Innovation of mobile services in Denmark

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The Networked Readiness Index 2009–2010

Country/ Economy	Rank	Score
Sweden	**1**	**5.65**
Singapore	2	5.64
Denmark	3	5.54
Switzerland	4	5.48
United States	5	5.46
Finland	6	5.44
Canada	7	5.36
Hong Kong SAR	8	5.33
Netherlands	9	5.32
Norway	10	5.22
Taiwan, China	11	5.20
Iceland	12	5.20
United Kingdom	13	5.17
Germany	14	5.16
Korea, Rep.	15	5.14

Economist Intelligence Unit e-readiness rankings, 2008

Category scores

	Overall score	Connectivity	Business enviroment	Social and cultural environment	Legal environment	Government policy and vision	Consumer and business adoptio
Category weight		*20%*	*15%*	*15%*	*10%*	*15%*	*25%*
United States	8.95	8.50	8.53	9.00	9.00	9.00	9.50
Hong Kong	8.91	9.00	8.64	7.47	9.80	8.95	9.50
Sweden	8.85	8.80	8.52	8.60	8.60	9.35	9.05
Australia	8.83	8.60	8.59	9.13	9.50	8.85	8.70
Denmark	8.83	8.70	8.65	8.67	8.60	9.85	8.60

Mobile Readiness (mWatch Europe)

- Assesses mobile in 21 European cities and regions
- The highest scores are given to Scandinavian cities
- Copenhagen is performing well but other Scandinavian cities are performing better.
- High concentration of competences in the Øresund Region (Lund, Malmø and Copenhagen)

Research question

- How can the capital region of Copenhagen maintain a position a centre of excellence for mobile and wireless services?
- How can Danish Industry benefit from having an advanced demand for mobile services?
  - Is there a mismatch between advanced demand and a weak supply side
- Ongoing research activity as part of the project Copenhagen Mobile and Wireless Consortium

Methodology

- System of innovation (Edquist)
  - Includes demand as well as supply factors
  - Emphasis on the innovation process
- National system of innovation
  - User-producer interaction (Lundvall)
  - Triple Helix
- Mobile Ecosystem (Fransmann)
  - Holistic approach
  - Includes technical, economic, political, and cultural factors
  - Emphasis on many different aspects

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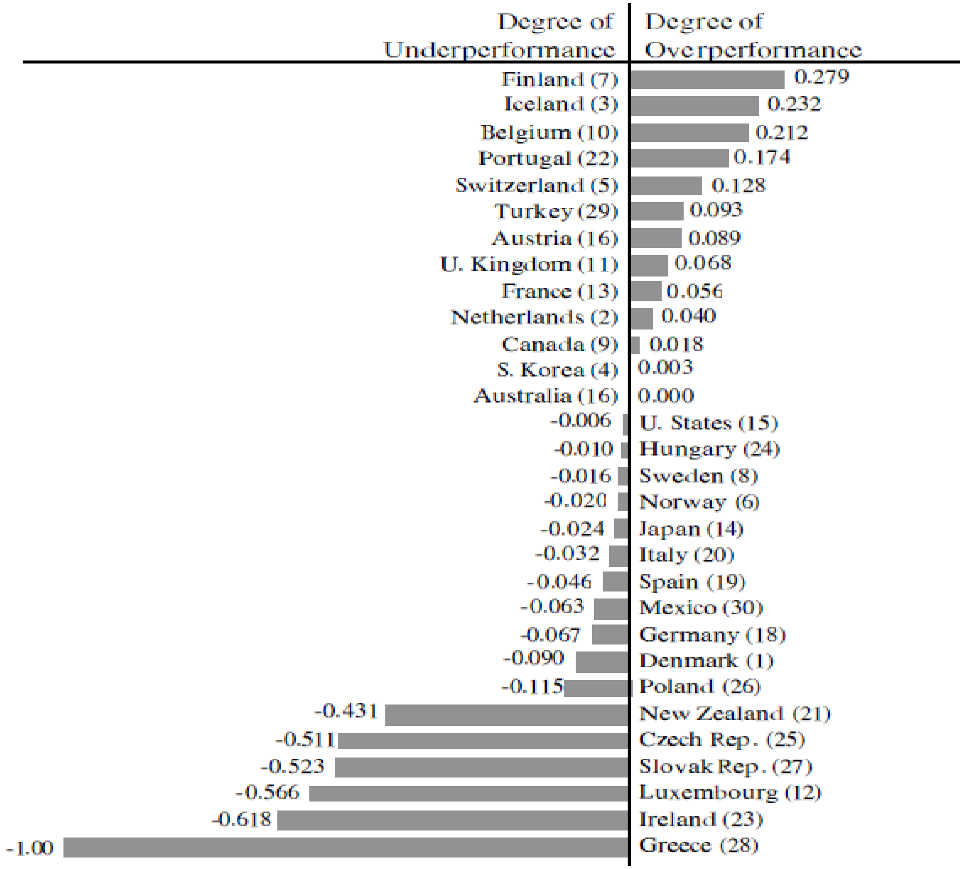
Broadband Performance Index
(December 2006 OECD Rank in Parenthesis)



