

## *Lecture 8*

# Regulation of (mobile) Telecommunications

Mobile Business II (SS 2010)

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- Definitions of Regulation
- Origins of Regulation
- Regulation Levels
- Regulation in Germany
- Development and Future of Regulation in Europe
- Examples for Regulation

## Main Entry: <sup>1</sup>reg·u·la·tion

- Pronunciation: \,re-gyə-'lā-shən, ,re-gə- *also* ,rā-\
- Function: *noun*
- 1: the act of [regulating](#) : the state of being [regulated](#)
- 2 a: an authoritative rule dealing with details or procedure <safety *regulations*> ; b: a rule or order issued by an executive authority or [regulatory](#) agency of a government and having the force of law
- 3 a: the process of redistributing material (as in an embryo) to restore a damaged or lost part independent of new tissue growth; b: the mechanism by which an early embryo maintains normal development

## Main Entry: <sup>2</sup>regulation

- Function: *adjective* Date:
- : conforming to [regulations](#) : [official](#)

[Merriam-Webster 2006]

## Main Entry: reg·u·late

- Pronunciation: \ 're-gyə- ,lāt *also* 'rā-\
- Function: *transitive verb*
- Inflected Form(s): reg·u·lat·ed; reg·u·lat·ing
- Etymology: Middle English, from Late Latin regulatus, past participle of regulare, from Latin regula rule
- 1 a: to govern or direct according to rule; b (1): to bring under the control of law or constituted authority (2): to make [regulations](#) for or concerning <*regulate* the industries of a country>
- 2: to bring order, method, or uniformity to <*regulate* one's habits>
- 3: to fix or adjust the time, amount, degree, or rate of <*regulate* the pressure of a tire>

[Merriam-Webster 2006]

- Public intervention into markets
  - Limits/enables action scope of market players as to e.g.
    - Market entry
    - Pricing
    - Offerings
  - Limits/enables action scope of individuals
  - Limits/enables application of new technologies
  - Modifies general laws with regard to a certain industry
  - Often owing to market failure
  - Has a long history in telecommunications and broadcast

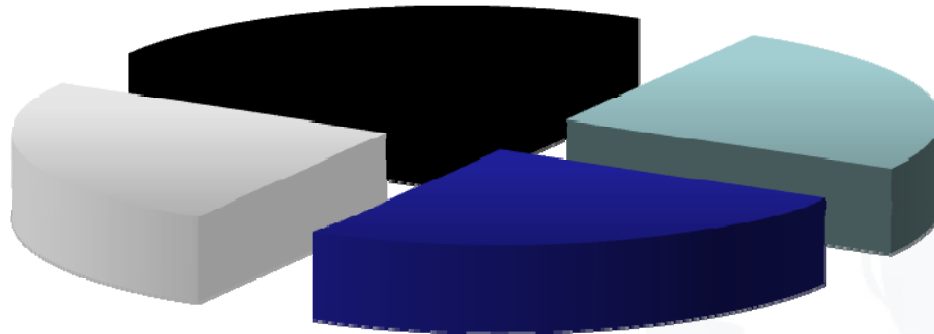
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- Market Failure as a reason for regulation
  - The market price does not reflect the real costs of the system
- Consequence:
  - Hampered competition, innovation, society progress
- This may occur in different ways.

- Telephone Monopoly:
  - Formerly high prices and inflexible service, no customer orientation
- DSL-flat-rate:
  - Higher costs for competitors, advantages for the former monopolist
- Microsoft-trial:
  - Exploitation of market power against Netscape
- Post-monopoly:
  - Volatile service quality and high prices for international delivery of mail

# Types of Market Failures

- 1. External Effects
- 2. Natural Monopolies
- 3. Dominant Supplier
- 4. Political Failure



- Actors and beneficiaries are different:  
“Investment does not pay off.”.
- Examples:
  - Basic Research: State subsidizes infrastructure for the benefit of the public since private efforts do not pay off.
  - New Infrastructures: One Market player invests into a new infrastructure, others shave off the benefits.

- In industries with high fixed costs or limited market potential,
- One (monopoly) supplier may produce at lower costs than several suppliers in competition.
- Prices and services need to be regulated.

- If a supplier
  - dominates a market and
  - harms competition and innovation
- Competition surveillance may
  - foster market entries or
  - limit the market power of the dominant supplier.

- Political goals are not achieved.
  - E.g. employment goals or social goals are not achieved by the market itself.
- Then, state intervention may be necessary.

- Purpose of regulation
  - Encourage more national and international competition
  - Foster innovation through competition
  - Let price competition drive new technologies into the mass market

