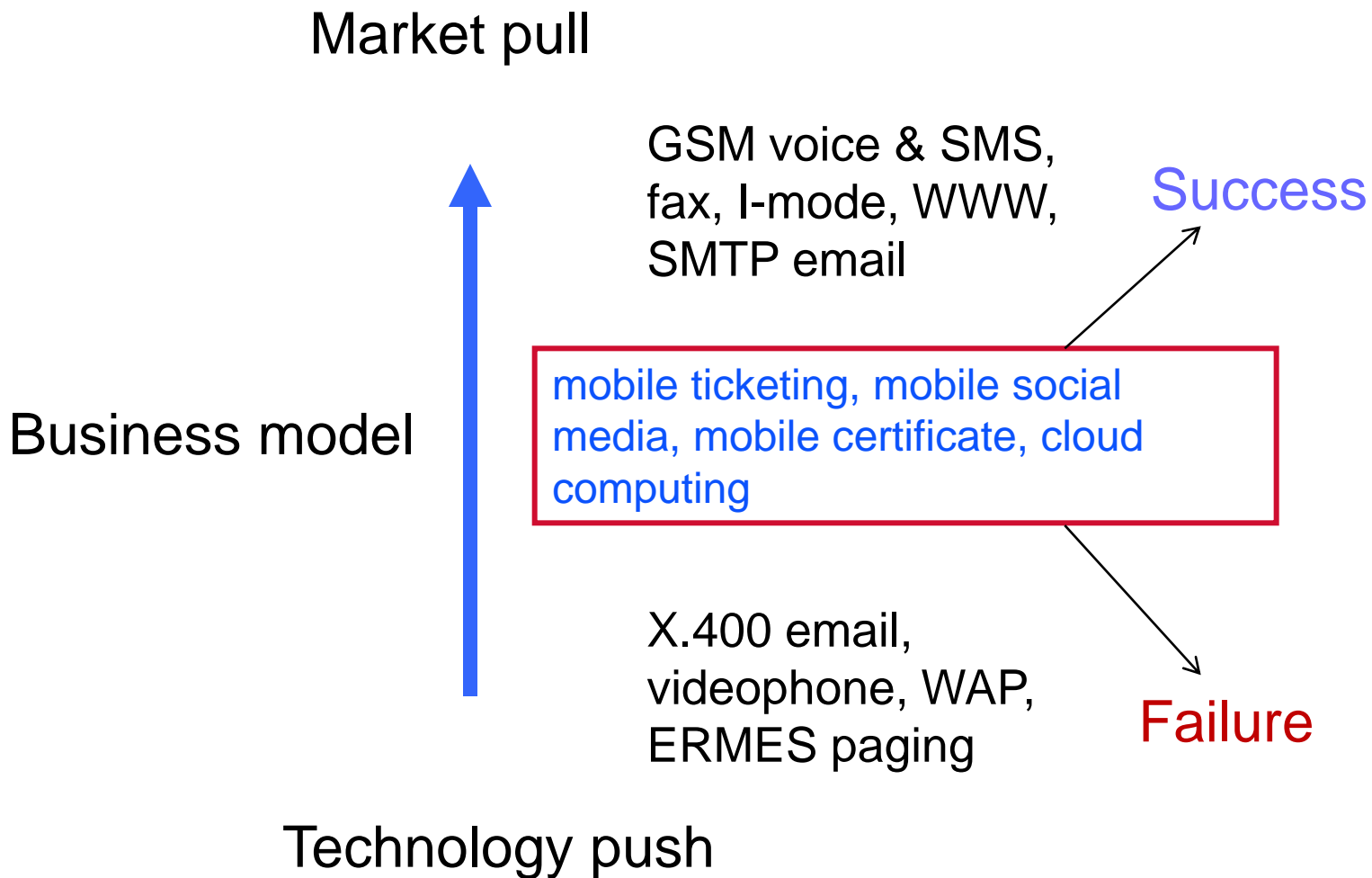
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# Networking Business Research

- Key concept in networking business research is **business model**
- It describes how to **extract value** from a networking **service innovation**
- It converts new technology to value proposition
- Plan by which a business intends to generate revenue and profits taken into account the dynamics of related **value network**

