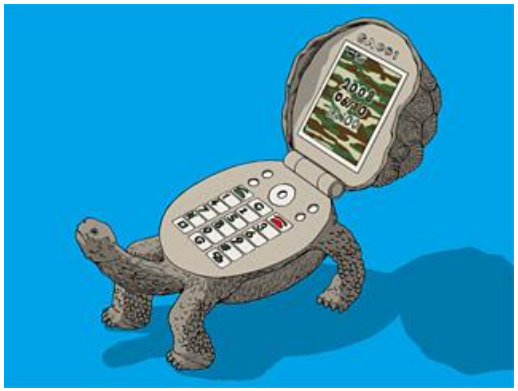
CIGREF 14h15 – 14h35
September 24

Current Situation of Mobile Solutions in “Galápagos Islands”



from Nikkei BP net

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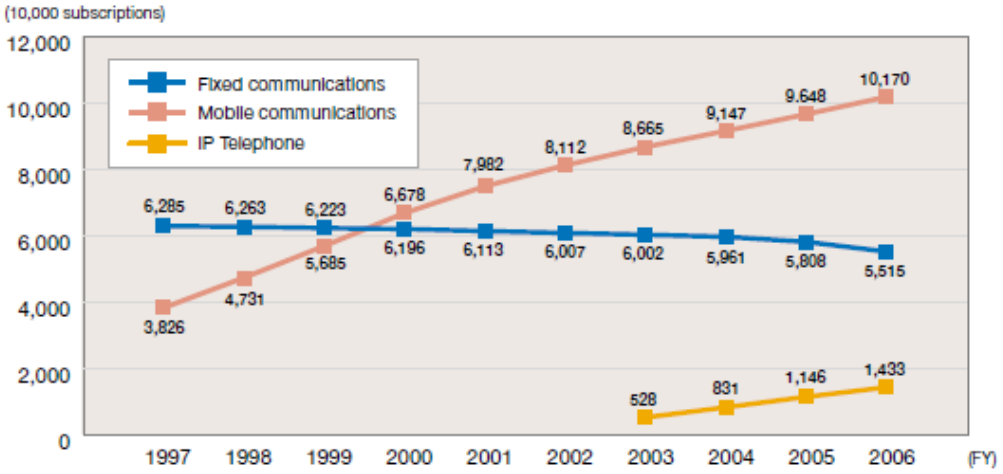
TOKYO TECH Pursuing Excellence

FMG Formal Method Group

Outline

- Japan is “Galápagos Islands” in Cellular Phone Market
- Cases of Mobile Solutions in Japan
- Homogeneity Analysis for Mobile Solutions in Japan
- Four quadrants in Mobility-M Framework
- Propositions in Each Quadrant on Comparison of Europe & Japan
- Comparison of Mobile Situation in Eastern Asia
- Conclusion

Why Japan is “Galápagos Islands”?



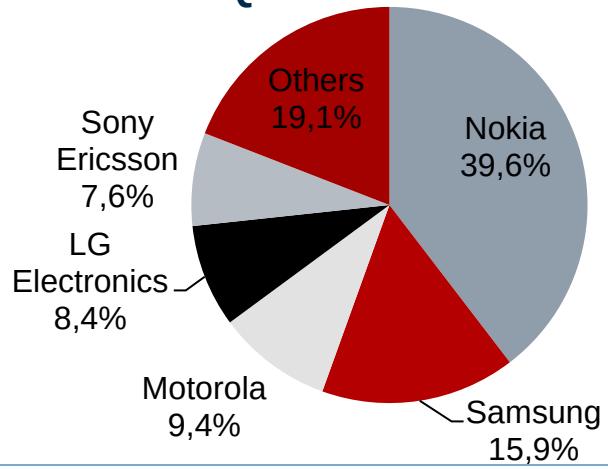
(from *Information and Communications in Japan, 2007 White Paper*)

- In Japan, the number of subscribers reaches at 108,488,700.
- Among them, 3G is now 94%, but **PDC** (Japanese Original Standard) still occupies 6%.

Variety of functionalities : Internet connection service, camera, radio, GPS, built-in IC card, 1seg (digital TV), solar battery, waterproof, pedometer, burglar alarm, ...

Japan looks like “**Galápagos**” in Cellular Phone Market.