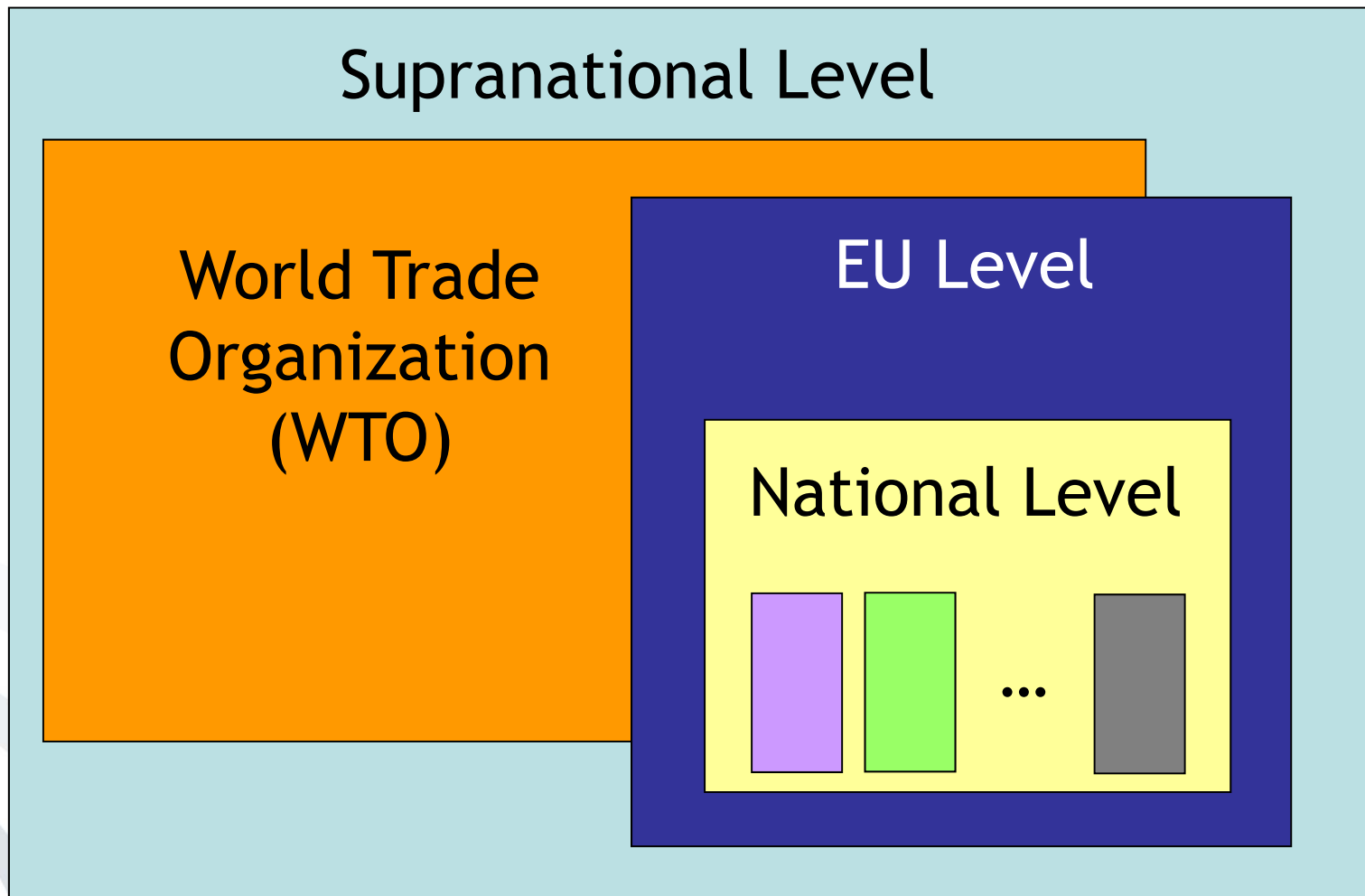
Regulation is

“ ... justified and accepted in case of market failures, i.e. when the market fails to allocate resources in a welfare maximizing way.” [Drüke 1999]

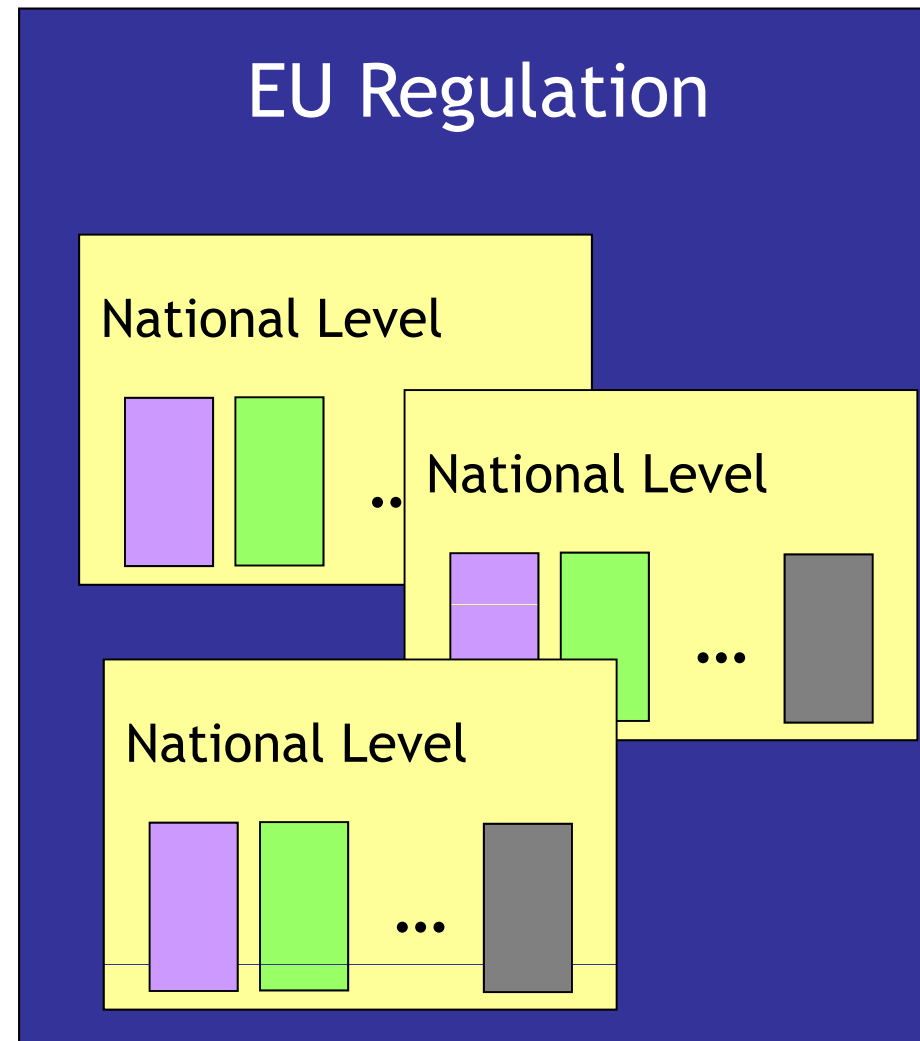
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Regulation is done on several levels:

- International agreements (WTO)
- EU regulation
- National regulation
- Regional regulation



- Within the EU:  
national regulation and  
EU regulation
- National Sovereignty:  
multitude of regulations
- ➔ The French military  
claimed Bluetooth  
frequencies:
  - Market failure?
  - Regulation failure?
  - Bad luck in  
standardization?



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- Was developed over a long period of time
- Some developments can only be explained historically.
- Separation of technical services and content services, e.g.:
  - Telephone networks
  - Mobile radio networks
  - Radio amateur
  - Broadcasting

- Regulation of:
  - Price,
  - Access,
  - Technology,
  - Distribution, and
  - Availability.
  
- Competence split between federal authorities and state authorities
  - Federal Ministry of Economics,
  - Federal state media institutions,
  - Data protection authorities,
  - Authorities for the protection of minors, and
  - other authorities.

- ➔ Intransparent mesh of competencies
- ➔ One resolution approach:  
synchronization and assimilation of  
Mediendienstaatsvertrag (State Treaty of Media)  
and Informations- und Kommunikationsdienstegesetz  
(ICT Law)

| Means              | Responsibility                          |
|--------------------|---|
| Law                | Parliament (“Bundestag”)                |
| Ordinance          | Government                              |
| Ordinance / Decree | Ministry / Department                   |
| State treaty       | State governments                       |
| Licensing          | Authority (e.g. Federal Network Agency) |
| Supervision        |   |

|                          | Technical Services   | Content Services   |   |  |  |
|--------------------------|--|--|---|--|--|
| Service Category         | Telecommunication Services   | Voice Telephony and Annex Services                                   | Tele Services   | Media Services   | Broadcast  |
| Relevant Law             | Telekommunikationsgesetz (TKG)   | Telekommunikationsgesetz (TKG)                                       | Teledienstgesetz (TDG)  | Mediendienstestaatsvertrag (MDStV)                                     | Rundfunkstaatsvertrag (RSTV)   |
| Holder of Competence     | Federation (Bund)  | Federation (Bund)  | Federation (Bund)   | Federal states   | Federal states   |
| Regulation Measures      | Limited economic freedom: universal service duty, tariff regulation, control competence of the federal state's media institutes over the broadband cable network | Limited economic freedom: license obligation; ex-ante tariff control | Economic freedom: no mandatory admission and registration, no supervision | Economic freedom: no mandatory admission and registration, supervision | No economic freedom; broadcast freedom (Rundfunkfreiheit) as institution; dual system                |
| Responsible Institutions | Federal Network Agency   | Federal Network Agency   | none  | different institutions for supervision                                 | Supervision bodies of the broadcasting institutions; state media institutions as well as KEF and KEK |

According to [Siemer2003] and updated

|   | Telecommunication Services   | Tele Services                                    | Media Services                           | Broadcast  |
|---|--|--|--|--|
| Variety, Chances of Communication                         | Federal Network Agency<br>"Bundesnetz-agentur"                           | Federal Cartel Office                            |  | Federal State Media Institutes<br>"Landesmedien-anstalt" |
| Access Control  |  |  |  | KEK <sup>1</sup> /KDLM <sup>2</sup>                      |
| Concentration Control                                     |  |  |  |  |
| Regulation of Promotion and Advertisements, Miscellaneous |  |  | Institutions according to § 18 I 3 MDStV | Federal State Media Institutes                           |
| Protection of Minors                                      |  | not explicitly mentioned: BPjS (Prot. of minors) | Institutions according to § 18 I 1 MDStV |  |
| Data Protection   | Federal Network Agency<br>Data Protection Offices according to § 38 BDSG |  | Institutions according to § 18 I 3 MDStV | Institutions according to Federal States law             |

1) Kommission zur Ermittlung der Konzentration im Medienbereich

2) KDLM: Konferenz der Direktoren der Landesmedienanstalten

According to [Siemer2003] and updated

- Telekommunikationsgesetz (ICT Law, TKG), Telekommunikationsüberwachungsverordnung (TKÜV)
- Teledienstegesetz (TDG), Teledienstedatenschutzverordnung (TDSV)
- Telekommunikations-Datenschutz-Gesetz (TKDG)
- Mediendienstestaatsvertrag (MDstV) und Informations- und Kommunikationsdienste-Gesetz (IuKDG)
- State Treaty on Broadcasting (“Rundfunkstaatsvertrag”)
- International agreements on satellite communications
- ... further regulations as to criminal prosecution, basic rights, consumer protection (“Konsumentenschutz”).