Policy documents

- 1994: Info 2000
- 1995: Best and cheapest – through real competition
- 1999: Political agreement
- 2001: Broadband strategy – from facilities to content
- 2009: The High speed committee
- Annual reports from the national IT and Telecom Agency

Info 2000

- IT is important:

  "Applied successfully, information technology is a source of economic development, improved quality of life and better service, both public and private."

- Denmark in the forefront:

  "Therefore there is a need for a strategy that places Denmark in the forefront of the development towards an Information Society."

- Universal Access

  "The strategy must rely upon the extensive use of information technology, and it must be based upon values such as openness, democracy and responsibility for all people in society in order to avoid a division among Danes into an "A-team" and a "B-team" with regard to information technology."

- Public sector involvement

  "The public sector shall be actively involved with the private one and be the leading force in the efficient use of information technology."

Penetration of mobile phones

	1996	1998	2001	2003	2005	2009
Denmark	25	36	74	84	101	125
Finland	29	55	80	91	102	143
Sweden	28	46	81	98	101	131
USA	16,6	25,6	45,1	54,5	71,8	89,3
Canada	11,5	17,7	34,9	41,8	51,64	67,0
France	4,2	19,2	62,6	67,7	76,71	94,4
Germany	7,1	17	68,3	78,5	96,04	124,6
Italy	11,3	35,6	87,1	97,6	122,16	138,6
UK	11,6	21,9	77,1	89,2	106,26	124,8
Japan	21,4	37,4	58,8	67,9	75,51	85,8
South Korea	7	30,2	61,4	70,1	79,39	98,9

Supply site: Creation of TDC

- 1990 TDC created through a merger of regional operators
  - Vision: to create a strong national champion
- 1994 49% of the shares sold on the open market.
  - 15% to Danish shareholders
- 1998 The remaining shares sold to Ameritech
  - Vision: to establish Denmark as a European hub through a strategic partnership
- 1999 SBC takes over Ameritech
- 2004 SBC sells its share on the open market
- 2006 A private equity fund takes over 88.2% of the shares

