

Access for all: radio spectrum liberalisation and broadband deployment in Sweden

Alternativas para o desenvolvimento da infraestrutura e do acesso em banda larga, Brasilia November 16, 2009

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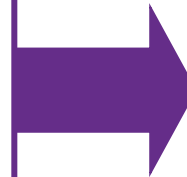
Swedish Post and Telecom Agency (PTS)



Spectrum regulation: old structures and regimes no longer valid

Traditional spectrum management regime

- Tight connection between national monopolies, regulators and industry.
- GSM is an example of a child of this system



Situation today

- Global industry, multinational operators.
- Competing technologies and services.
- Competition between wireless and fixed networks

[Traditional regulatory situation

- Exclusive rights to use radio is the general norm in many bands
- New technologies have, as a general rule, to adapt to history
- New technologies do not “fit the frame”
- Assumption that technology is static; not taking into account for example convergence of fixed/mobile/broadcasting]



Convergence and digitalisation changes the conditions for regulation

- Going from dumb to intelligent radio devices
- Smarter radios need less exclusivity and rigid spectrum planning
- Liberalisation has two fundamental parts
 - Increased flexibility (removal of technical and market restrictions)
 - Secondary trading of rights to use radio



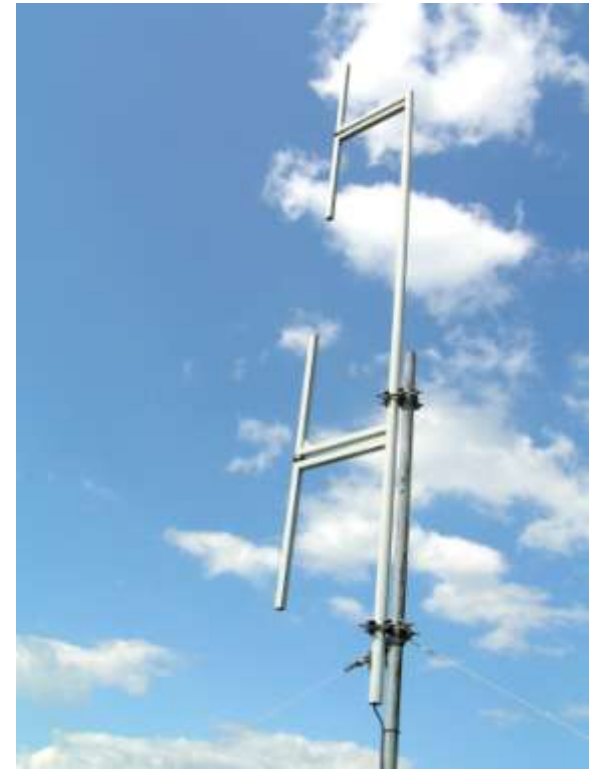
Harmonisation

- Measures at an international level to ensure spectrum use has sufficient commonalities
- Harmonisation is one of the tools regulators have to enable economies of scale
 - Examples of successful harmonisation include GSM and UMTS
 - Examples of unsuccessful harmonisation include ERMES and TETS
- Industry is driving issues like roaming and interoperability - regulators are not
- Industry driven harmonisation is fundamental to the development of technology, markets and society

Service and technology neutrality

- Service neutrality is not the main challenge
- Technology neutrality is a more complex issue
 - “Spectrum manager” has to decide on technical rules for bands to avoid harmful interference – limits choice of technology.
 - Agreements between market players should be encouraged – with “spectrum mask” as fall-back.

Introduction of new technologies becomes the responsibility of market players, not of the spectrum manager.

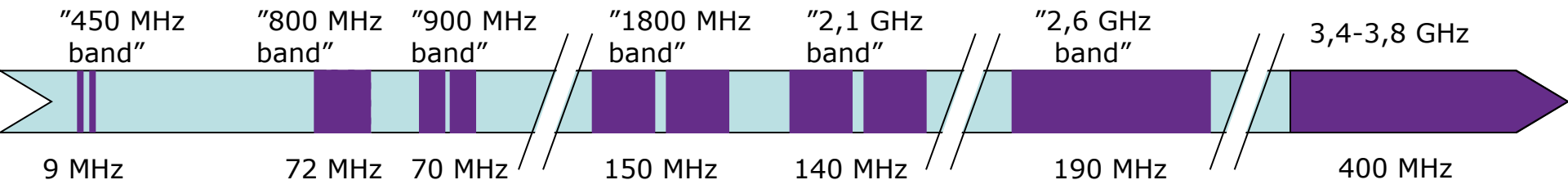


Regulatory challenges

- General issues
 - Handling of the historical legacy (including surface coverage of existing systems)
 - Parties wanting to protect their special interests
- Market issues
 - What direction(s) will the market take?
 - What is the market demand for electronic communications services today and tomorrow ?
 - What is the demand for radio spectrum today and tomorrow?