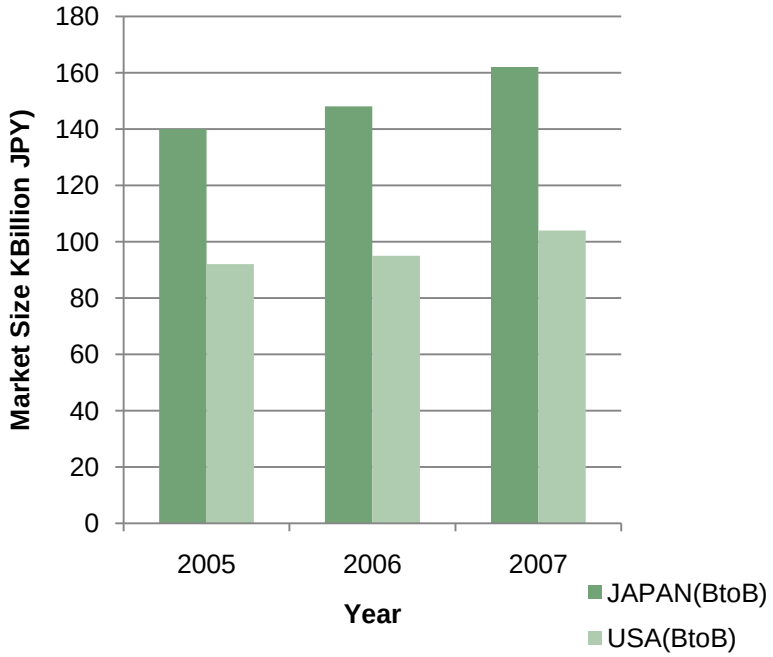
Mobile Phone Vendors, Q1 2008 Results

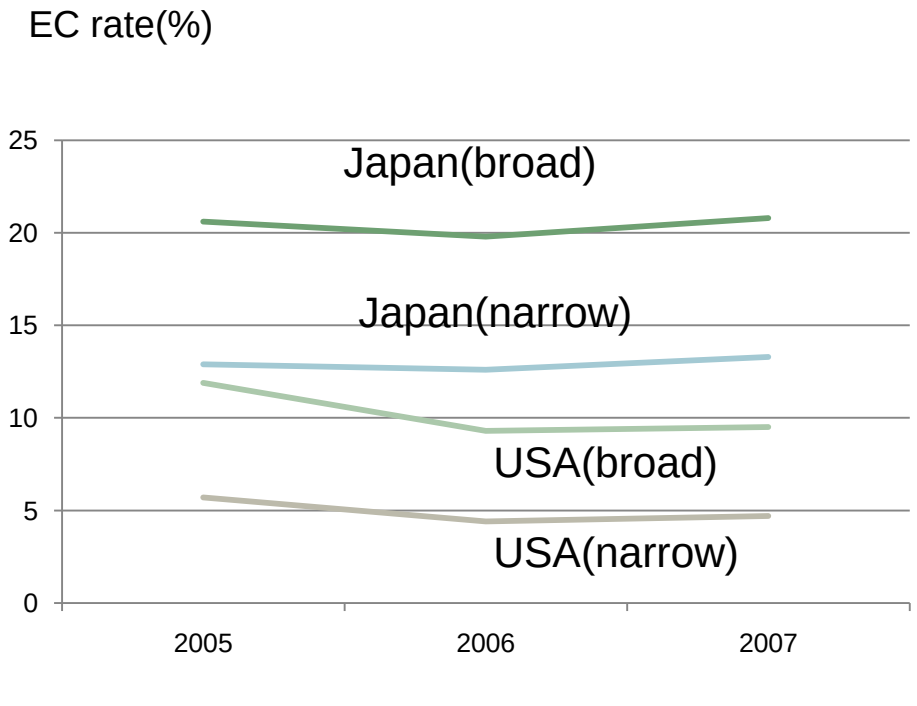


(cf.IDC April, 2008)

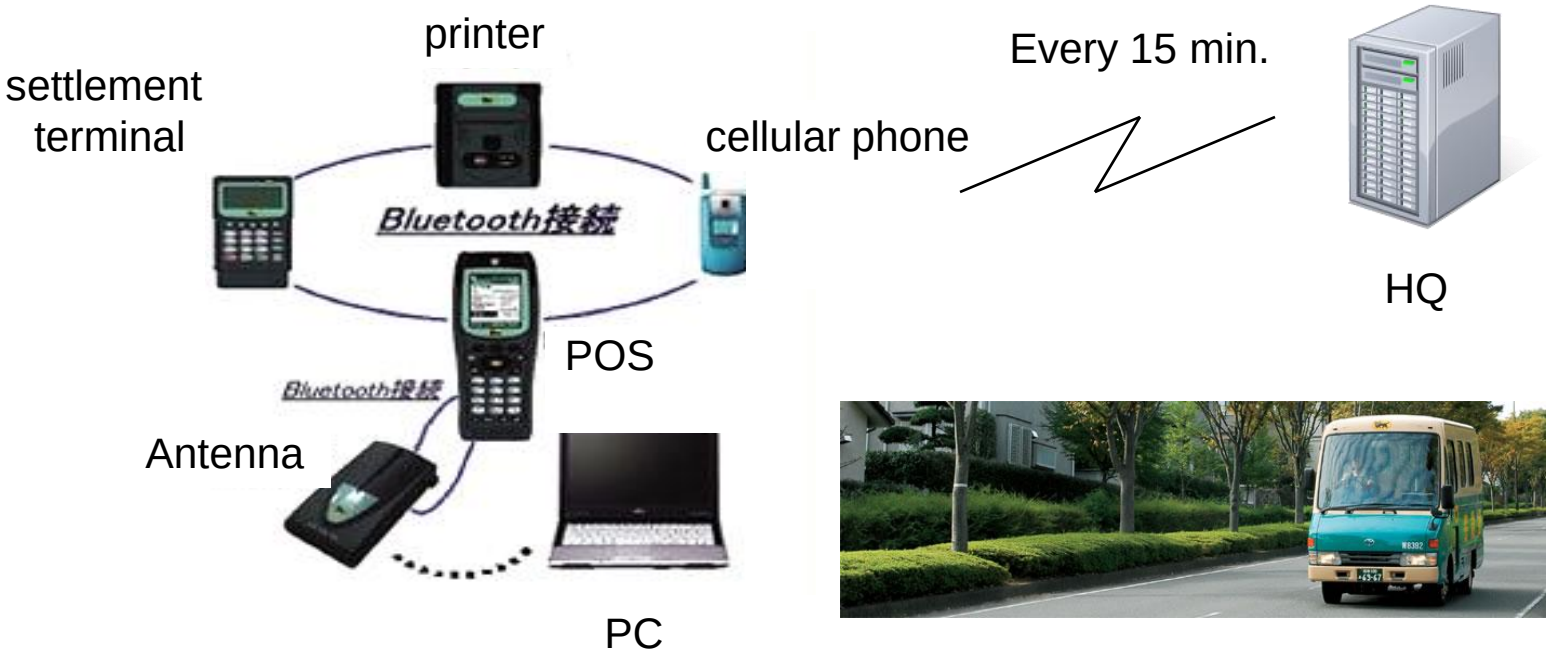
B2B EC Market

- B2B EC Market in Japan is 162 KBLN JPY(1,620 BLN US$) (+9.3% year-to-year).
- In USA, it was 104 KBLN JPY(1,040 BLN US$)(+8.76% year-to-year).



