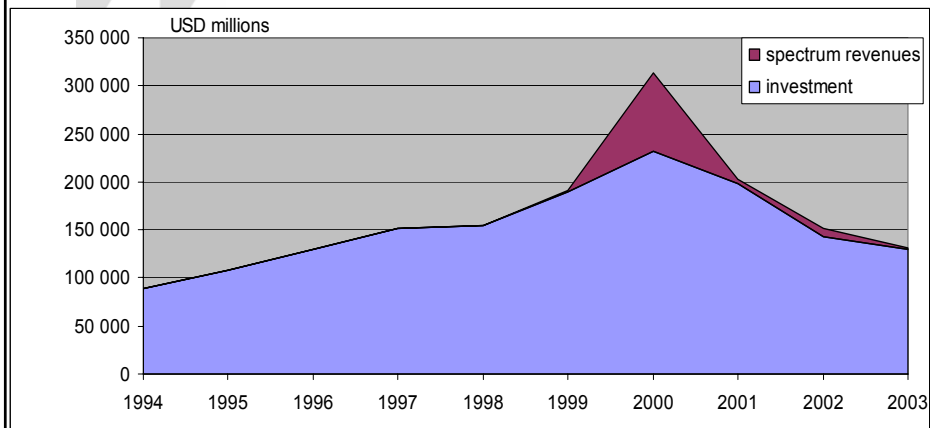




Regulation and its Impact on Telecommunication Investment

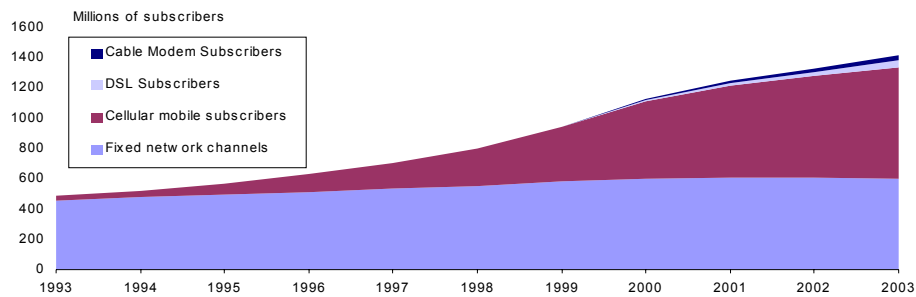
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OECD: Telecommunication Investment 1994 -2003



Network Access

- Increase in access to networks
- Discernable shift between platforms
- Decrease in fixed lines in 2002 and 2003 from peak in 2001
- Cellular Mobile substitution (741 million mobile subscribers at end 2003)
- Broadband substitution (less demand for ISDN and second residential lines)
 - Overall increase in access: 1.4 billion access paths (fixed + mobile + broadband) in 2003 which is double 1997



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Regulation can be a factor in increasing or reducing investment risk

Some Objectives of regulation in a liberalised market

- **Creating conditions for effective competition**
- **Ensuring that benefits of competition are passed on**
- **Ensuring that universal service objectives are met**
- **Public safety, privacy, etc.**
- **Other objectives: e.g. Objectives of CRTC (Canada) include “to promote the ownership and control of Canadian carriers by Canadians;”**

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Improving Regulatory Processes

- Predictability in regulatory processes important
- Stability may or may not stimulate investment
 - e.g. need to ensure that there are no stumbling blocks for to new technologies (wi-fi, VoIP)
 - Prices must change with costs (e.g. interconnection)
- **Streamline entry procedures – registration or Danish model (request for numbers)**
- **Rapid dispute resolution**
- **Consultative process and full transparency (rationale for decisions)**
- **Price regulation and price squeeze**
- **Licensing charges, imposition of other charges (R&D in France, Canada)**

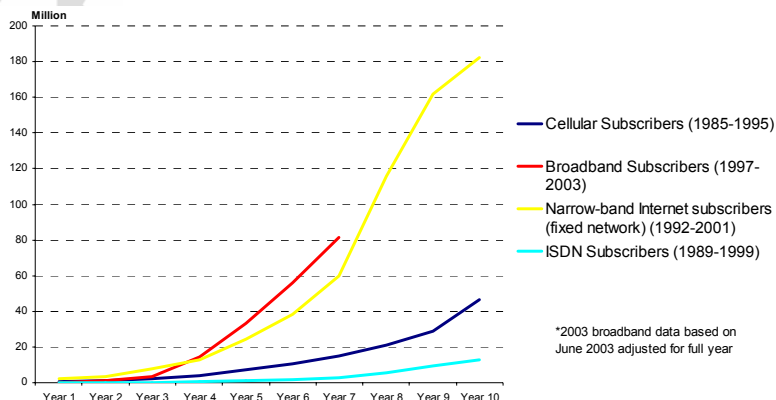
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Unbundling & Local Competition

