The market for Mobile Internet Access - a comparative study

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Econ@Tel Public Workshop, June 17, 2009

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Motivation

- How are European countries doing with respect to difusson of mobile technologies compared to East Asian countries such as Japan and Korea and compared to US?
- Is there a case for leapfrogging?
- A work in progress – especially with regard to methodology and theoretical framework

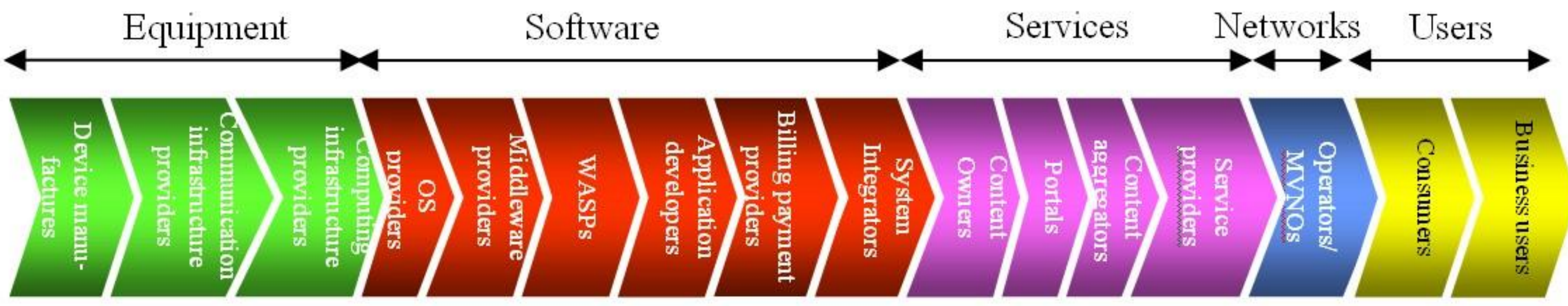
Methodology

- Adoption of new technology (Rogers)
  - Focus on user behaviour (demand side)
- System of innovation (Edquist)
  - Includes demand as well as supply factors
  - Emphasis on the innovation process
- Mobile Ecosystem (Fransmann)
  - Holistic approach
  - Includes technical, economic, political, and cultural factors
  - Emphasis on many different aspects
- Sectoral systems of Innovation (Malerba)
  - Emphasis on innovation
  - Developed for comparison of sectors, but can also be used for comparison of regions

The Role of demand

- Crucial for sectoral systems of innovations
- Creates Economies of Scale
- User producer interaction stimulates innovation
- Rogers: Depends on technical attributes
  - Especially on relative advantages
- Davies (TAM): Depends on
  - perceived usefulness
  - Perceived ease of use
  - (compatibility)