# Service innovation



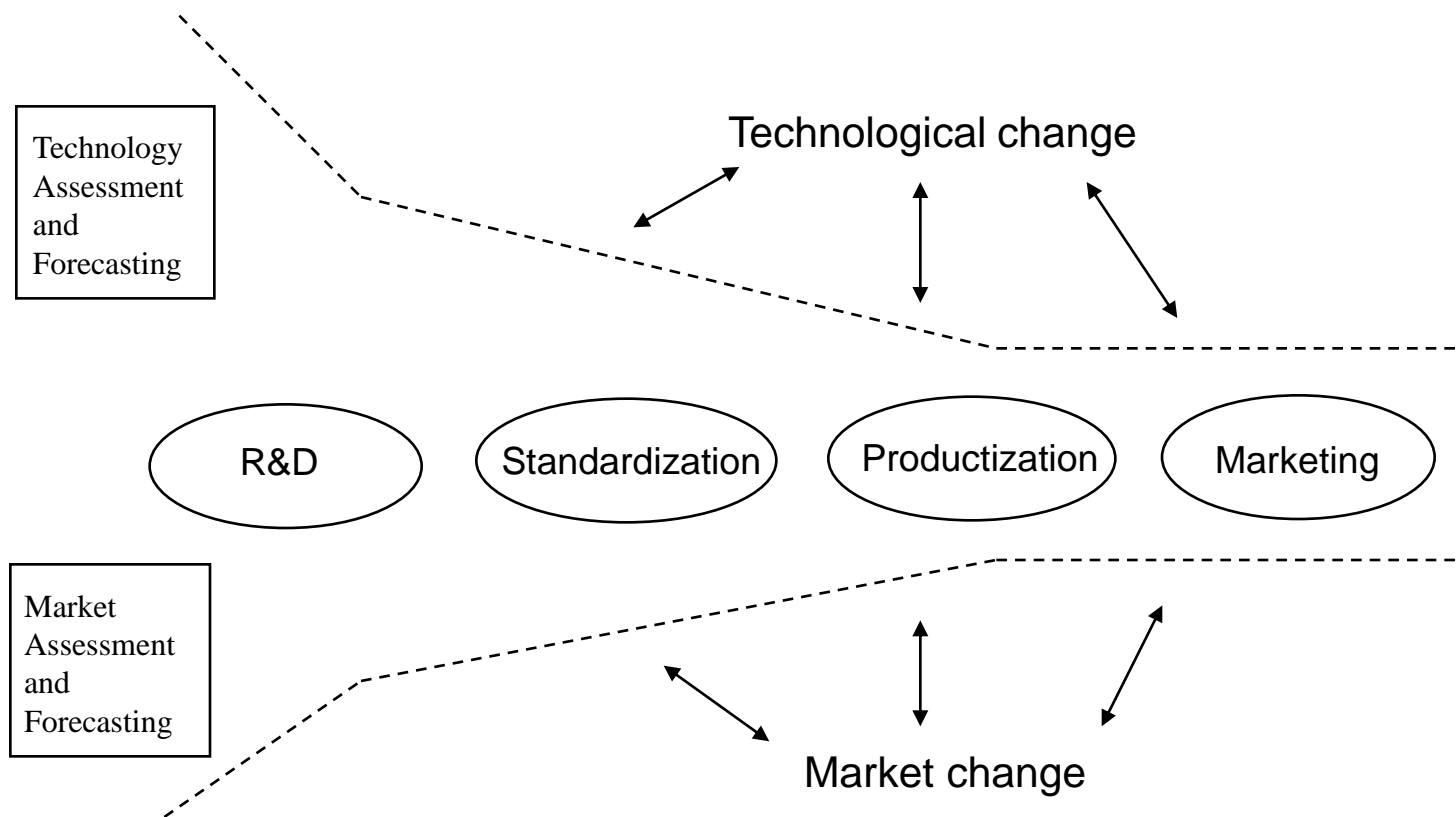
# Technology marketing

- Typical marketing process begins with a definition of the new product features and their benefits the current customers have requested
- In the incremental development it is possible to assess the market and make financial analyses before the beginning of the development
- This approach is not appropriate for **discontinuous innovations** that significantly change the current market structures, customer usage patterns and value propositions
- In addition traditional market research can provide little or no benefit for exploring the potential of the emerging market of discontinuous technologies, it can even obstruct or create unrealistic expectations of a radical idea development