- License-free vs. license obligation
- Licenses have to be assigned before operations start, i.e. there are preconditions for a license to be assigned
- License-holders also have to fulfil ongoing obligations, in order to retain the license.

### Examples for license preconditions

- IT security and data protection concept
- Proof of technical competence

### Examples for continuous license obligations

- Employment of reliable personnel
- Provision of emergency numbers
- Support of police and intelligence services at e.g. law enforcement, criminal prosecution and protection of the constitution.

- Federal Ministry of Economics and Technology “BMWt”
  - Includes former post ministry
    - ➔ responsible for post and telecommunications
  - Supervision of “Regulatory Authority” Federal Network Agency (FNA)



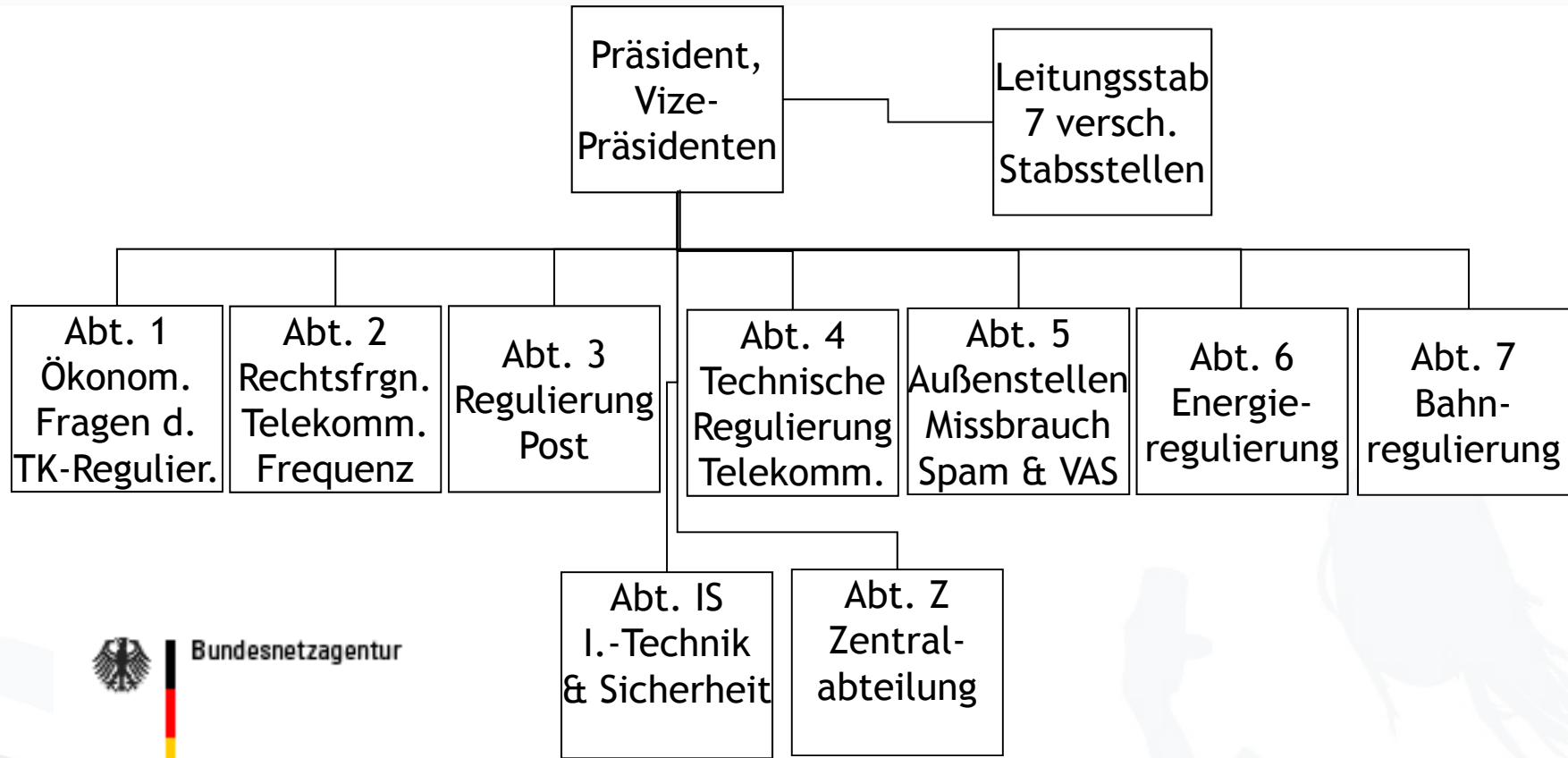
Bundesministerium  
für Wirtschaft  
und Technologie