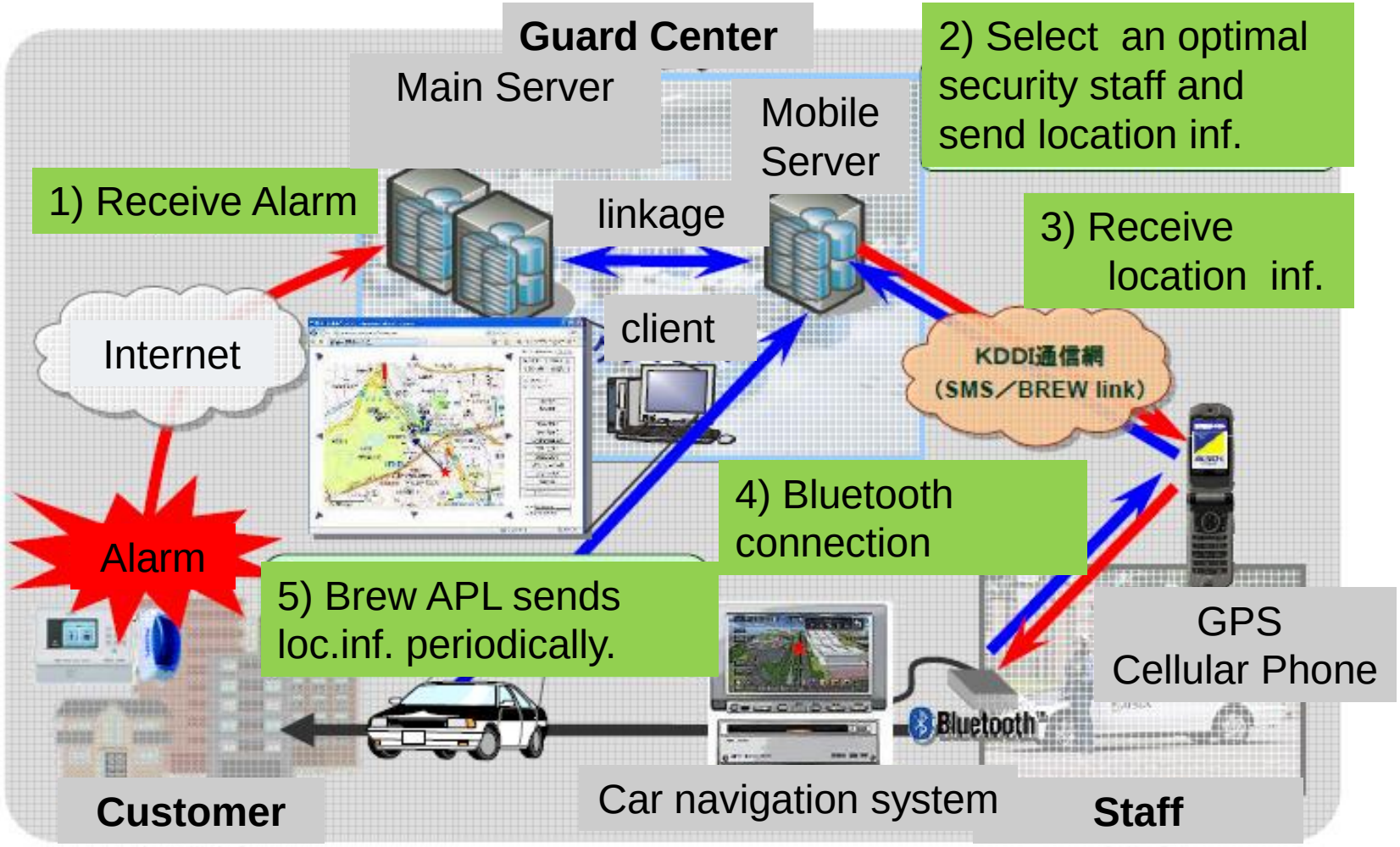


Yamato Transport - Parcel Delivery Service



The system in Yamato Transport Company Ltd. can exchange information with the headquarter on luggage and delivery destinations etc. almost in real time. In the system, they combine Bluetooth built-in cellular phones with 3 terminals of personal POS, a card settlement terminal, and a mobile printer.