Assigning spectrum suitable for mobile broadband

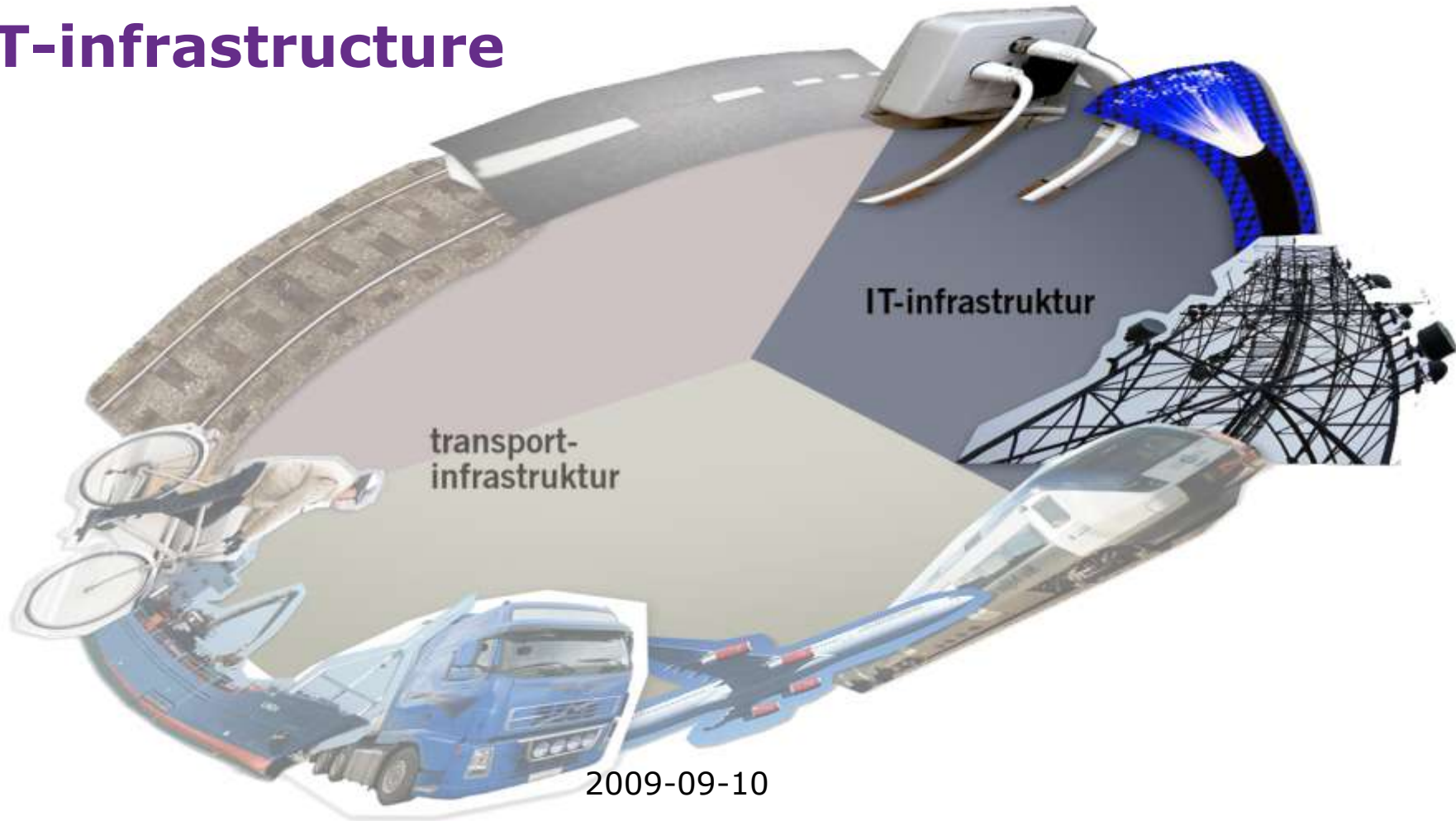


- 800 MHz band – service and technology neutral assignment is planned. Auction – conditions (incl. spectrum caps) yet to be set
- Opening of 900 MHz and 1800 MHz bands for UMTS and LTE – an issue of technology neutrality.
- 2,6 GHz and 3,6-3,8 GHz assignments in Sweden technology and service neutral. (Auctions). The latter was split in to local licences.
- More spectrum under 1 GHz needed – gov't users, for example military, traditionally control a lot of spectrum

Government proposal to further liberalise radio spectrum usage

- Published 16 october 2009
- Licences for frequencies, not usage or antennae
- Renewal of licences as a main rule
 - Unless there are competition concerns
- Auctions if demand exceeds supply
- All licences can be transferred or leased
 - Subject to competition assessment by the regulator
 - Minor transactions can be exempt from pre-approval