- Development of local competition slow: (UK 18% of subscriber lines, Denmark 16%, US 14%)
- Argument that unbundling can slow down investment in upgrading local loops (leads to service and not facilities competition)
- Arguments that direct access has negative implications on investment ignore the fact that without adequate levels of competition the pace of investment in upgrading local loop will likely be much slower.
- Direct access provides an incentive to both the incumbent and new entrant to upgrade local loops and invest in new infrastructure.
- The slow rate in the provision of ISDN, and high ISDN prices, has borne this latter argument out.
- It is unlikely that a new entrant will be deterred from making new investment because it has access to an unbundled loop. On the contrary access to that loop increases its customer base, and provides immediate revenue facilitating new investment.

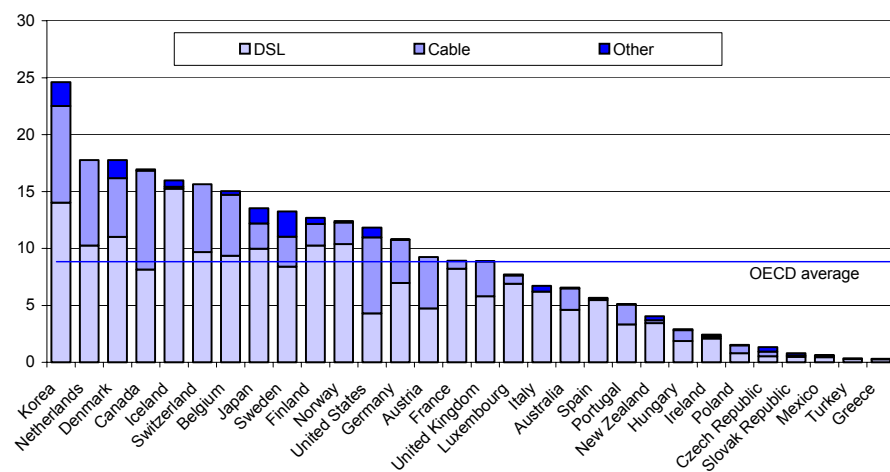
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Broadband take-up over first 10 years is faster than previous services across the OECD

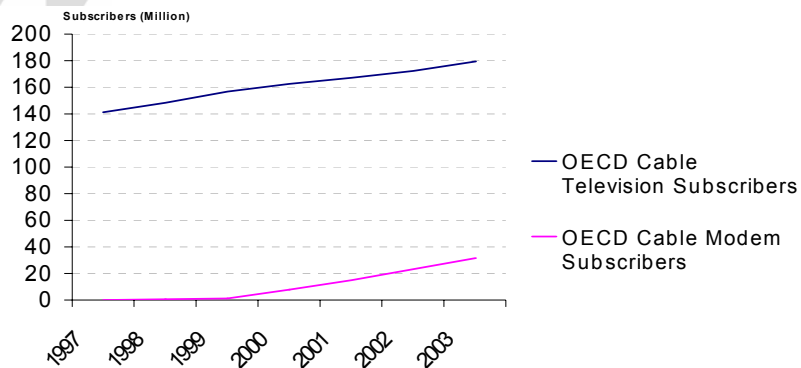


OECD Broadband penetration rates

Broadband subscribers per 100 inhabitants, by technology, September 2004 (preliminary)



Cable television network development



- DSL has overtaken cable as leading broadband platform but cable modems (17%) have a higher penetration of connected customers than DSL (9%)

What will VoIP do to investment?

OECD Residential Basket Prices compared to Skype
% Reduction

Australia	45.0%	Korea	31.0%
Austria	23.1%	Luxembourg	12.1%
Belgium	37.2%	Mexico	1.8%
Canada	1.1%	Netherlands	24.7%
Czech R.	-3.7%	N.Z.	17.8%
Denmark	26.9%	Norway	30.3%
Finland	45.0%	Poland	43.0%
France	45.6%	Portugal	39.6%
Germany	32.7%	Slovakia	12.2%
Greece	34.8%	Spain	25.2%
Hungary	27.6%	Sweden	40.0%
Iceland	20.6%	Switzerland	33.9%
Ireland	19.3%	Turkey	5.0%
Italy	29.1%	U.K.	22.8%
Japan	36.9%	U.S.	51.8%

Household expenditures

- Communications remains the fastest-growing consumption sector in the OECD