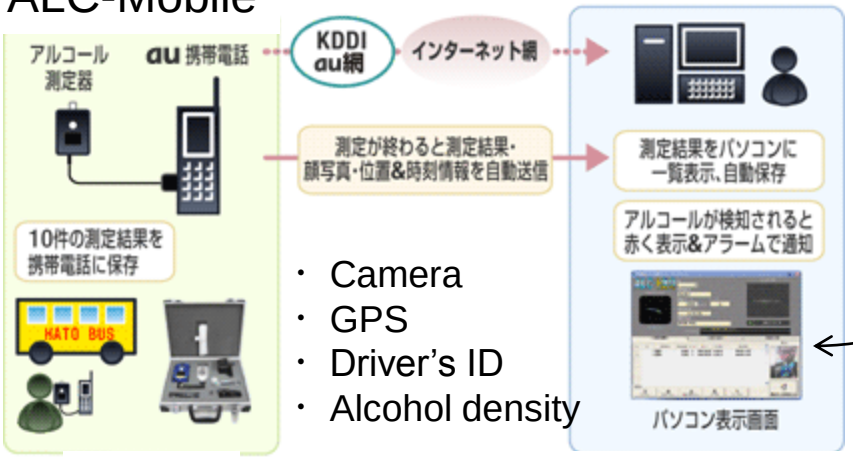
ALSOK – Electronic Security Service



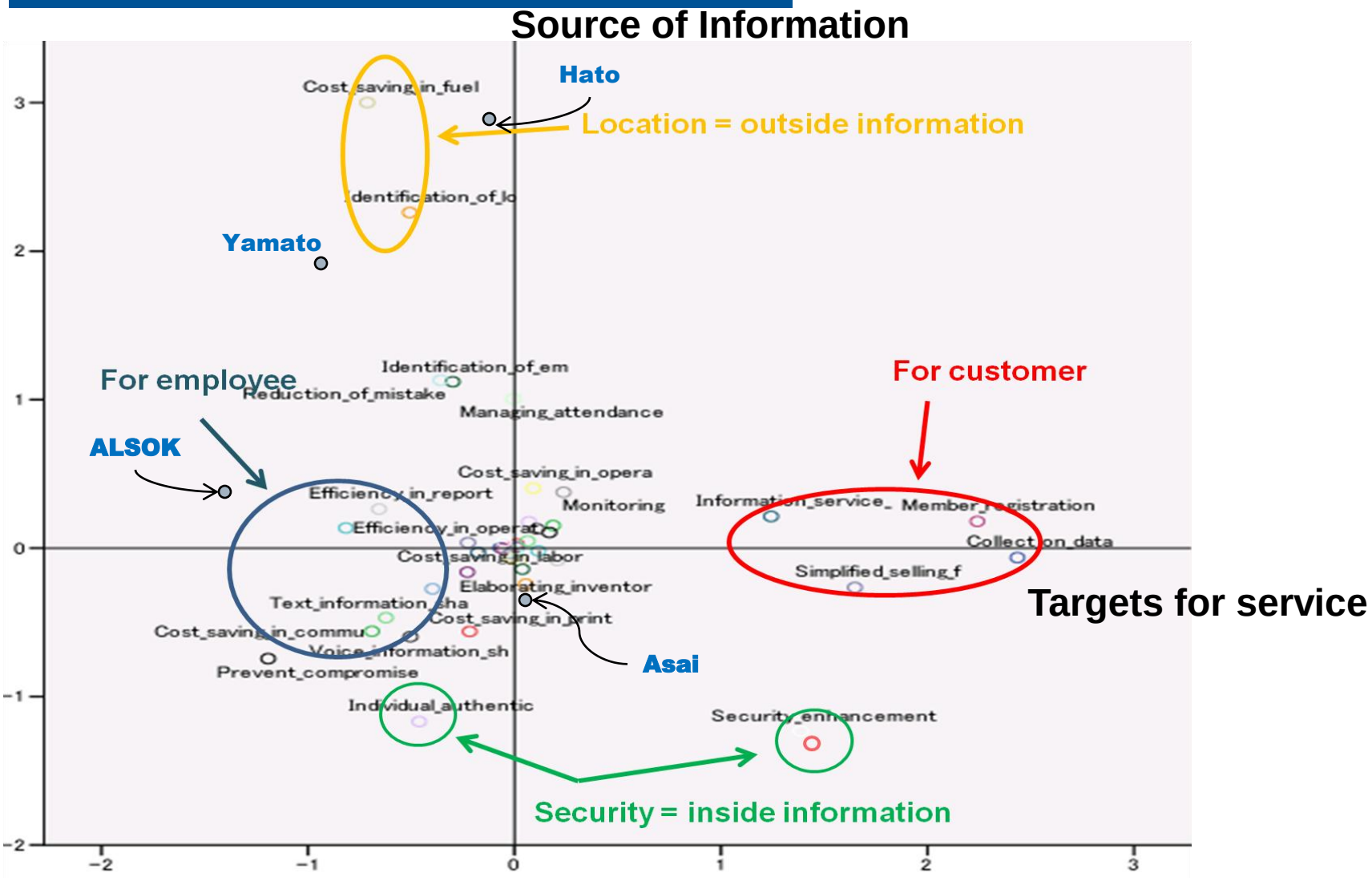
Hato Bus – Sightseeing Bus Service

Alcohol Detector

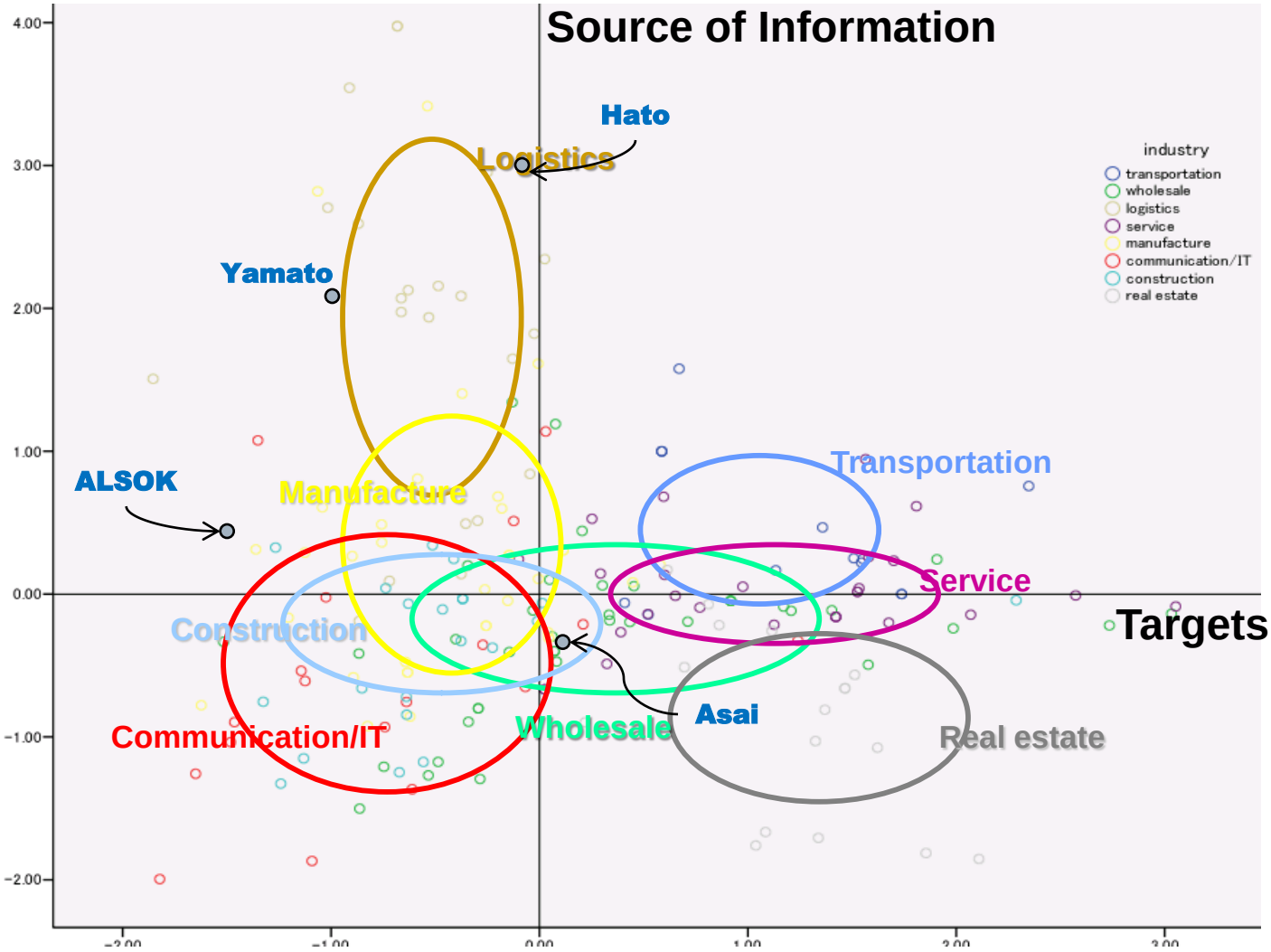
ALC-Mobile



Homogeneity Analysis

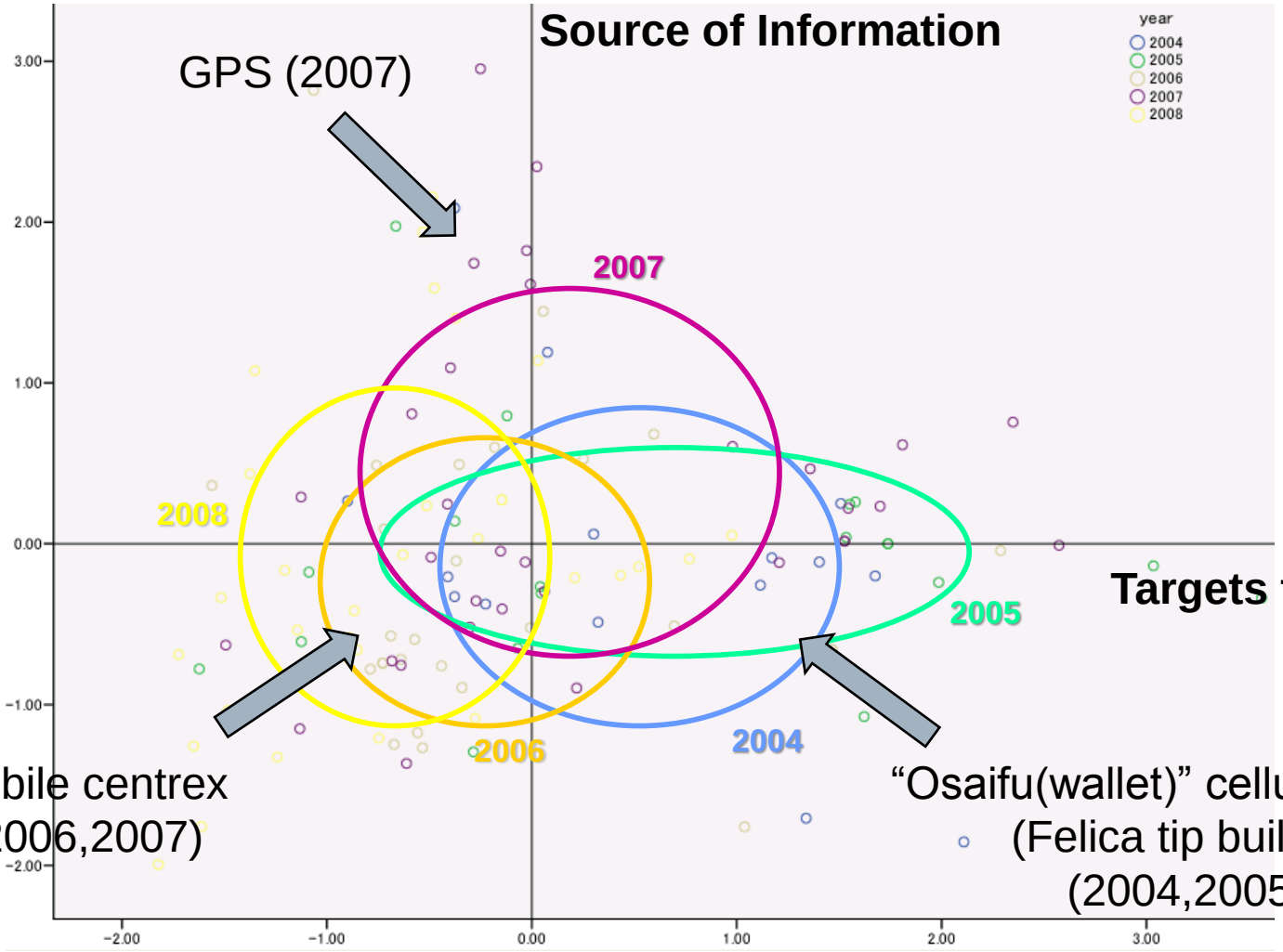


Characteristics in Industries