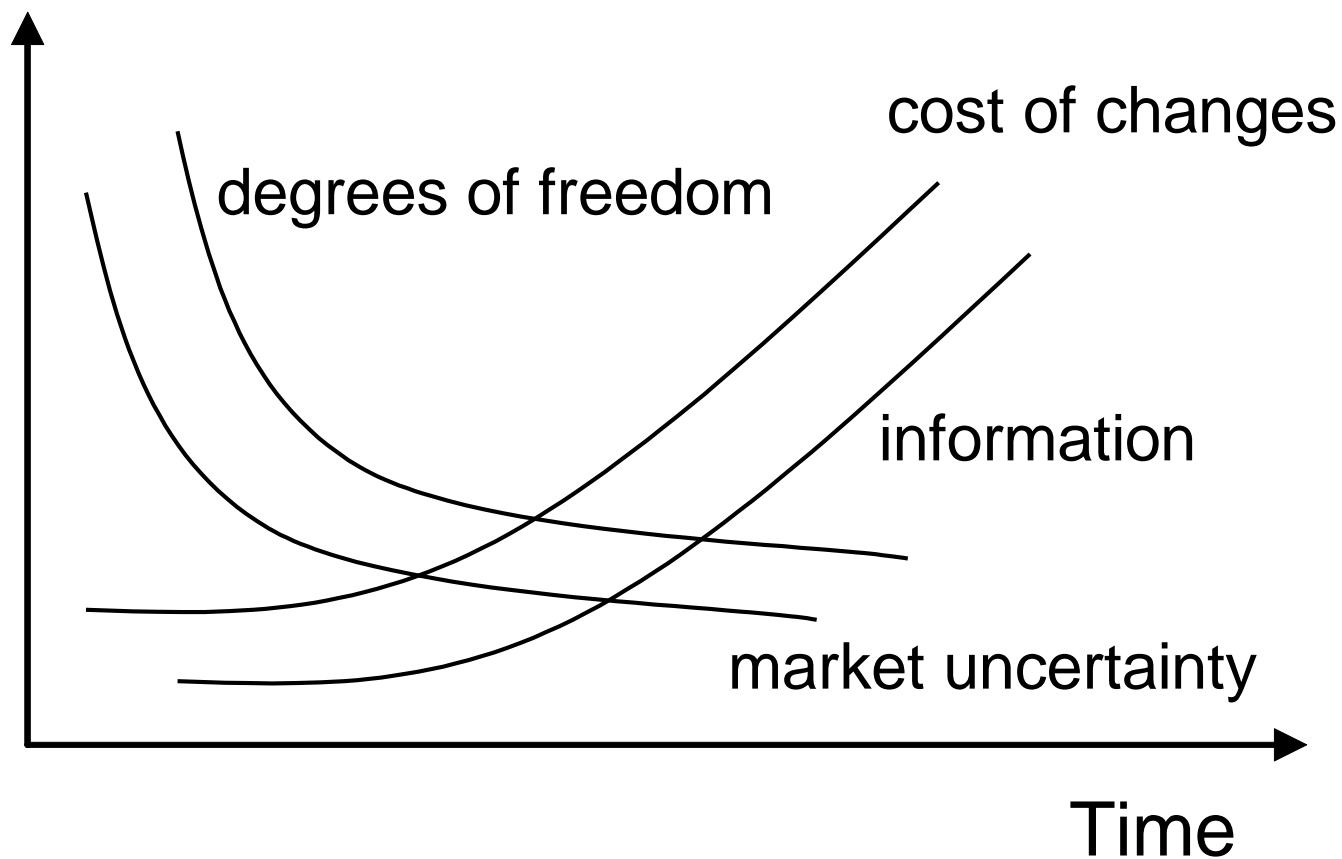
# Market uncertainty

- Market uncertainty relates to the inability of vendors and service providers offering new communications solutions to predict what are the **latent end users needs**
- The uncertainty exists partly also because users do not know what they want until they see and use it
- Users needs evolve hierarchically from basic features to more sophisticated ones along with the technology evolution as they become more educated about the benefits it provides
- Rather than by analysing the market and selecting the best alternative, the services should be developed by successive approximations, that is by introducing early versions of the product into the initial market, learning from the experience, modifying the product and approaching the market on the basis of better new information in circumstances of lower uncertainty