The value chain of the Mobile Industry – 5 main layers - 16 sub-layers



The paper looks at:
- Terminals
- Networks
- Services
- Users

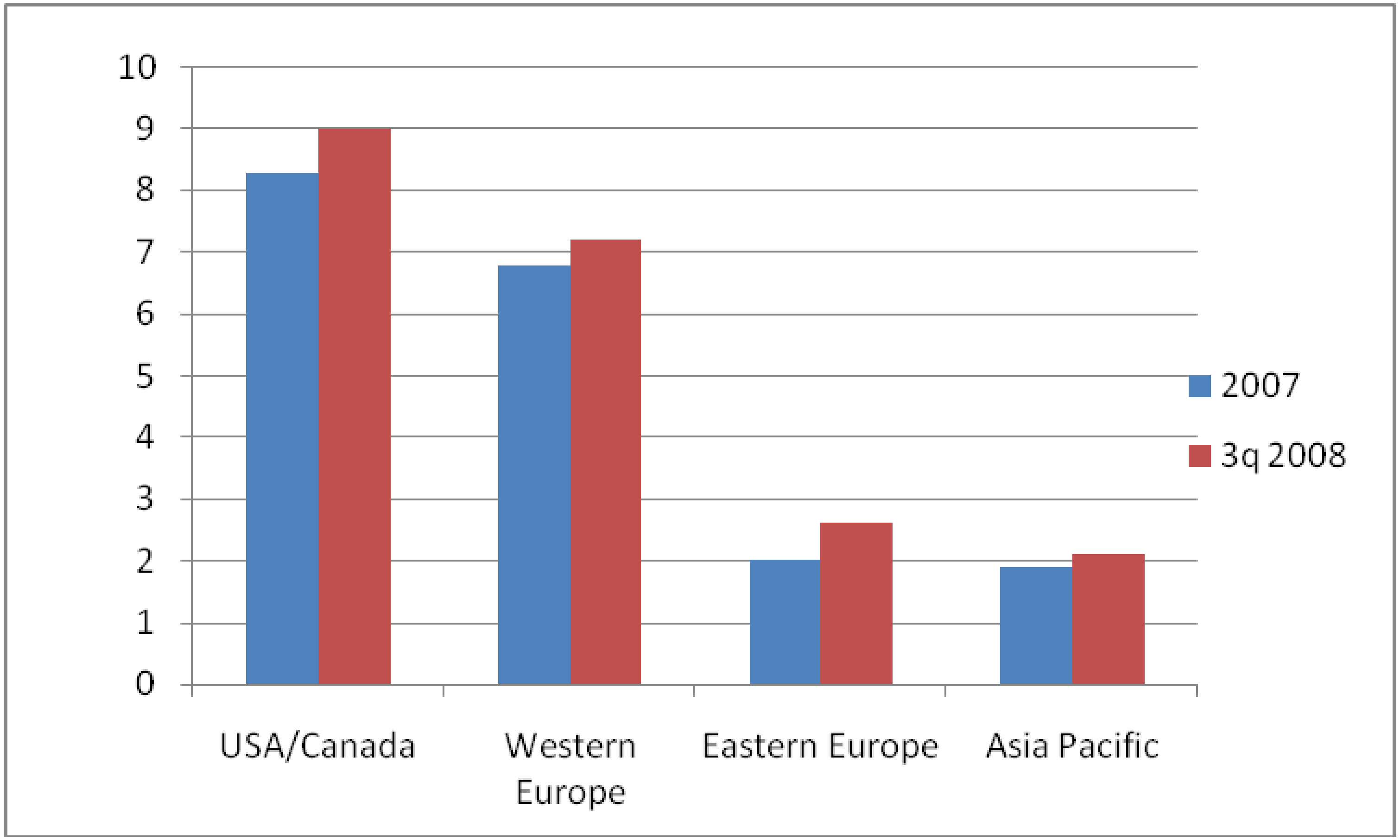
Difficult to get hard data

Market Status:

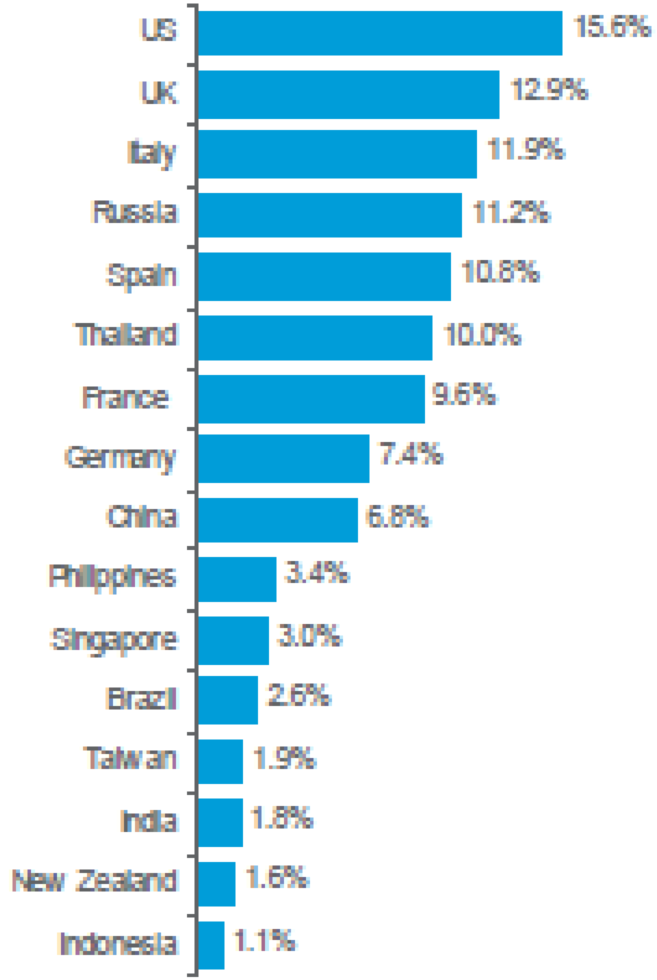
Mobile subscribers per 100 inhabitants in selected countries