- Federal Network Agency (“Bundesnetzagentur”; “BNetzA”, FNA)
  - “Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway”: separate higher federal authority within the scope of business of the Federal Ministry of Economics and Technology.
  - According to TKG (1996) established as an authority under the supervision of the Ministry of Economics
  - Emerged from Federal Ministry of Post and Telecommunications (Bundesministerium für Post und Telekommunikation (BMPT)) and the Federal Bureau of Post and Telecommunications (Bundesamt für Post und Telekommunikation (BAPT)).
  - Start of operations 1998-01-01 as “Regulierungsbehörde für Telekommunikation und Post” (RegTP)
  - Renamed in 2005-07-13 to the current name

- The task of the “Regulatory Authority” (currently the “Federal Network Agency”) is to develop post and telecommunications markets by liberalization and deregulation.
- Starting 2005 the Federal Network Agency also supervises the energy industry.
- The “Regulatory Authority” ’s instruments are:
  - Information
  - Investigation
  - Sanction authority

# Organization Chart of the “Regulatory Authority”

9 Beschlusskammern für verschiedene Regulierungsbereiche



[Source: <http://www.bundesnetzagentur.de/cae/servlet/contentblob/150968/publicationFile/5919/100311OrgChartSept09Id10837pdf.pdf>]

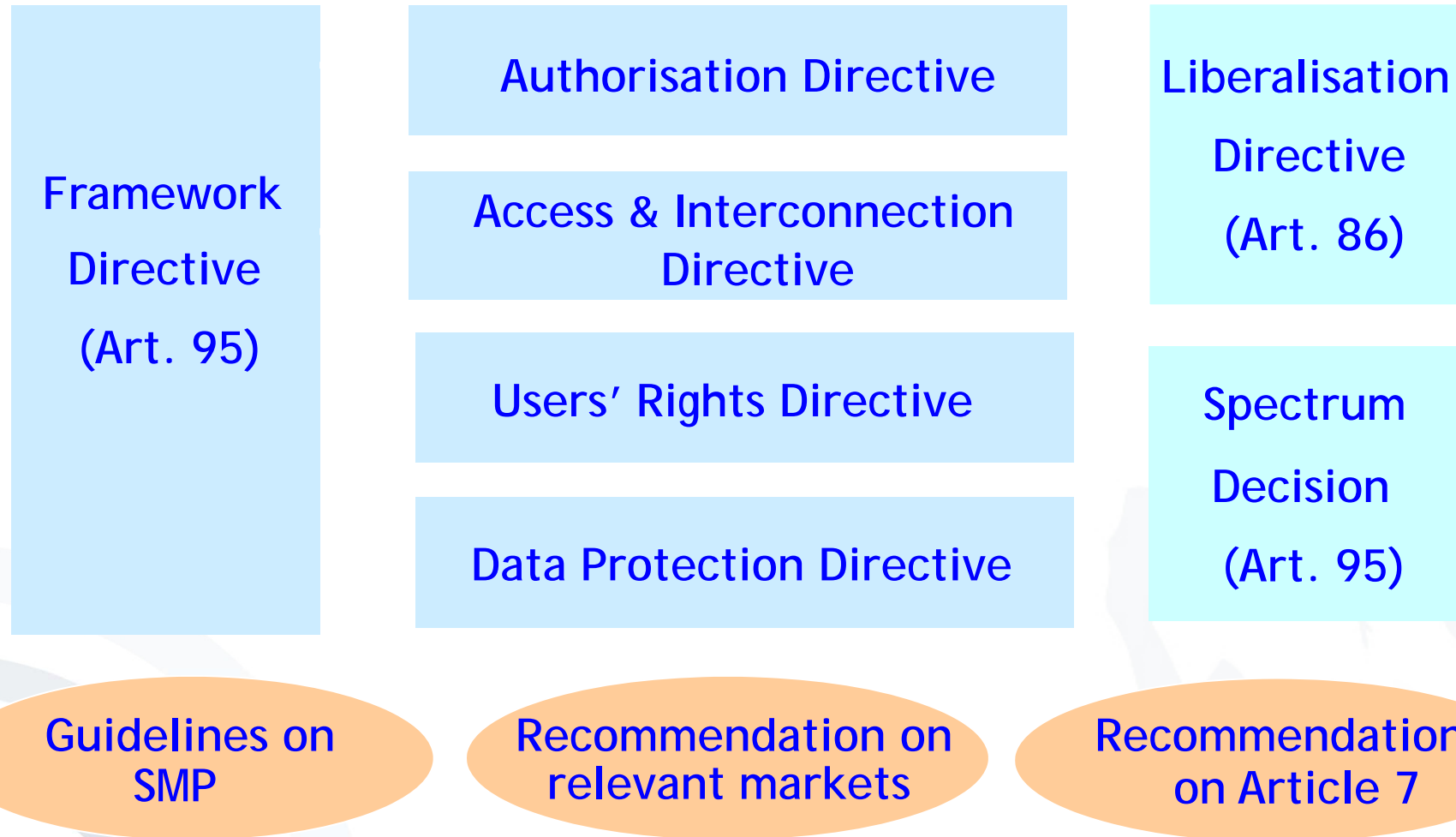
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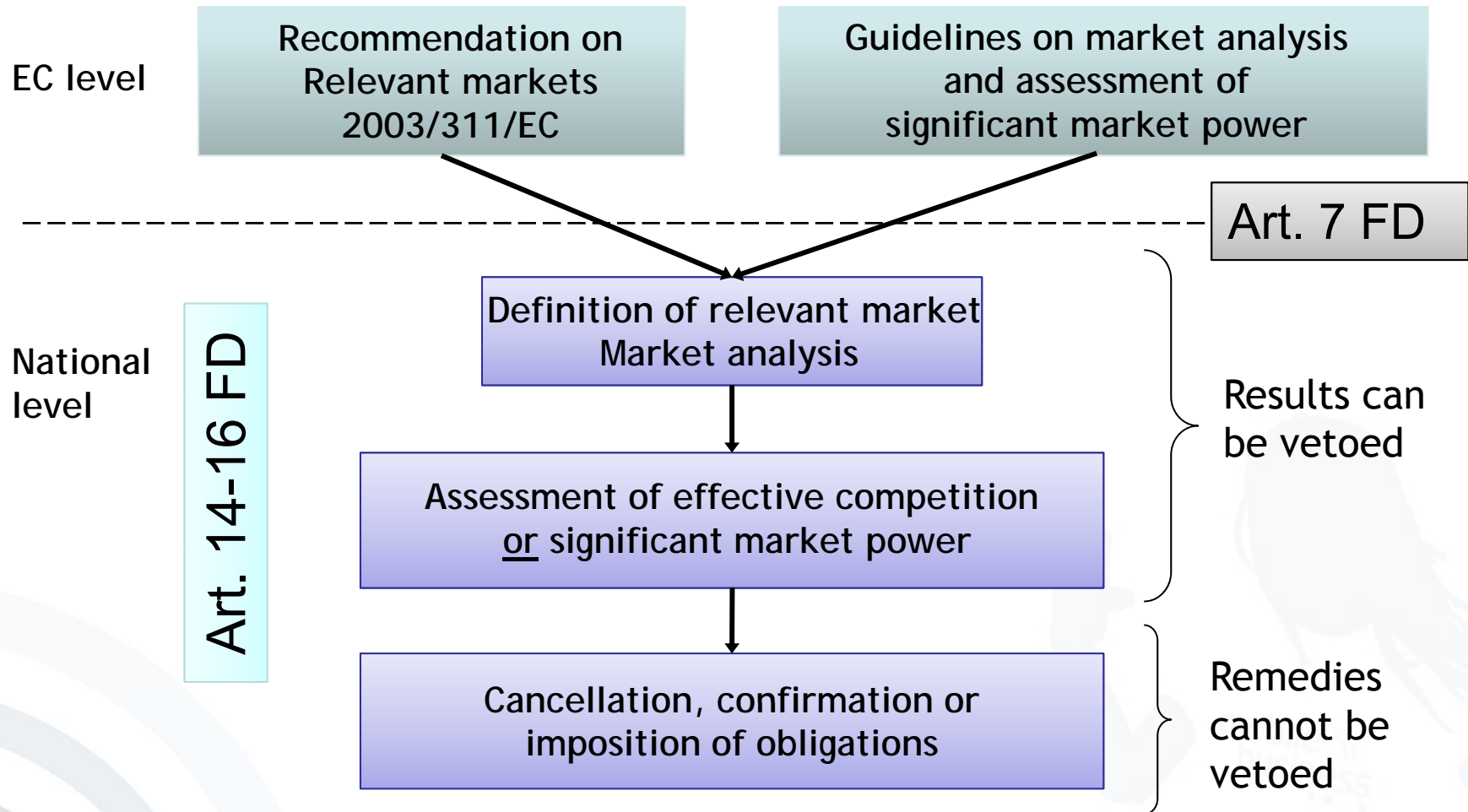
Within the EU:

- Greenbook “Convergence in Telecommunications” (1997)
- EU regulation with aligned rules, e.g. on emergency call services
- Request for joint regulatory authority for telecommunications

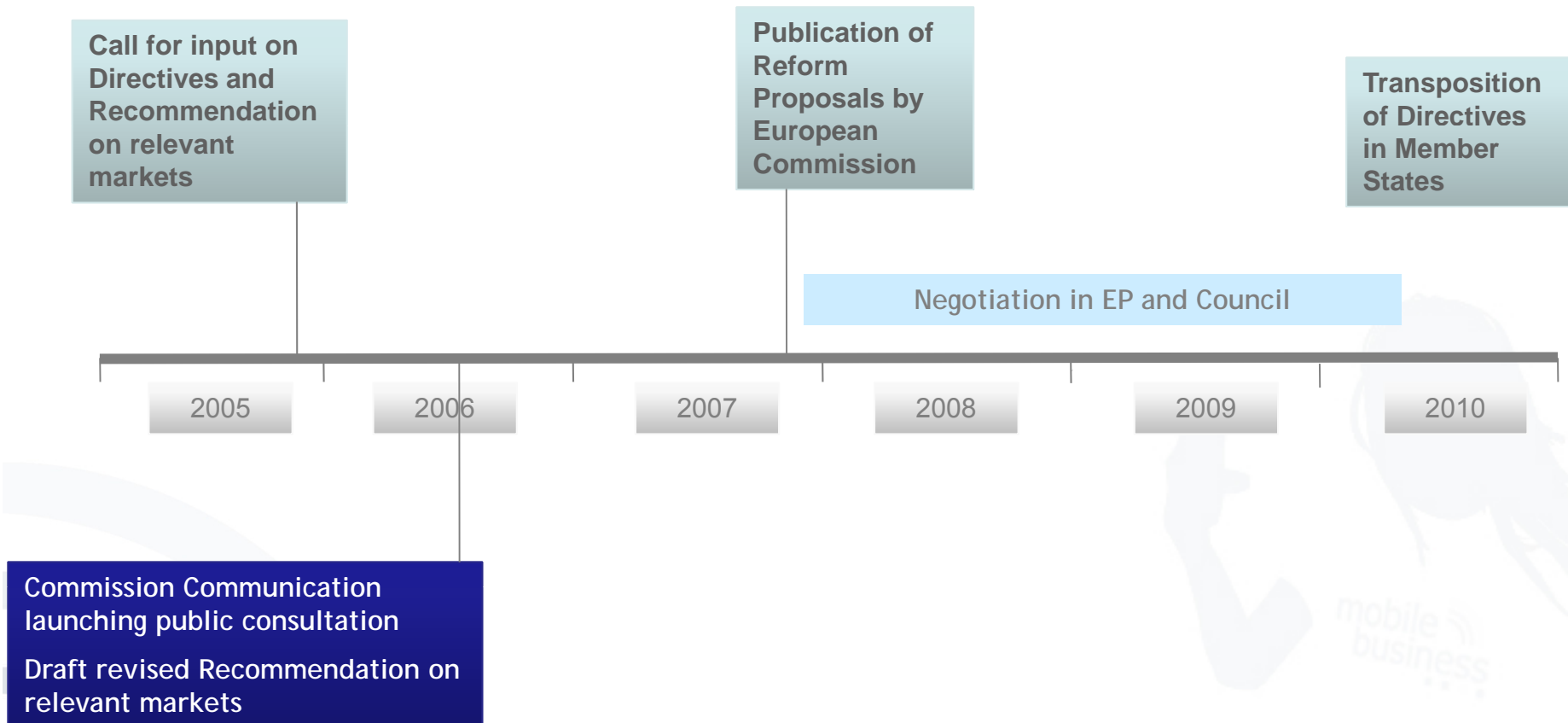
- Separation of media, services and transmission technology becomes obsolete owing to digitization
  - “Range” is not limited to radio signals since digital services are ubiquitous (⇒ Internet)
  - Merging of infrastructure and services (radio as part of the infrastructure, content as service)
- ⇒ Hence, the historically grown separation of technical services and content services is obsolete.

- 1990: Directive on „Open Network Provision“ (ONP) for telecommunications network access within the EU
- 1996/97: Adaptation of ONP:
  - Data protection rules
  - Licensing
  - ONP-revision (e.g. addition of topics like preselection, call-by-call, number portability)
  - Guidelines for user devices
  - National implementation had to happen swiftly.
- 2006/07: Review of the EU Regulatory Framework for electronic communications networks and services (ECNS)