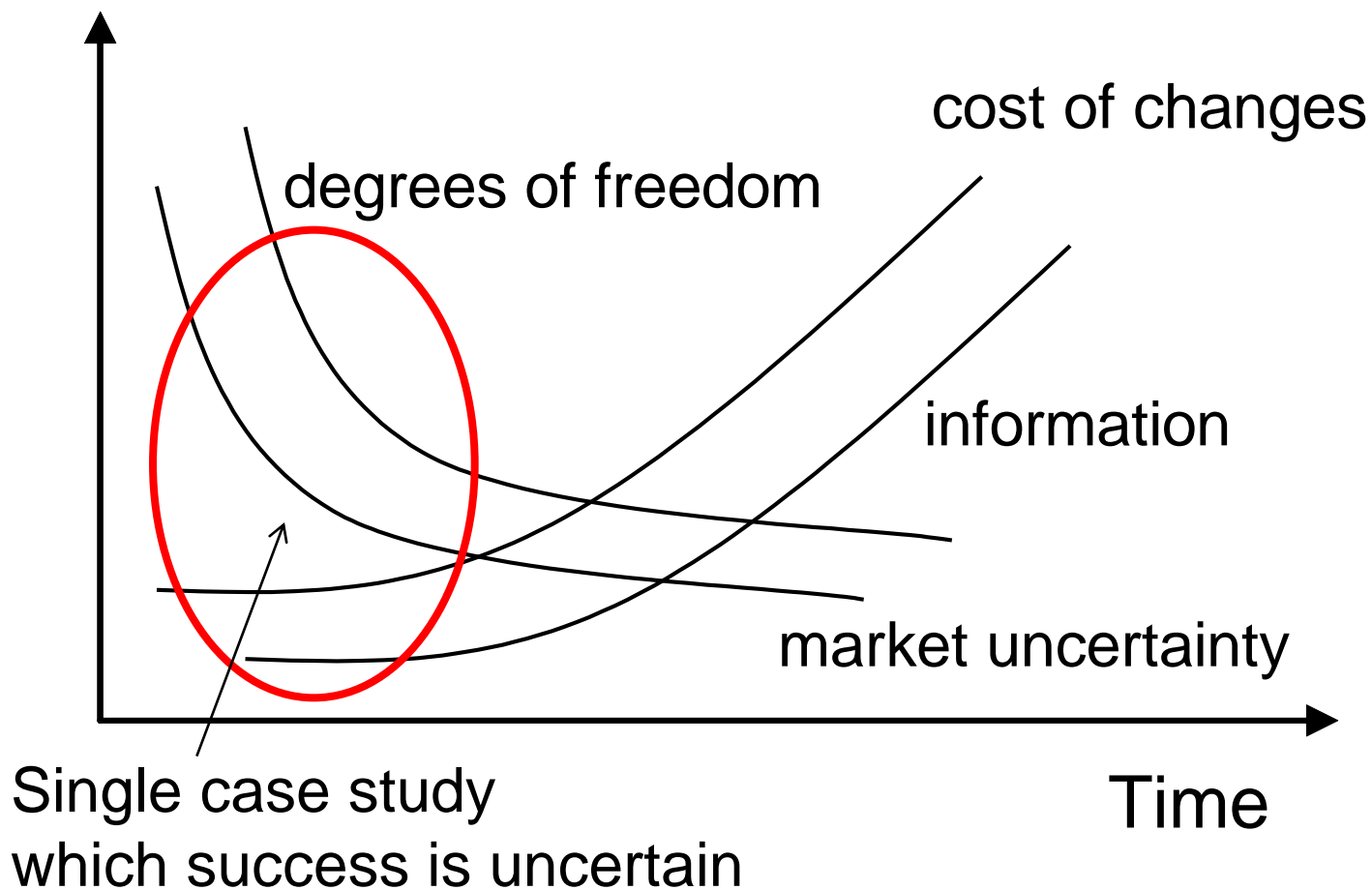
# Innovation process



# Innovation process over time



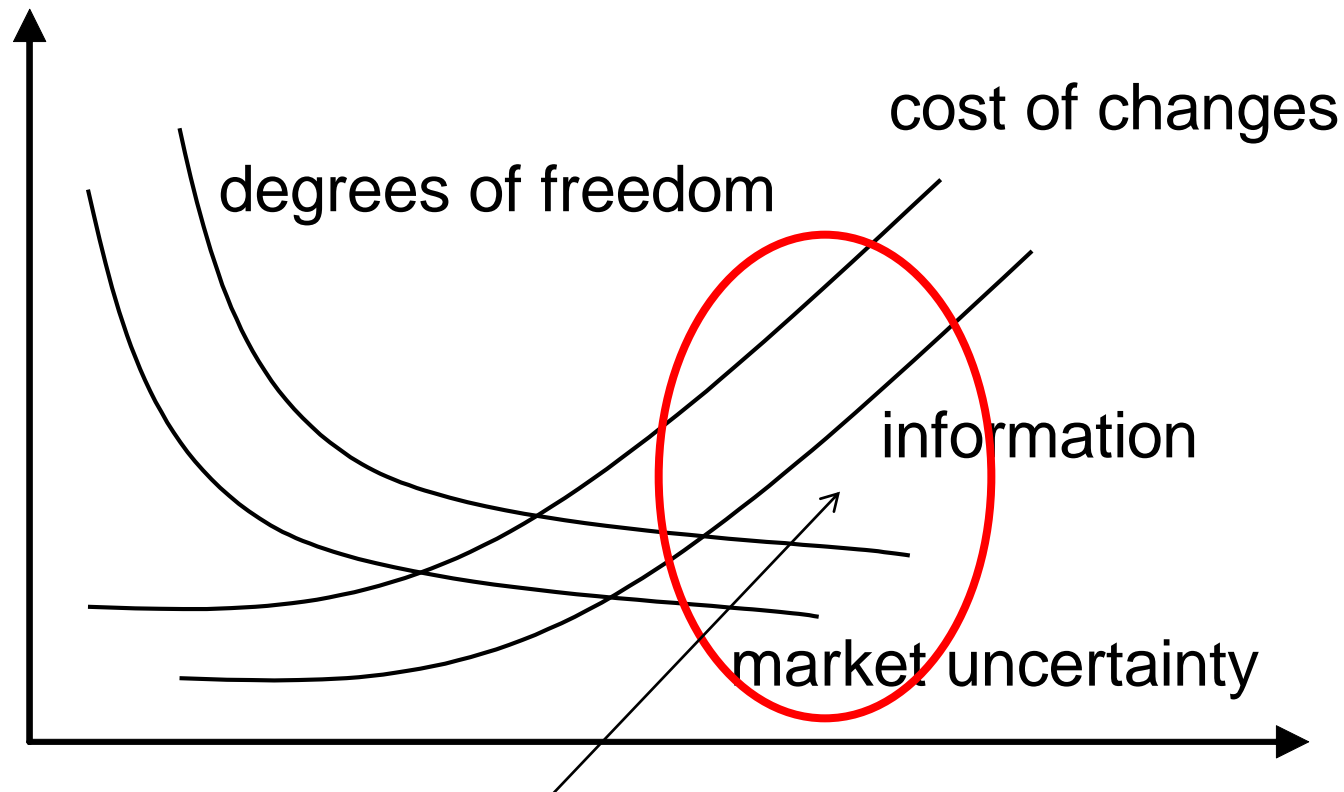