	1996	1998	2001	2003	2005	2008 3q	3G subscriber in %
USA	16.6	25.6	45.1	54.5	71.8	87.6	22.8
Canada	11.5	17.7	34.9	41.8	51.64	62.6	9.0
France	4.2	19.2	62.6	67.7	76.71	91.0	18.5
Germany	7.1	17	68.3	78.5	96.04	122.0	19.2
Italy	11.3	35.6	87.1	97.6	122.16	149.3	32.2
UK	11.6	21.9	77.1	89.2	106.26	122.4	25.9
Japan	21.4	37.4	58.8	67.9	75.51	82.3	81.3
South Korea	7	30.2	61.4	70.1	79.39	92.6	72.0

Data ARPU (USD per month)



Mobile Internet Usage Penetration (Q1 2008)
Nielsen Mobile (2008)



Is US leading the development in mobile data?

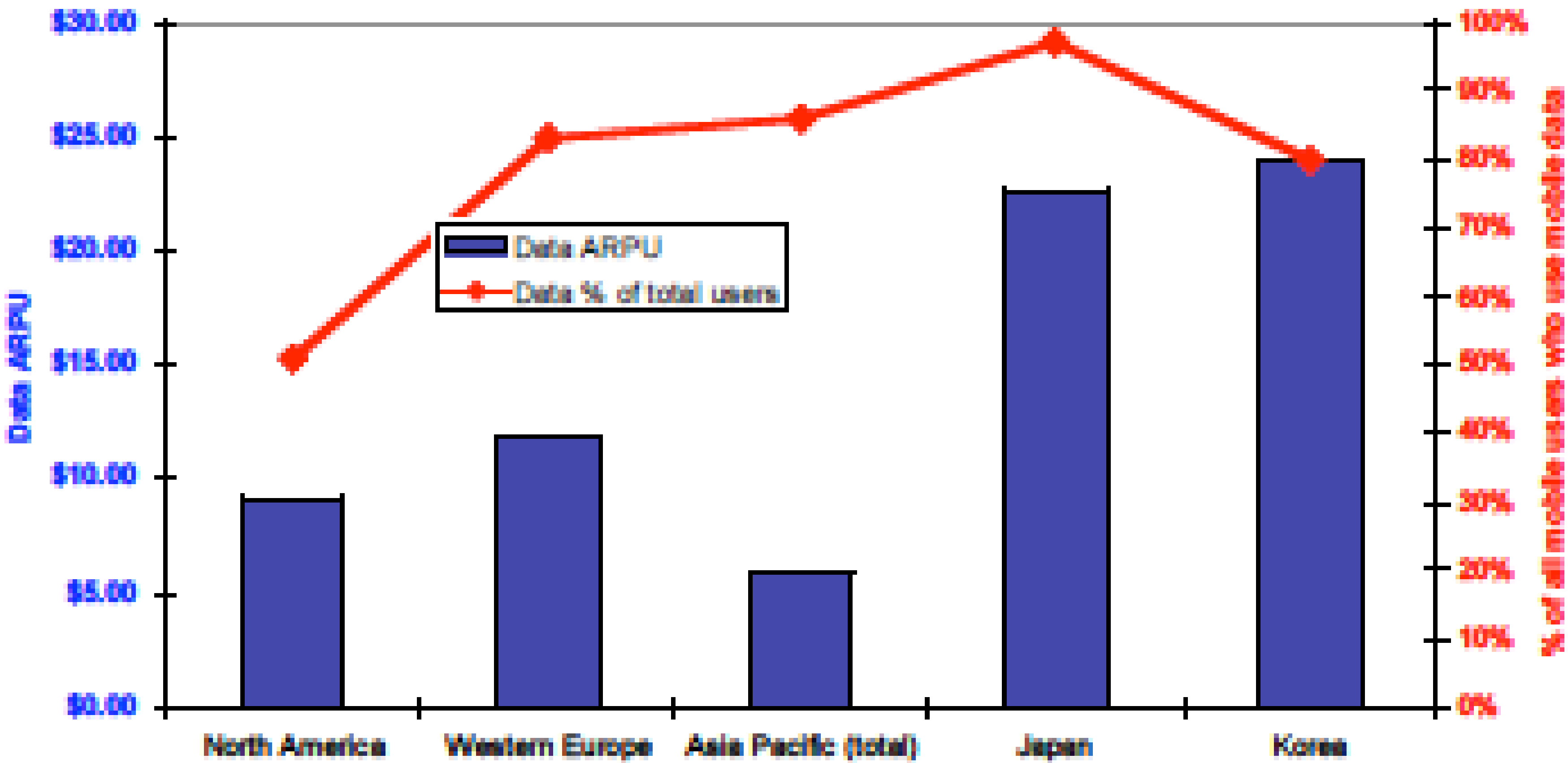
Reservations

- Asia includes other countries than Japan/Korea
- ARPU is higher in both Japan and UK
- Lower penetration in US
- ARPU depends on pricing as well as usage
- Contradicting data

But:

- US has the highest growth

Prevalence and Intensity of Data Use by Region, 2007 (Strategy Analytics)



Terminals:

TOP DEVICES -Mobile Internet Users (US), Q1 2008

	Device	%
1	Motorola RAZR/RAZR2	10%
2	Apple iPhone	4%
3	RIM BlackBerry 8100 series (pearl)	2%
4	RIM BlackBerry 8800 series (8820,8830)	2%
5	Motorola Q Series (Moto Q, 9h, 9c, 9m, Q Glo)	2%

TOP DEVICES -Mobile Internet Users (EU), Q1 2008

	Device	%
1	Nokia N95	5%
2	Nokia N70	4%
3	Motorola RAZR/RAZR2	3%
4	Sony Ericsson K800i	3%
5	Nokia N73	3%

The role of terminals

- Mobile Internet use depends on the kind of terminal
- Europe and US two very different markets
- US:
- Blackberry
  - Introduced in 2000
  - Become ”the icon of the American businessman”
- I-phone
  - Introduced in 2007
  - 85% of users use mobile Internet
- Mobile e-mail access main driver