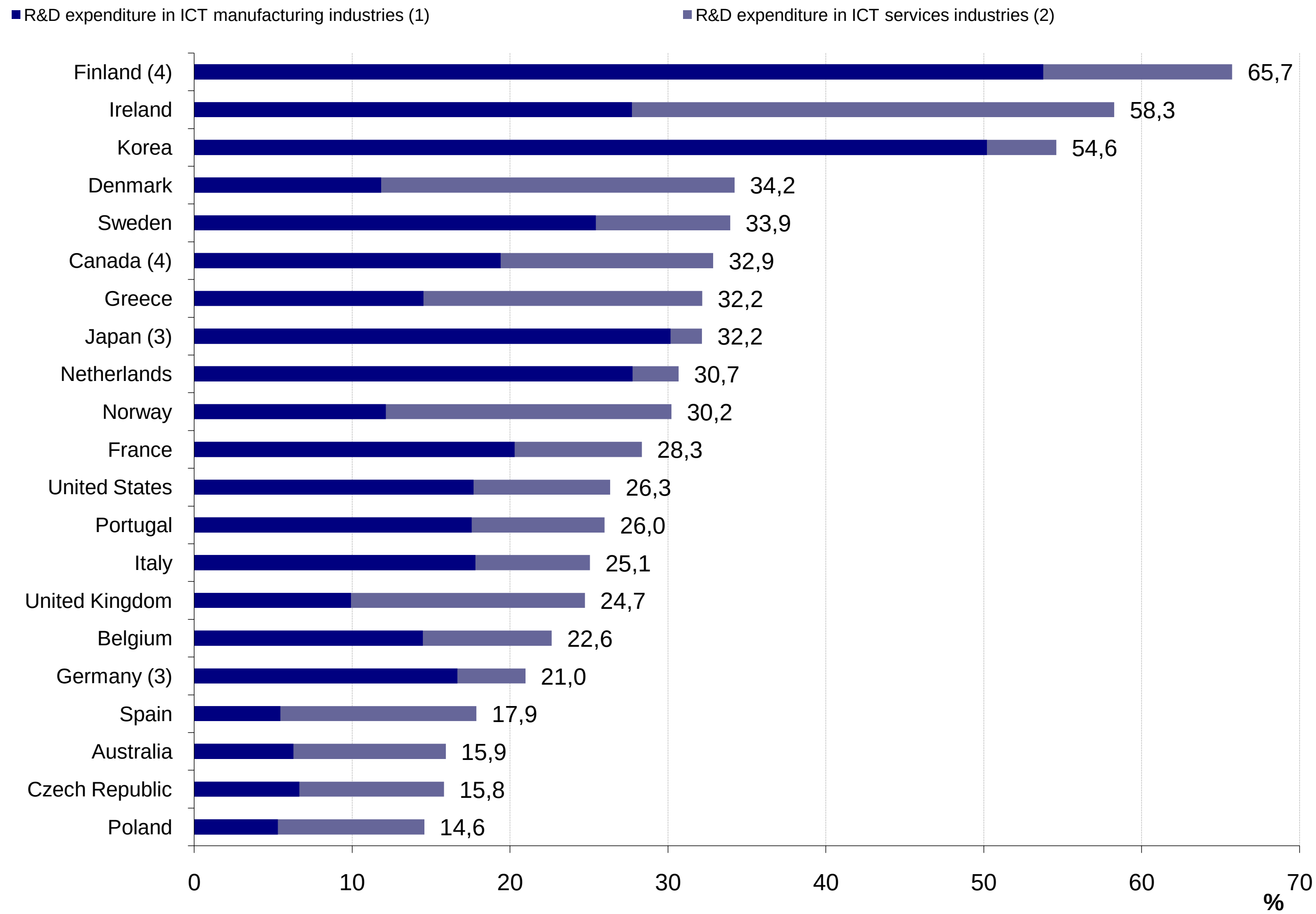
The Nordic Incumbents

	Revenue 2008	Revenue in € (mill.)
TDC	38,819 (mill.) DKK	5,214
Telia	103,585 (mill.) SEK	10,043
Telenor	97,194 (mill.) NOK	11,635

Denmark as a test market

- Attract international investments by providing a small market with advanced users.
- A part of the policy approach especially in the 90’s
- Example: Early liberalisation attracted investments from France Telecom.
- Today limited presence of global players.

R&D expenditures in ICT



Share of ICT-related occupations in the total economy

	Narrow definition			Broad definition	
	1995	2007		1995	2007
EU15	2,61	3,06	EU15	20,62	22,04
United States	3,29	3,74	US	21,22	20,23
Denmark	2,96	4,01	Denmark	20,40	27,18
Sweden	3,87	4,94	Sweden	20,38	24,56
Finland	2,71	4,40	Finland	20,05	24,93
United Kingdom	2,92	3,17	UK	27,77	28,02
Germany	2,22	3,14	Germany	20,38	21,57
France	2,90	2,64	France	18,63	20,08