# Analysis of an emerging service





# Normative theory development - what determines commercial success?

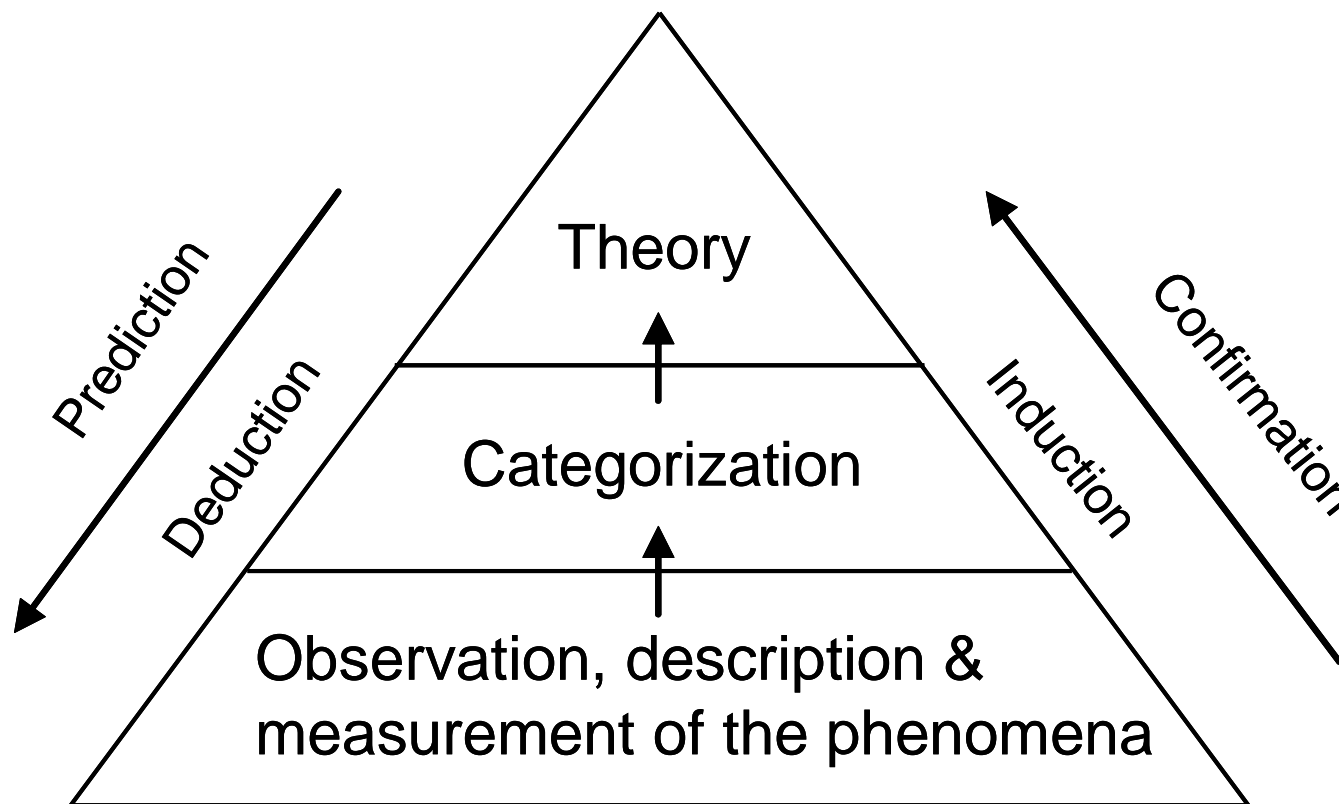