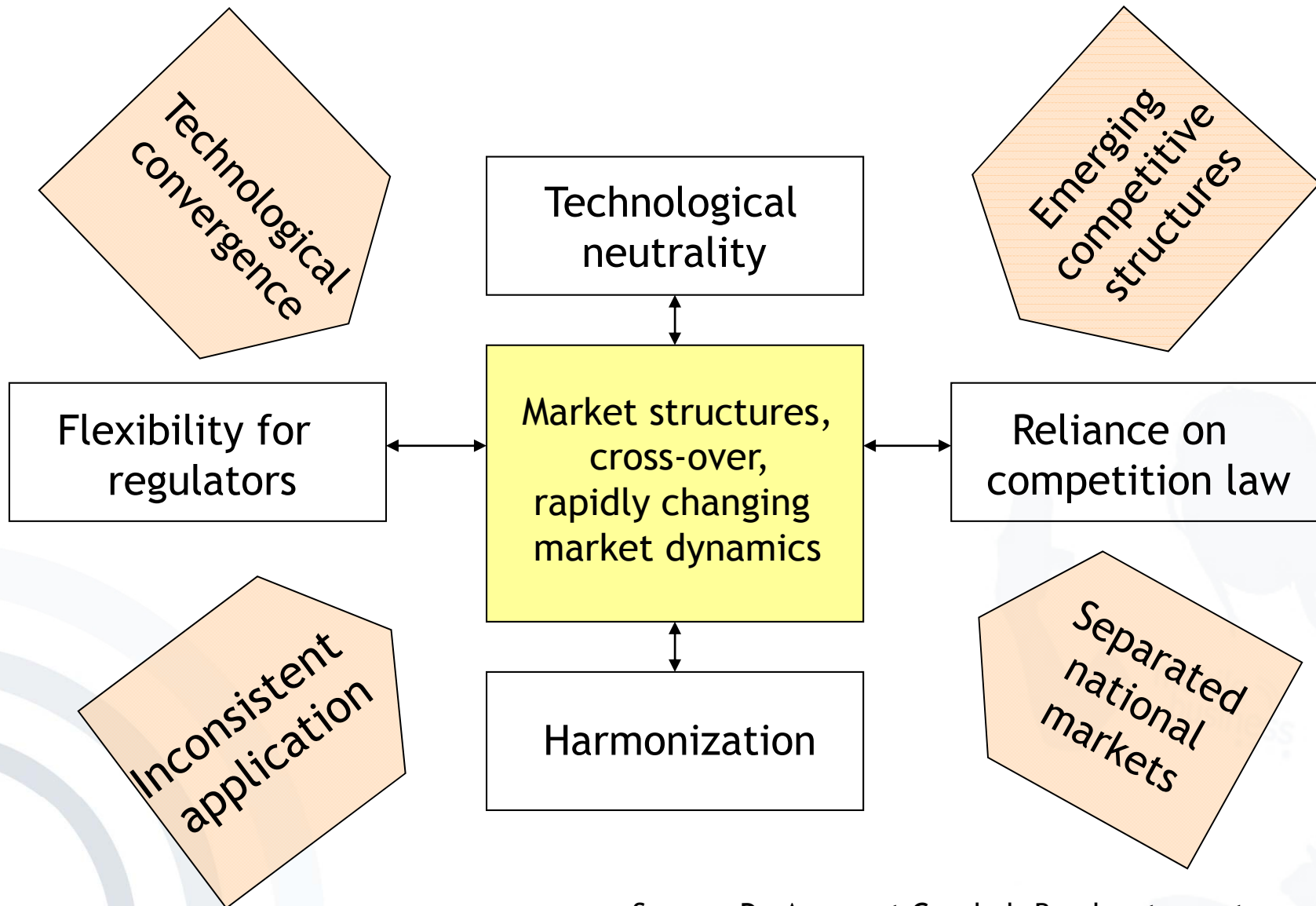


➔ Remedy should be effective → solve the lack of competition  
Important role of national regulatory authorities (NRA) to choose the appropriate remedy



- Innovation & Investment
- Spectrum management
- Simplification of burden in relation to market reviews
- Consolidate the internal market
- Consumer issues
- Improve security
- International Roaming (prop. Art. 95 Regulation)

- Investing in new technologies: beginning of the investment cycle
  - NGNs
  - WiMax
  - VDSL } Convergent markets
- NGNs will require adjusting the interconnection regime from the current narrowband to IP-IC
- Convergence of fixed and mobile services with potentially changing market boundaries
- Convergence of communications and broadcasting services (bundles)
- New services, new players and a higher market dynamic
- Chances and risks for competition



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- Spectrum allocation for radio and television broadcasting (DVB-T)
- Spectrum allocation for mobile communications
- UMTS-license awarding
- Frequency Allocation
- Digital / electronic signature
- Countermeasures against illegal diallers

## Administration by state media institutions

- Spectrum allocation by tendering
- Public and private broadcasting corporations
- Analogue and digital transmission via cable and broadcasting
- Not responsible for Internet television and Internet radio

- Administration of radio frequencies and issuing of licenses by Federal Network Agency.
- Determining frequency bands
- Administration of licenses for mobile network operation
- Recent licenses were auctioned.

Most recent (May 2010):

Frequency Allocation for high-speed wireless data transfer (800 MHz, 1,8 GHz, 2 GHz, 2,6 GHz)

- Auction amounted to tremendous license costs
- Strict license obligations as to
  - Network construction
  - Coverage
  - Investments
- Dispute over division between federal government and states
- Is UMTS telephony, data service, or broadcast?

- Adoption of the German Signature Act (Deutsches Signaturgesetz (SigG)) and Signature Ordinance (Signaturverordnung (SigV)) 1997
  - Trust center control
  - Security related prerequisites
- EU directive 1999
- 2001 Adaptation of SigG and SigV according to EU directive

Council Directive 1990/387/EEC of 28th June 1990 on the establishment of the Internal Market for telecommunications services through the implementation of Open Network Provision. OJ L192, 24.7.90, [http://europa.eu.int/information\\_society/topics/telecoms/regulatory/98\\_regpack/text\\_en.htm](http://europa.eu.int/information_society/topics/telecoms/regulatory/98_regpack/text_en.htm)

DIRECTIVE 2002/58/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communication sector (Directive on privacy and electronic communications), [http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l\\_201/l\\_20120020731en00370047.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_201/l_20120020731en00370047.pdf)

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EU-Law: [www.artikel5.de/gesetze/eu-index.html](http://www.artikel5.de/gesetze/eu-index.html)

German media supervision: [www.jura.uni-sb.de/BIJUS/rundfunk/rstv36.htm](http://www.jura.uni-sb.de/BIJUS/rundfunk/rstv36.htm)

Organization Chart Federal Network Agency:  
[www.bundesnetzagentur.de/media/archive/10835.pdf](http://www.bundesnetzagentur.de/media/archive/10835.pdf)

Telecommunications regulations by the Federal Ministry of Economics and  
Technology:  
[www.bmwi.de/BMWi/Navigation/Service/gesetze,did=21996.html](http://www.bmwi.de/BMWi/Navigation/Service/gesetze,did=21996.html)

Roadmap for the Reform of the EU's Telecom Rules:  
[http://ec.europa.eu/information\\_society/policy/ecommm/tomorrow/index\\_en.htm](http://ec.europa.eu/information_society/policy/ecommm/tomorrow/index_en.htm)