Targets for service

Chronological Change



Mobility-M Framework

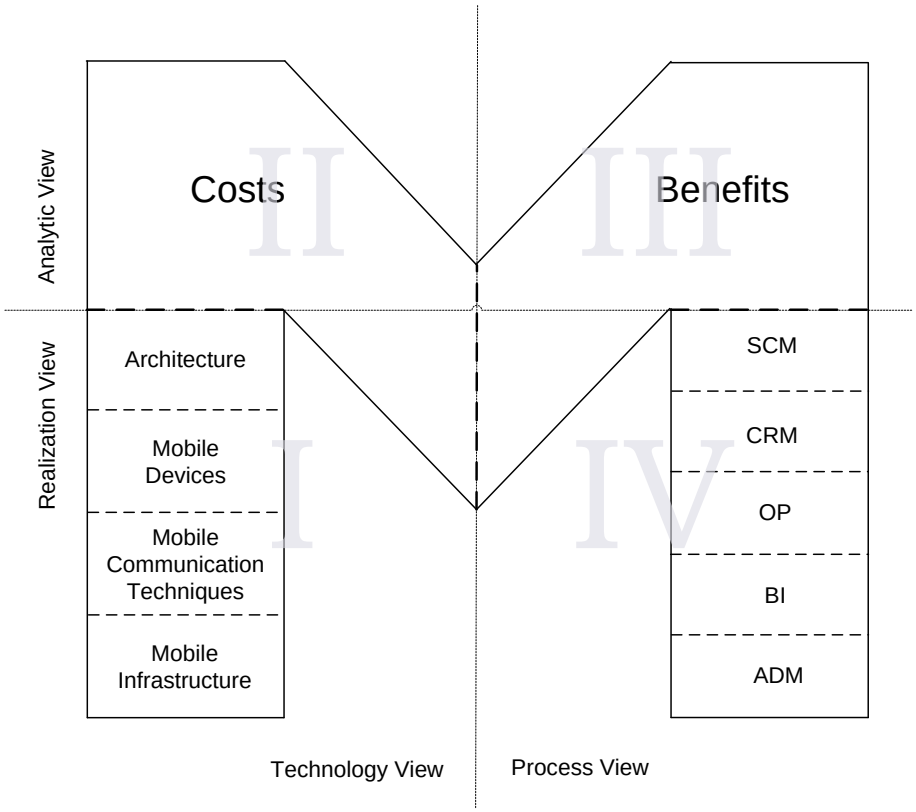
- Generic framework for analyzing and comparing mobile enterprise solutions
- Combining different views
  - Analytic with realization view
  - Technology with process view
- Structured model with four quadrants

  (I) technology

  (II) cost analysis

  (III) benefit analysis

  (IV) process classification



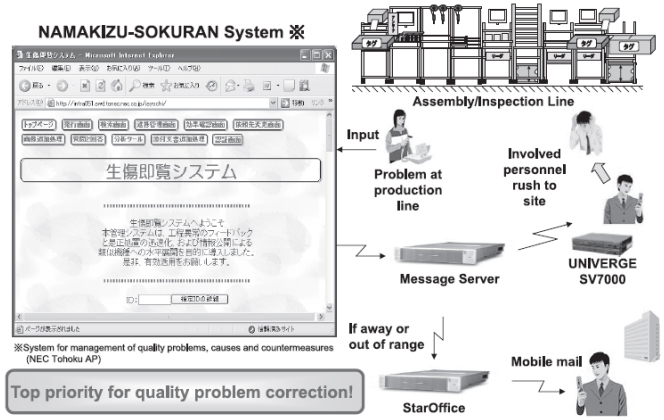
Gumpp & Pousttchi (2005)

Case Study Research

- Typical European case studies
  - Case 1: Utility Company, Ireland
  - Case 2: Logistics Company, Netherlands
  - Case 3: Service Company, Benelux