Ntwbus 9



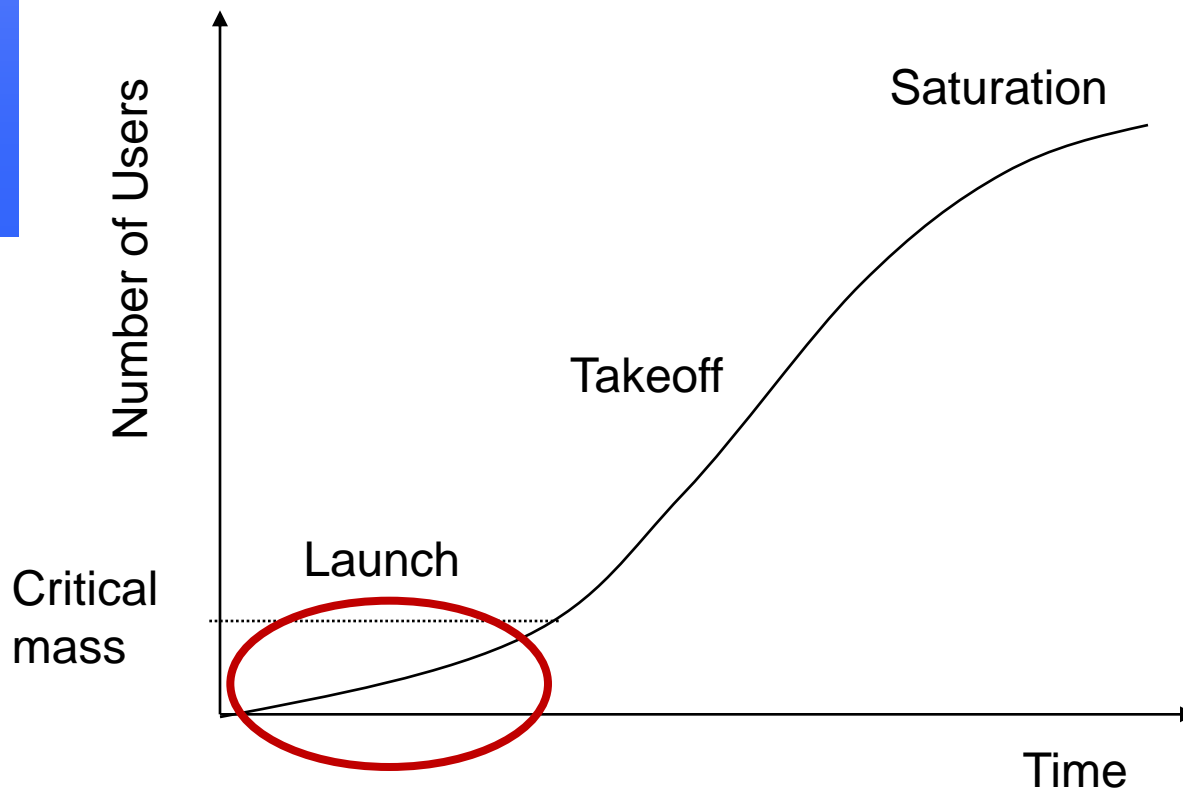
Multiple cases as empirical material  
which failure / success is known