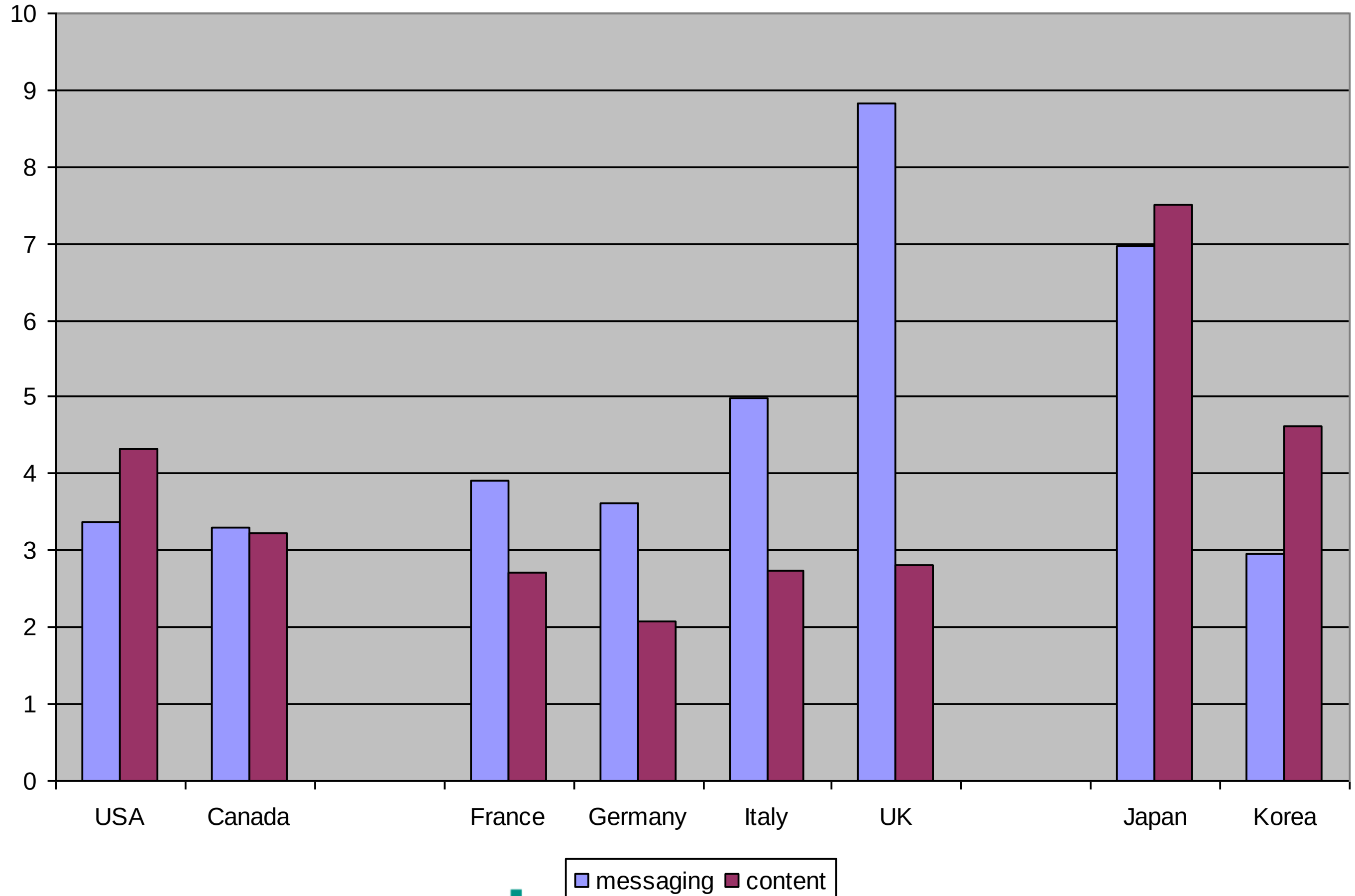
Networks:

Status of Network development compared to Europe

	USA	Japan/Korea
2G	Behind	Equal
3G	Little behind	Ahead
4G	Little Ahead	Ahead

