

Lecture 9

Regulation of (mobile) Telecommunications

Mobile Business II (SS 2023)

Prof. Dr. Kai Rannenberg

Chair of Mobile Business & Multilateral Security
Goethe University Frankfurt a. M.



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

Dictionary Definitions of “regulation”

Main Entry: ¹reg·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: 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>

More Specific Definition and Description of Regulation

- 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

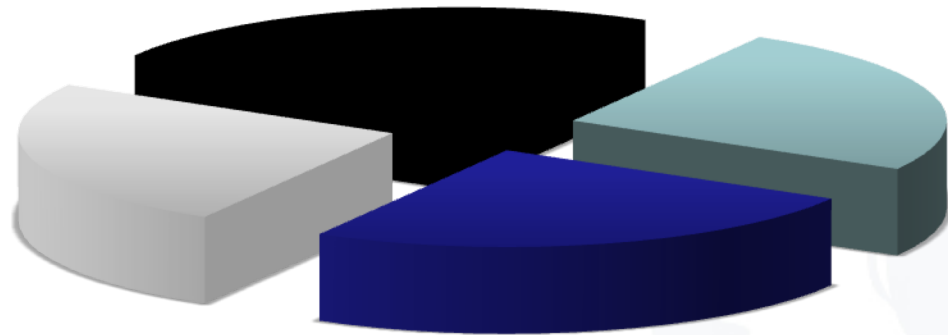
- Definitions of Regulation
- Origins of Regulation
- Regulation Levels
- Regulation in Germany
- Development and Future of Regulation in Europe
- Examples of Regulation

- **Market failure** as a reason of 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, little customer orientation
- DSL flat rate
 - Higher costs for competitors, advantages for the former monopolist
- Microsoft trial
 - Exploitation of market power against other web browser providers
- Postal 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.

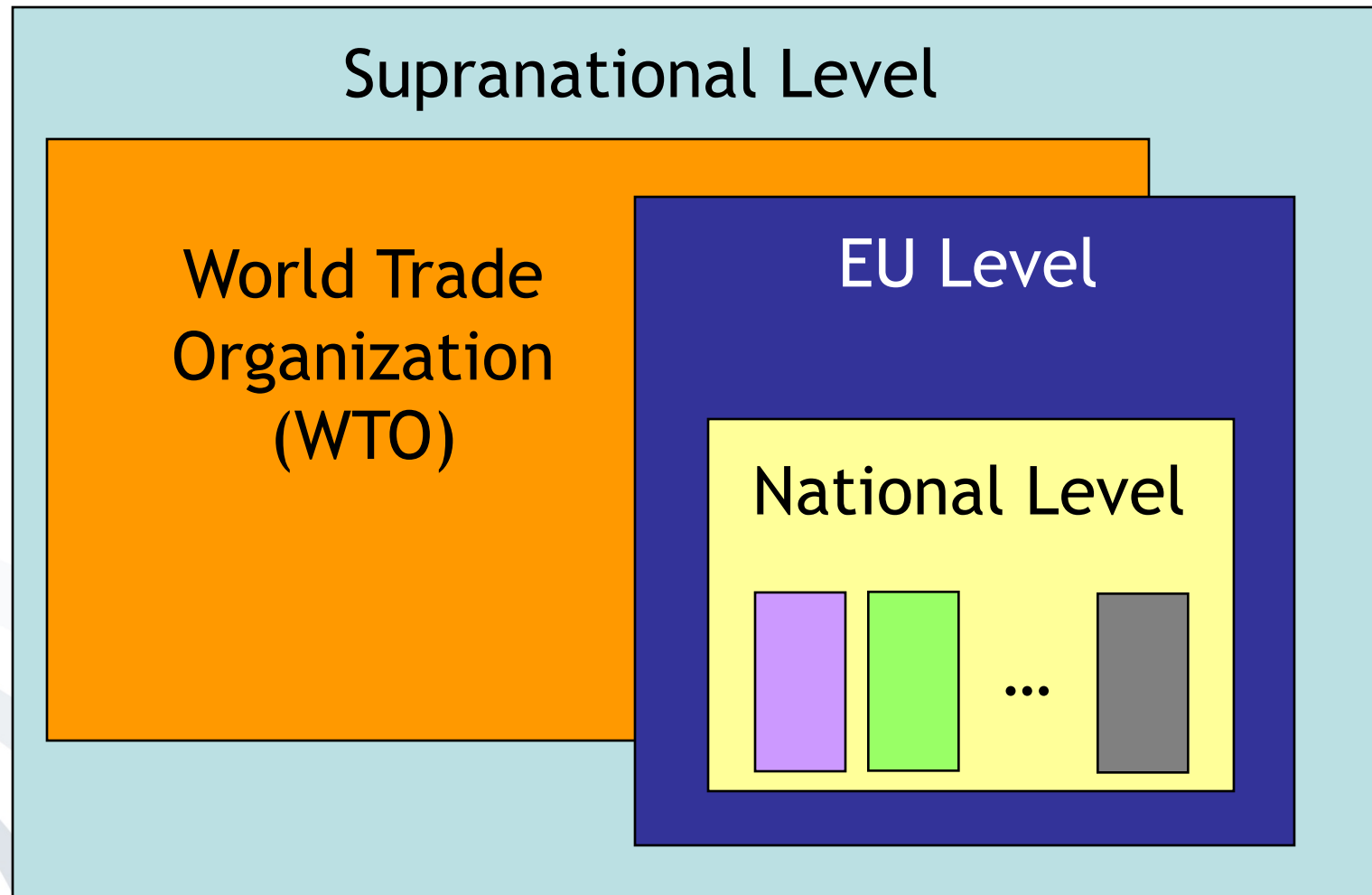
Regulation is “justified and accepted in case of market failures, i.e. when the market fails to allocate resources in a welfare maximizing way”.