Time

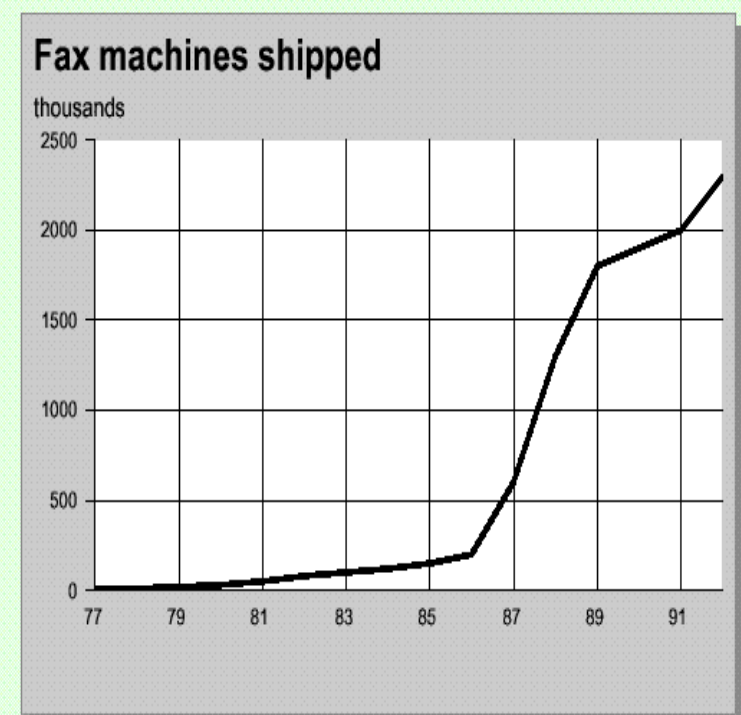
# Theory building



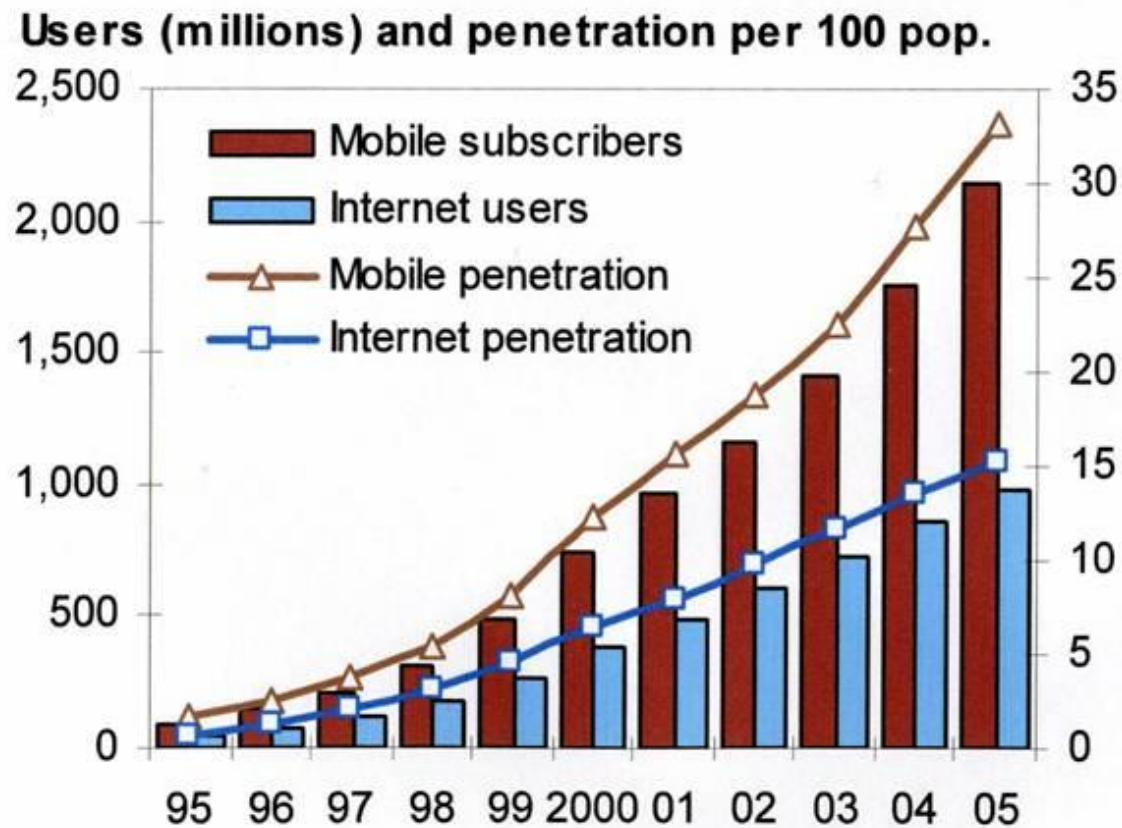
# Innovation diffusion



# Fax-service



# Mobile communications



Source: Srivastava, Lara, "from the mobile internet to the ubiquitous internet", ITU, July 24, 2006

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# Example theory of innovation diffusion

- **Relative advantage** (price and performance) over competing technologies substitutes
- **Compatibility** with the values, norms, and experience of the endusers
- Innovations that are connected to already **proven technology**
- **Low complexity**
- Easy **trialability** of the early adopters
- **Observability** of innovation, the visibility among the user community
- Characteristics of the **implementation** decision: centralized, group, individual