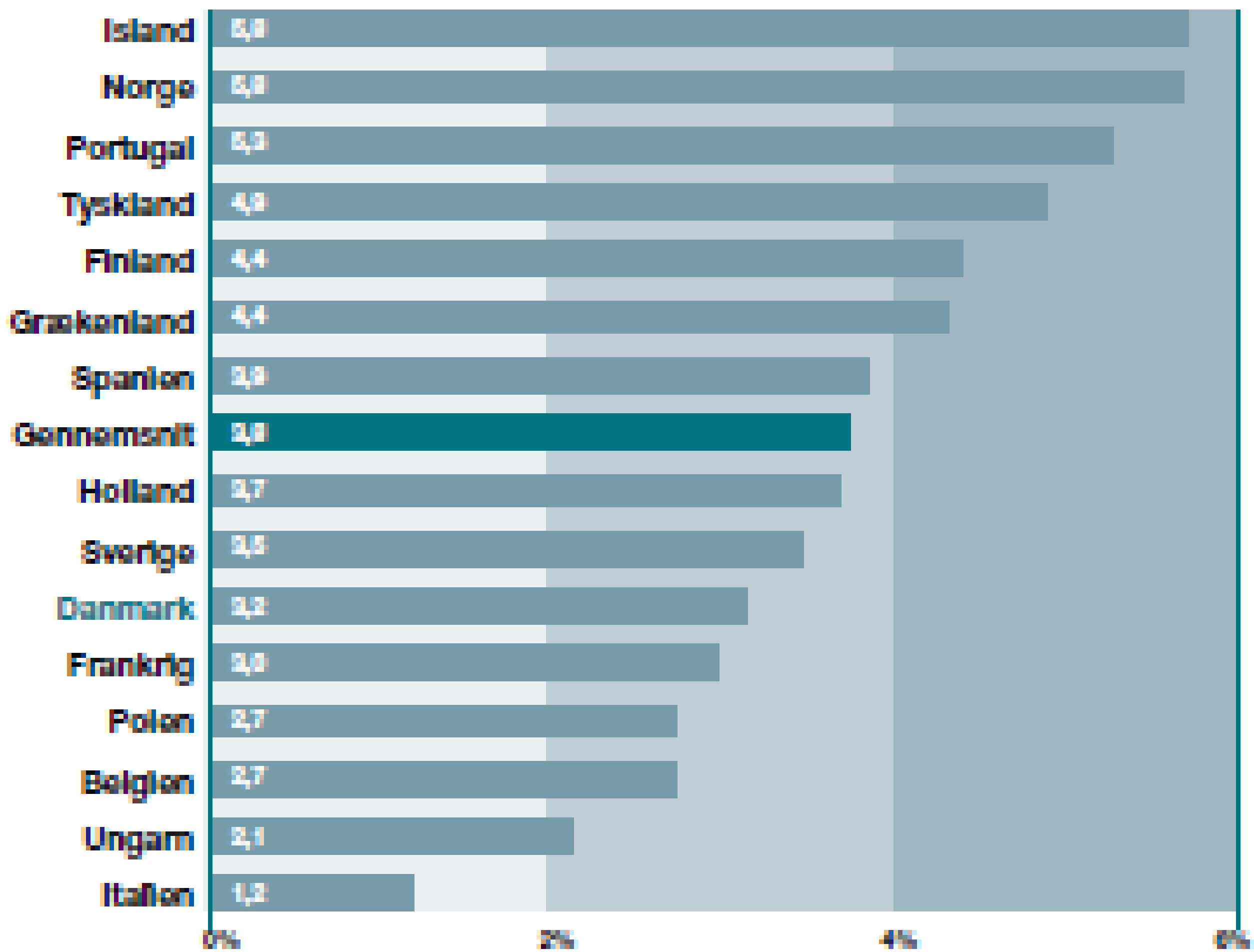
The history of Mobile manufacturing

- Started with radio communication (for ships)
- Two Danish clusters: Aalborg and Copenhagen
- A common Nordic standard created a bigger market
- 2 out of first 4 GSM phones were developed in Denmark
- Manufacturing in a larger scale has never been achieved
- While Nokia and Ericsson became global players, Danish players remained small and has been bought by foreign players
- Still new innovative companies are created in new areas
  - DECT terminals
  - IP mobile phones.

Revealed comparative advantages

Year	2000	2006	2006
Country	**Telecom equipment**		**Total ICT**
Denmark	1,06	0,89	0,51
Finland	6,63	5,5	1,29
France	1,3	0,87	0,54
Germany	0,87	0,75	0,65
Japan	0,77	0,28	1,31
Korea	1,48	2,33	1,85
Sweden	4,46	2,09	0,76
United Kingdom	1,89	4,33	1,39
United States	1,08	0,84	1,11

IT graduates in % of total number of graduates



Thank you for your attention

Conclusions