[Drüke1999]

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

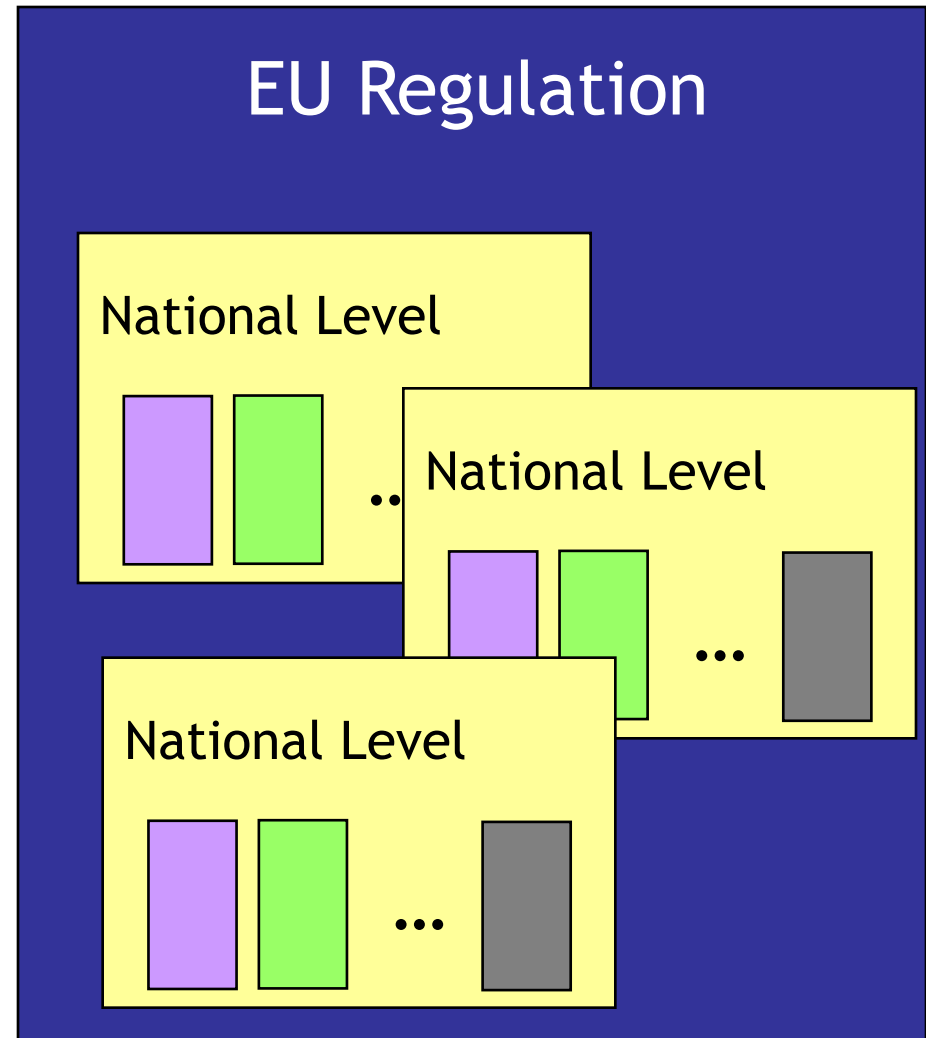
Regulation is done on several levels:

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

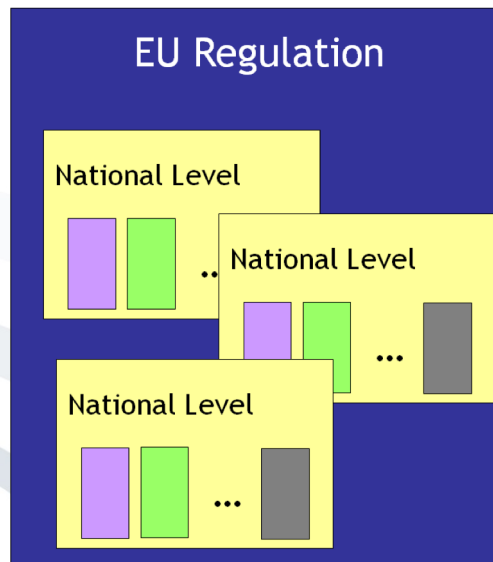


- Within the EU: national regulation and EU regulation
- National Sovereignty: multitude of regulations

- ➔ The French military claimed Bluetooth frequencies:
- Market failure?
 - Regulation failure?
 - Bad luck in standardization?




- ➔ Regulation (“Verordnung”) 717/2007 of the European Parliament and of the Council on *Roaming on Public Mobile Telephone Networks within the Community*



Article 1

Subject matter and scope

1. This Regulation introduces a common approach to ensuring that users of public mobile telephone networks when traveling within the Community do not pay excessive prices for Community-wide roaming services when making calls and receiving calls, thereby contributing to the smooth functioning of the internal market while achieving a high level of consumer protection, safeguarding competition between mobile operators and preserving both incentives for innovation and consumer choice. It lays down rules on the charges that may be levied by mobile operators for the provision of international roaming services for voice calls originating and terminating within the Community and applies both to charges levied between network operators at wholesale level and to charges levied by home providers at retail level.

- Regulation 717/2007 was claimed by mobile telephone operators to be not valid.
- However, in June 2010 the European Court of Justice (“EuGH”) decided:
 - *“the object of the regulation is indeed to improve the conditions for the functioning of the internal market and that it could be adopted on the basis of Article 95 EC.”*
 - *“maximum retail charges could be considered to be appropriate and necessary for the purpose of protecting consumers against high levels of charges.”*
- In December 2016, the European Parliament voted to abolish all roaming charges by June 2017:
 - Regulation 2015/2120 replaces and amends Regulation 717/2007.

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

- 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
 - 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
 - Other authorities

- Intransparent mesh of competencies
- One resolution approach:
1997: synchronization and assimilation
of Mediendienstestaatsvertrag (State Treaty for Media Services)
and Informations- und Kommunikationsdienstegesetz (ICT Services 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 & Media Services	Broadcast
Relevant Law	Telekommunikations-gesetz (TKG)	Telekommunikationsgesetz (TKG)	Telemediengesetz (TMG)	Rundfunkstaatsvertrag (RSTV)
Holder of Competence	Federation (Bund)	Federation (Bund)	Federation (Bund)	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, mobile number portability	Limited economic freedom: license obligation; ex-ante tariff control	Economic freedom: no mandatory admission and registration, no supervision	No economic freedom; broadcast freedom (Rundfunkfreiheit) as institution; dual system
Specific Responsible Institutions	Federal Network Agency	Federal Network Agency	none	Supervision bodies of the broadcasting institutions; state media institutions as well as KEF and KEK

Based on: [Siemer2003]

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

¹KEK: Kommission zur Ermittlung der Konzentration im Medienbereich

²KDLM: Konferenz der Direktoren der Landesmedienanstalten

Since 1987	State Treaty on Broadcasting (“Rundfunkstaatsvertrag” (RStV))
Since 1996	“Telekommunikationsgesetz (TKG)” “Telekommunikationsüberwachungsverordnung (TKÜV)”
1997-2007	“Mediendienstestaatsvertrag (MDStV)” and “Informations- und Kommunikationsdienste-Gesetz (IuKDG)” (including “Teledienstegesetz (TDG)” and “Teledienstedatenschutzgesetz (TDDSG)”)
2000-2004	“Telekommunikations-Datenschutz-Verordnung (TDSV)”
Since 2007	“Telemediengesetz (TMG)” (replaces TDG, TDDSG and MDStV)