Broadband and IT-infrastructure



Sweden has a strong position in broadband

- Top position in international ranking lists
- 78 percent of the population has broadband access (including HSPA modems = mobile broadband)
- 99% in age group 16-30 use the Internet daily!
- Large share of fibre connections and mobile broadband
- ICT investments as a share of total investments is higher than in all OECD countries except the US

The old ICT strategy (2001)

- Broadband Support Program during 2001-2007 was a fundamental pillar
 - Funding 817 million \$ (5.25 billion SEK)
 - **The financial support largely attained its goals**
 - Broadband to rural areas – proposal on a new support program, but no action on the proposal currently foreseen
- The role of the Swedish National Grid
 - Use existing physical infrastructure to build national backbone
 - Wholesale access to all – competition with the incumbent
 - Wholesale access points in all 290 Swedish municipalities

Challenges for the future

- Remain in top position as regards ICT
 - Positive for economic growth and jobs
 - Important for turning Sweden in to an eco-efficient economy
- Realisation of Next Generation Networks
 - Incentives for the market to make investments
 - Maintaining/developing sustainable broadband competition
- Digital divide
 - Areas with low capacity broadband or no broadband at all.

Sweden's new broadband strategy was released on November 3, 2009

- In the year 2020, 90 percent of households and businesses should have access to at least 100 Mbit/s.
- In 2015, 40 percent of households and businesses should have access to at least 100 Mbit/s,
- All households and businesses should have the opportunity to access public services electronically by broadband.
- The government should not intervene in the market technology development, but remove barriers, incl. ensure appropriate regulation
- <http://www.sweden.gov.se/sb/d/11345/a/134979>

Sweden's new broadband strategy: specific action points

- Further radio spectrum liberalisation (as discussed)
- PTS will look at what frequency bands can be used for high capacity access in currently underserved areas
- "Functional Internet Access" concept (lowest acceptable capacity) to be reviewed
- Increased responsibility of local authorities in city planning to ensure access for IT infrastructure
- Implementation of the revised EU Directives for electronic communications ("the telecoms package")

Other issues

- Competition
 - Whether/how to regulate next generation access
 - Implementation of revised EU Directives (“the telecoms package”)
 - City networks – “open” business models that promote competition
- Support for local broadband investments
 - funding for building broadband - part of EU recovery plan
 - tax deduction for building broadband on own property
 - funding for co-investments in ducts

Competition and "openness" issues

- Main focus of EU regulation on lower levels – should suffice
- "Net neutrality" (upper levels) an emerging issue in the EU
- New net neutrality powers to regulators in revised EU Directives
- New PTS Openness Report Nov. 30

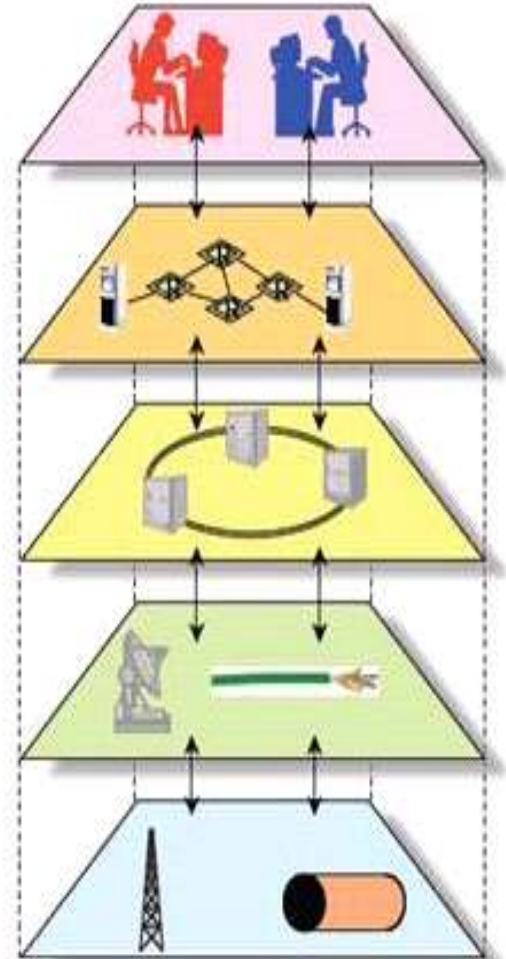
Service level

IP level

**Transmis-
sion level**

**Infrastruct.
level**

**Natural re-
source level**



EU's new ICT strategy

- To replace the current "i2010" strategy
- Discussions begin now during the Swedish EU presidency
- Still likely some focus on broadband
- Report commissioned by the presidency, "A Green Knowledge Society" (link below)
- High-level conference, Visby, Sweden Nov. 9-10
- All info (report, conference presentations etc.):
http://www.se2009.eu/en/meetings_news/2009/11/9/visby_agenda_creating_impact_for_an_eu_nion_2015