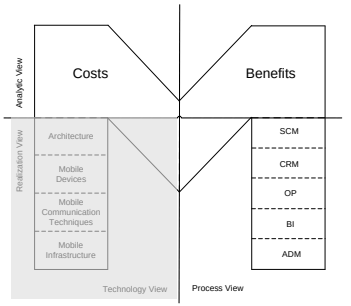
- Typical Japanese case studies
  - Case 4: NEC Tohoku
  - Case 5: Kansai Urban Bank

  - Case 6: The Peninsula Tokyo



Quadrant I: Technology

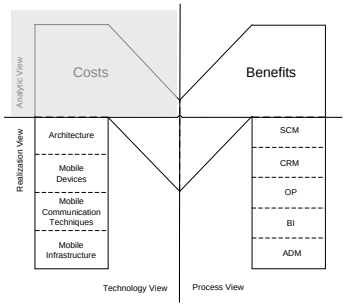
Europe	Japan
client-based (synchronization)	server-based (browser)
PDA, Tablet PC/ Toughbook	Smartphone
WAN (GSM networks)	PAN (Bluetooth) LAN (802.11/WiFi)



- Proposition 1:
  - Mobile enterprise solutions in Europe
    - Mainly implemented for high-capacity mobile devices
    - For workforce being mobile outside the premises
  - Mobile enterprise solutions in Japan
    - Mainly implemented for smartphones as mobile devices
    - For employees being mobile inside the premises

Quadrant II: Costs

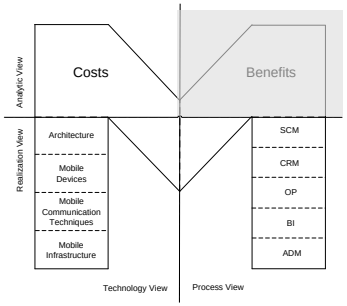
Europe	Japan
high set-up costs (software licences, mobile devices, training)	low set-up costs
high operating costs	low operating costs
complex application	easy to use



- Proposition 2:
  - Mobile enterprise solutions in Europe
    - Implementation done by IT service providers or by the IT department in the introducing company
  - Mobile enterprise solutions in Japan
    - Mobile network operators play a major role for implementation

Quadrant III: Benefits

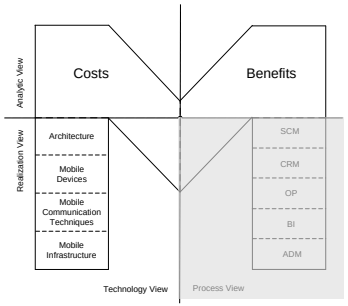
Europe	Japan
monetary benefits - shorter ways - higher productivity - better dispatching - reduced capital costs	non-monetary benefits - customer satisfaction - employee satisfaction - improved convenience



- Proposition 3:
  - Mobile enterprise solutions in Europe
    - Aim on generating cost savings due to more efficient business processes
  - Mobile enterprise solutions in Japan
    - Focus on increasing effectiveness
      - Entering new markets
      - Improving customer service

Quadrant IV: Business Processes

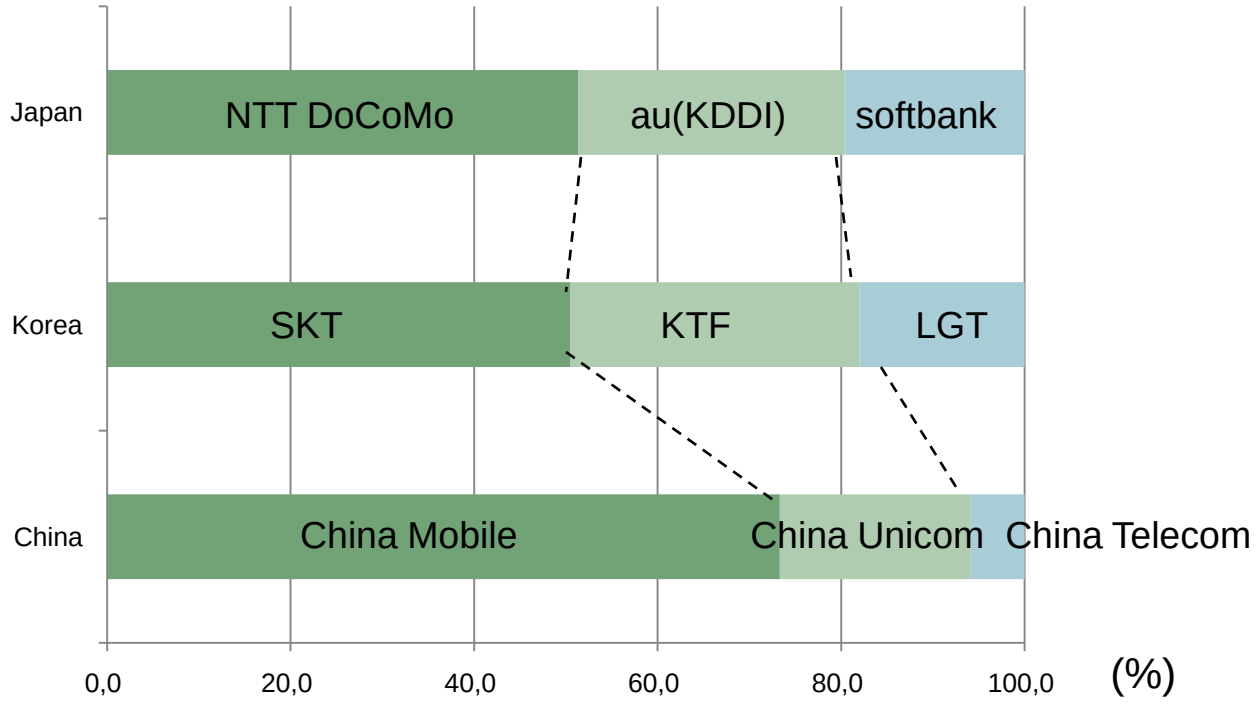
Europe	Japan
core business processes (operations)	customer relationship management processes
supply chain management processes	applications used as B2C channel as well
mostly deductive approach	mostly inductive approach