- 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

The “Regulatory Authority” and “its” Ministry

- Federal Ministry for Economic Affairs and Climate Action (BMWK)
 - Includes former post ministry
 - ➔ responsible for post and telecommunications
- Supervision of “Regulatory Authority” Federal Network Agency (FNA)



Federal Ministry
for Economic Affairs
and Climate Action



Bundesnetzagentur

The “Regulatory Authority”

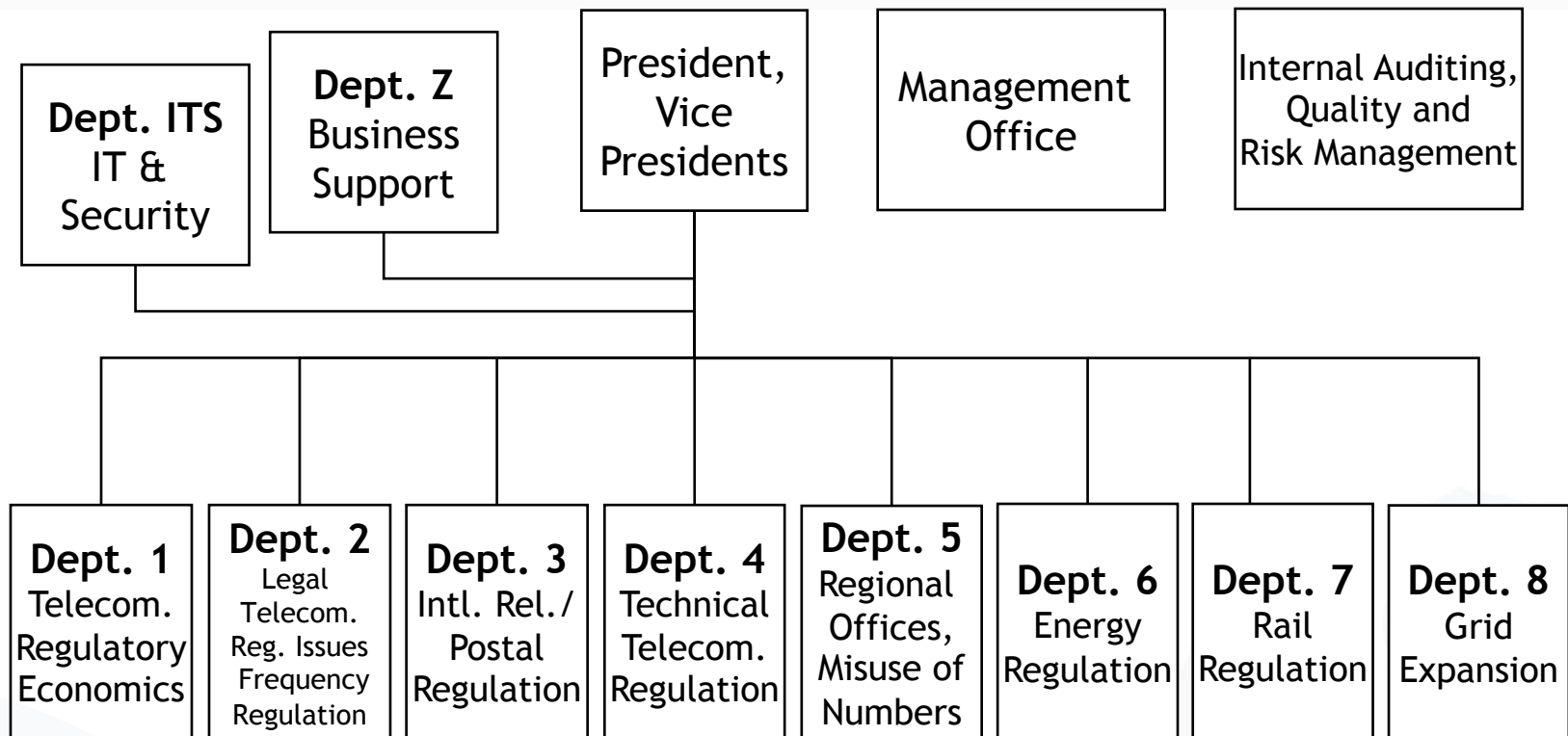
- Federal Network Agency (“Bundesnetzagentur”; “BNetzA”, FNA)
 - “Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway”: separate higher federal authority within the scope of business of the Federal Ministry of Economics and Technology.
 - According to TKG (1996) established 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