Services:

ARPU for mobile messaging and mobile content services ($ per month)



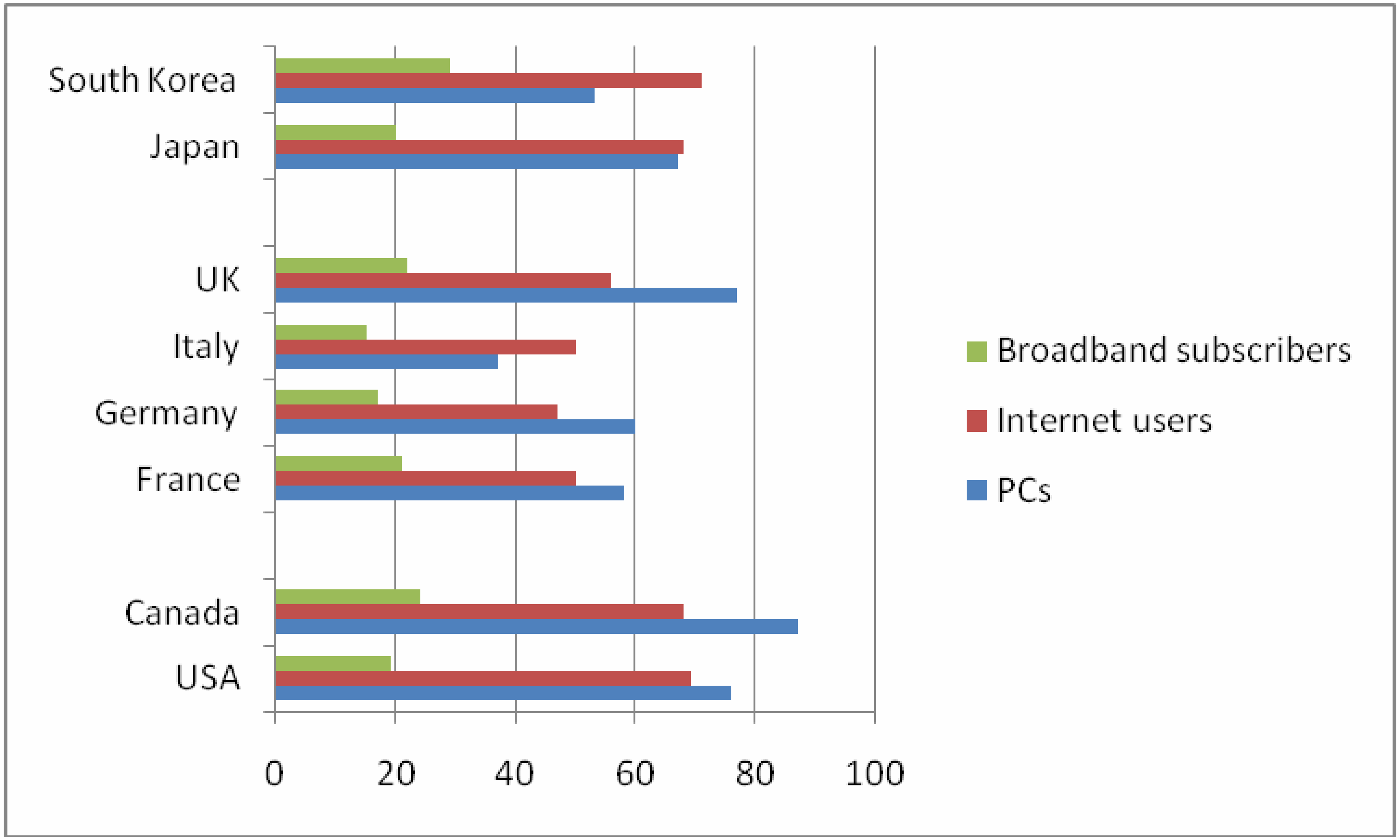
Distribution of revenues in mobile content services, 2008, in %