- Proposition 4:
  - Mobile enterprise solutions in Europe
    - Mainly emerge in a deductive approach from the business process view
  - Mobile enterprise solutions in Japan
    - Mainly emerge in an inductive approach
    - Employees are accustomed to mobile B2C solutions and request similar solutions at their workplaces

MNO Market Balance

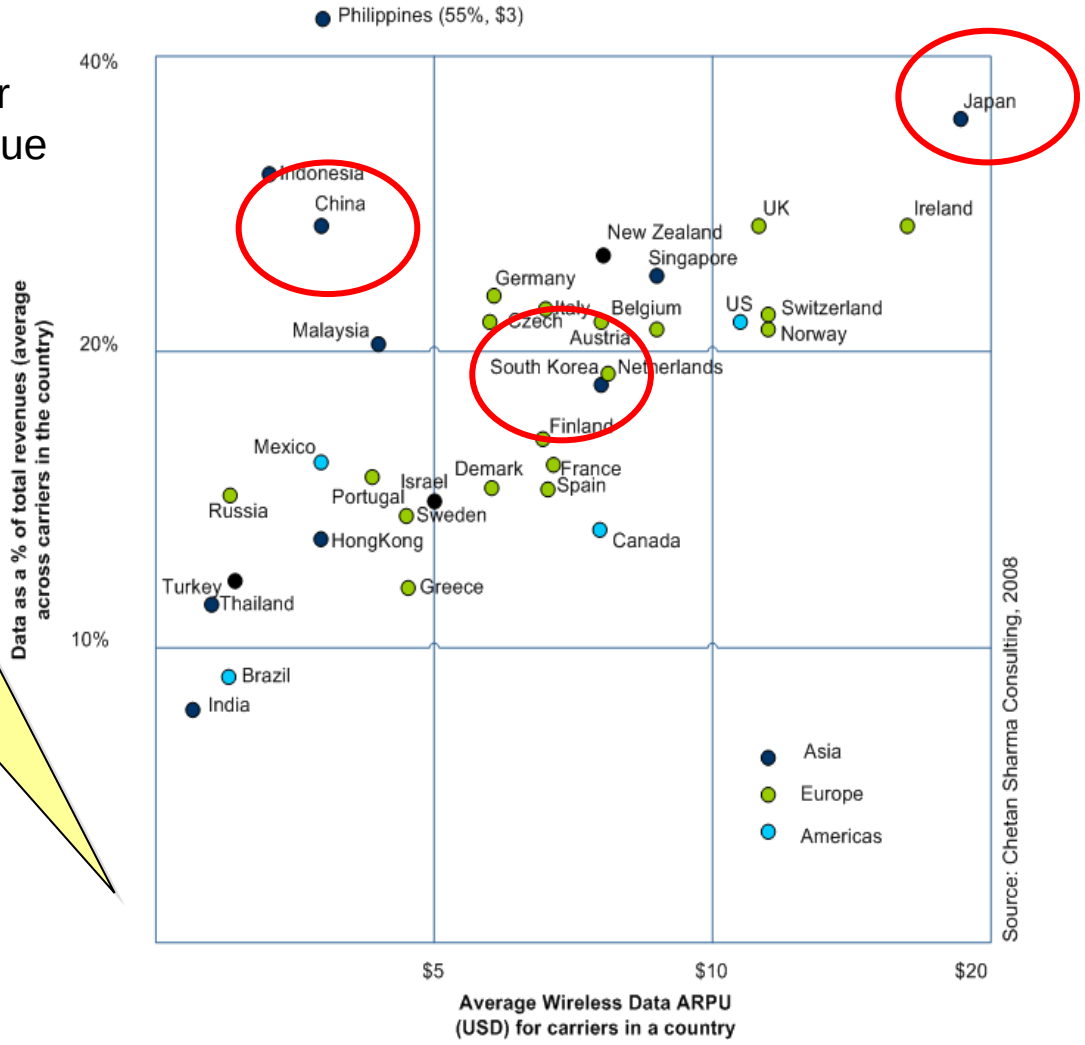
as of June, 2009



Mobile Data Market:Country Level

Data ARPU (Average Revenue Per User) and proportion of data revenue in *country level*

- Japan
  - $20 ARPU
  - 40% of total ARPU
- Korea
  - $7 ARPU
  - 20% of total ARPU
- China
  - $3 ARPU
  - 35% of total ARPU



Conclusion

- Although Japan seems to be "**Galápagos Islands**" in Cellular Phone Market, Mobile Business Solutions found in Japan may give some hints for other countries.
- Differences in Mobile Business Solutions in **Europe and Japan** are found from four quadrants; technology, costs, benefit and process.
- Comparison of Mobile Situation in **Eastern Asia** shows there are some differences in mobile B2C usage.

Thank you for your kind attention.

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