Tasks and Instruments of the “Regulatory Authority”

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

(Partial) Organization Chart of the “Regulatory Authority”

11 Ruling Chambers for several Regulation areas



Bundesnetzagentur

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

Within the EU:

Regulatory framework for electronic
communications in the European Union

- Strengthen competition in the electronic communications sector
- Stimulate investment
- Foster freedom of choice for consumers and enable them to benefit from innovative services, quality and lower rates
- Harmonised framework for the regulation of electronic communications networks

Regulatory framework for electronic communications

Framework Directive

Access Directive

Authorisation Directive

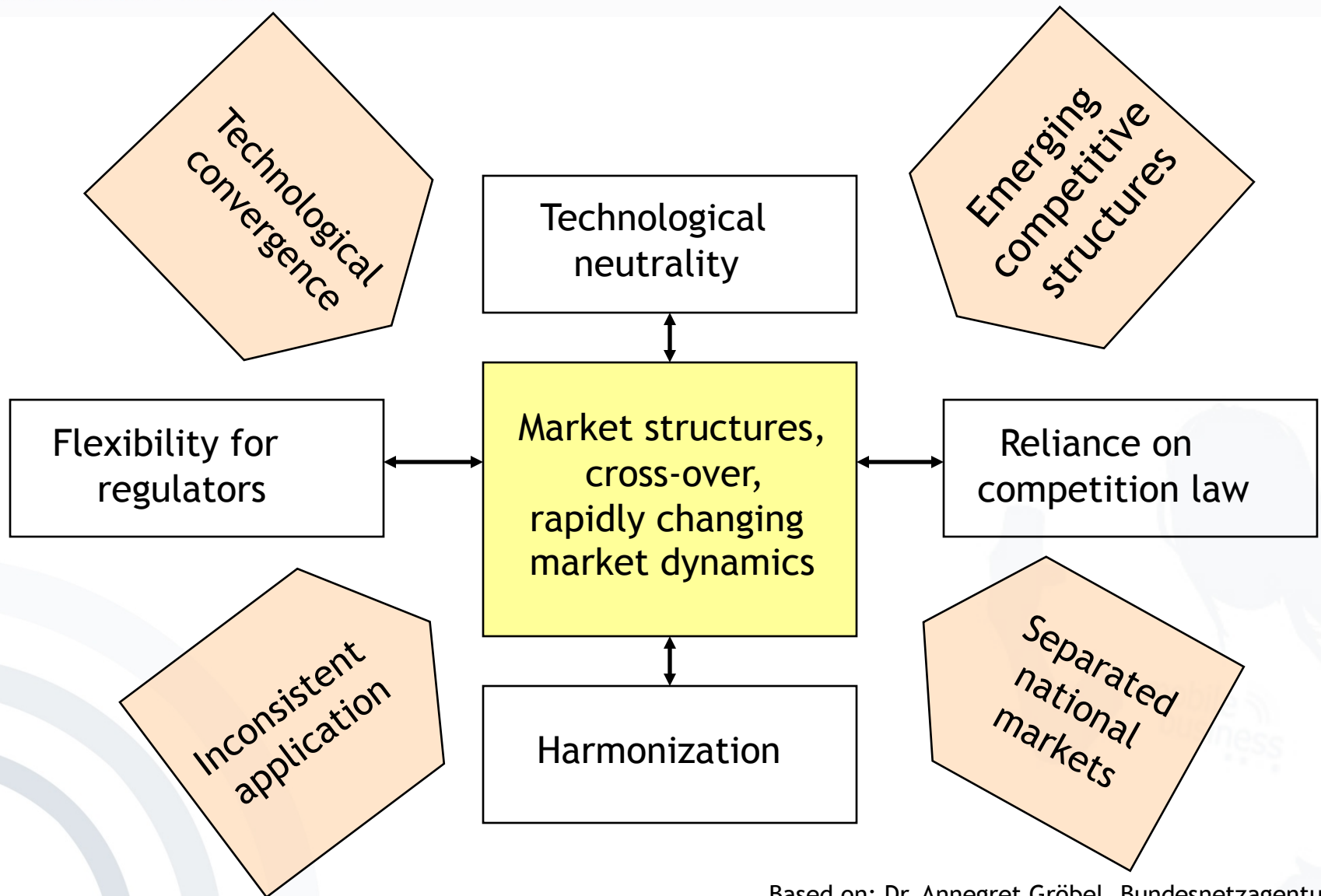
Universal Service Directive

Directive on Privacy and
Electronic Communications

Regulation on Body of European Regulators for Electronic
Communications (BEREC)

Regulation on roaming on public mobile communications networks

Principles of the regulatory framework for electronic communications



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

- Frequency allocation (also called spectrum allocation or spectrum management)
- Frequency allocation for radio and television broadcasting (DVB-T)
- Frequency allocation for mobile communications
- License awarding
 - Mobile communications
 - Broadcasting services
 - Electronic signatures
 - ...
- Digital/electronic signature
- Countermeasures against illegal diallers

Administration by state media institutions

- Frequency 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 licences by Federal Network Agency
- Determining frequency bands
- Administration of licences for mobile network operation
- Licences are auctioned. Major auctions:
 - 2002 (UMTS)
 - 2010 (Digital dividend I, LTE)
 - 2015 (Digital dividend II, reuse of GSM frequencies)
 - 2019 (5G)

- Auction amounted to tremendous licence costs.
- Dispute between federal government and states over distribution of licensing income:
 - Is UMTS telecommunications, data service, or broadcast?
 - Distribution depending on this categorisation
- Strict license obligations as to
 - Network construction
 - Coverage
 - Investments

- German Signature Act (“Signaturgesetz (SigG)”) and Signature Ordinance (“Signaturverordnung (SigV)”) 1997