	Music	Games	TV	Video	Internet	Other
US	5.8	3.4	7.0	2.0	72.4	9.4
Canada	7.1	5.9	0.7	1.3	75.0	10.0
France	11.2	5.9	1.2	2.5	66.7	12.3
Germany	9.9	5.3	1.5	2.0	57.7	23.8
Italy	9.7	6.9	3.6	2.8	56.1	20.9
UK	7.9	7.1	0.8	3.1	56.2	24.8
Japan	4.0	3.4	2.3	2.3	75.7	12.3
South Korea	17.3	7.6	7.4	4.7	40.6	22.4

Users

- Perceived usefulness
  - Depends on alternatives
    - SMS
    - Fixed Internet access
  - Availability of content and services
- Perceived ease of use
  - Education
  - Experience from similar services
- Compatibility
  - Compatibility with current practises
- Parameters
  - Use of SMS
  - Use of Internet
  - E-readiness
  - Pricing schemes

PCs, Internet users, and Broadband subscribers per 100 inhabitants 2007



E-readiness

	E-readiness	Ranking
USA	8.95	1
Canada	8.49	12
France	7.92	22
Germany	8.39	14
Italy	7.55	25
UK	8.68	8
Japan	8.08	18
South Korea	8.34	15

Conclusion – Status

- Europe was leading in the 2G era
- In the 3G era Europe has losts its edge to Asia and now US

Conclusion – drivers

- Low penetration of SMS in US has been driving mobile Internet access (leapfrogging)
- In the long run Europe may benefit from having more experienced mobile users
- Focus moves from connectivity to content
  - E-gov and other applications
  - Europe a fragmented market with different languages and cultures
- Mobile – Internet convergence
  - US may benefit from more advanced use of Internet

Mobile – Internet Convergence

- Will mobile survive as an independent sectoral system of innovation?
- Two scenarios:

1. Mobile Internet services as Internet services with mobility added
   - Use of USB modems
   - Facebook and other social services
   - iPhone
2. Mobile Internet services as enhancement of mobile services
   - Mobile payments
   - MMS

Issues not addressed

- Impact of operator business models
  - Common platforms
  - Open vs closed business models
  - Convergence between regions
- Impact of regulation/ICT policy
  - Standardization: Repeat the 2G trick?
- The role of manufacturer strategies
  - Mobile industry
  - IT industry