# Research methods

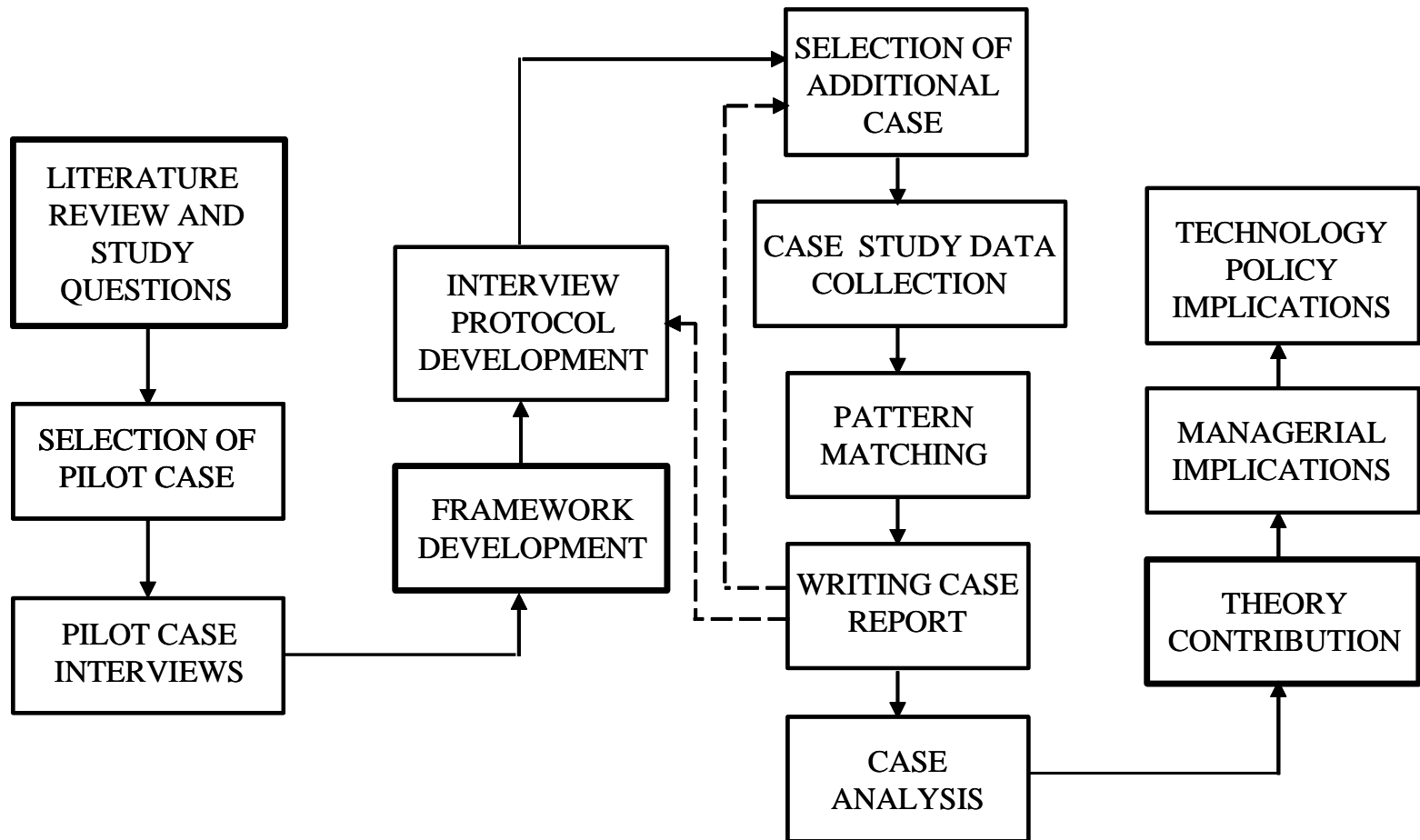
## **Qualitative**

- possible to observe the phenomena specific to the industry in greater detail holistically, new determinants during research process
- single or intrinsic case study aims to understand a business model of a particular case, no live service required
- multiple or instrumental case study aims to explain larger theoretical phenomena, if similar results are obtained in the several cases analysed sequentially a replication takes place
- the research data consists of recorded interviews, related literature, articles, annual reports and press releases

## **Quantitative**

- live service commercial or pilot required mostly, enduser should have real experience of using service
- the research data consists of questionnaires using e.g. Likert scale, statistics collected by network elements CDR:s or client software in terminals
- single and multiple case approach also possible

# Qualitative case research process





# Quantitative research process

- research goal setting based theoretical and managerial interest
- initial model formulation: dependent and independent variables based on existing literature: what explains what?
- hypotheses formulation based on model
- choice of measurement and data collection
- data analysis using statistical methods like regression or factor analysis and tools like SPSS (see courses TU-22.1197 Statistical Research Methods I and II)
- hypotheses accepted or rejected, new model formulation based on results