 - Trust centre control
 - Security related prerequisites
- EU directive 1999/93/EC
- 2001 Adaptation of SigG and SigV according to EU directive 1999/93/EC
- Further changes made to SigG in 2005, 2007, and 2009.
- Trust Services and eIDAS Regulation 2014 (Regulation (EU) 910/2014 repealing directive 1999/93/EC)

- [Bundesnetzagentur 2021] Bundesnetzagentur. *Organizational Chart Federal Network Agency*. Available at https://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/Allgemeines/Bundesnetzagentur/UeberdieAgentur/Organigramm/OrganigrammMitNamen.pdf?__blob=publicationFile&v=42 (last access 2022-04-07)
- [Drücke1999] Drücke, H. *Regulierungssysteme in der internationalen Telekommunikation - Regulierung und Deregulierung in Zeiten der technologischen Konvergenz*. FS II 99-202 Schriftenreihe "Regulierung der Arbeit". Wissenschaftszentrum für Sozialforschung Berlin, 1999.
- [EC 2007] European Parliament Regulations. *Regulation (EC) 717/2007 of the European Parliament and of the council on roaming on public mobile telephone networks within the Community*. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0717&from=EN>
- [EU 2015] Official Journal of the European Union. *Regulation (EU) 2015/2120 of the European Parliament and of the Council*. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015R2120>
- [EU CoJ 2010] Court of Justice of the European Union. *Press release No 53/10: Judgment of the Court of Justice in Case C-58/08 - The Roaming Regulation is valid*. Available at <http://curia.europa.eu/jcms/upload/docs/application/pdf/2010-06/cp100053en.pdf>
- [EwersFritsch1987] Ewers, H. and Fritsch, J. *Zu den Gründen staatlicher Forschungs- und Technologiepolitik*. In Jahrbuch für neue politische Ökonomie (6), 1987.
- [MeyerKrahmer1985] Meyer-Krahmer, F. *Innovation behaviour and regional indigenous potential*. In Regional Studies (19:6), 1985, <https://www.tandfonline.com/doi/pdf/10.1080/09595238500185511>.
- [PicotBurr1996] Picot, A. and Burr, W. *Regulierung und Deregulierung im Telekommunikationssektor*. In ztbf (48:2), 1996.
- [Siemer2003] Siemer, J.P. *Digitalization and Regulation - the German Case*. In The economics of knowledge sharing: a new institutional approach, Cheltenham, Elgar. New horizons in institutional and evolutionary economics.