WIK-Characteristic Highlights

• Independent research and consultancy organisation
• Focus on policy and regulation of network industries
• 25 years of experience
• 35 professionals, mainly economists
• ~ 60 % of consultancy revenues outside of Germany
• Comprehensive network of partners
• Worldwide footprint with a clear focus on Europe
• Major client in 2007: EU Commission
Structure of WIK

Federal Ministry of Economics and Technology

100 %

WIK Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste GmbH

✓ Non-Profit Research Organisation

100 %

WIK-Consult GmbH

✓ Quasi-Commercial Consulting Company
Development of WIK

From public Research Institute to a scientific Research and Consultancy Organisation: Development of WIK reflects development of telecommunications markets in Germany

1. Postal Reform
2. Postal Reform Privatisation

1982: Foundation of WIK as part of Deutsche Bundespost
1989: Foundation of WIK GmbH
1994: Full liberalisation of telecommunications
1996: 1. Postal Reform
1998: IPO of DTAG
2000: UMTS-Auction
2001: RegTP becomes Bundesnetz-agentur
2003: BMWi becomes sole shareholder
2004: Foundation of WIK-Consult
2006: WIK expands to water and transportation
2008: WIK expands to energy
Our Focus: Network Industries

From Telecommunications to Network Industries

- Telecommunications
- Post
- Energy
- Transportation
- Water

Network industries
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Dr. Peter Knauth</td>
<td>Chairman</td>
</tr>
<tr>
<td>(Chairman)</td>
<td>Federal Ministry of Economics and Technology</td>
</tr>
<tr>
<td>Matthias Kurth</td>
<td>Deputy Chairman</td>
</tr>
<tr>
<td>(Representative of the Industry Advisory Boards)</td>
<td>President of the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway</td>
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<tr>
<td>Dr. Carsten Kreklau</td>
<td>(Representative of the Industry Advisory Boards)</td>
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<tr>
<td>Dr. Dieter Mentz</td>
<td>Federal Ministry of Economics and Technology</td>
</tr>
<tr>
<td>Prof. Dr. Arnold Picot</td>
<td>(Representative of the Scientific Advisory Board)</td>
</tr>
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</table>
Scientific Advisory Board of WIK

Prof. Dr. Helmut M. Dietl
University of Zurich

Prof. Dr.-Ing. Jörg Eberspächer
Technical University Munich

Prof. Dr. Ludwig Gramlich
Technical University Chemnitz

Prof. Dr. Justus Haucap
Ruhr-University Bochum

Prof. Dr. Christian von Hirschhausen
Technical University Dresden

Prof. Dr. Michael Kleinaltenkamp
Free University Berlin

Prof. Dr. Arnold Picot
Ludwig-Maximilians University Munich

Prof. Dr. Reinhard Ricker
Johannes-Gutenberg-University Mainz

Prof. Dr. Franz Jürgen Säcker
Free University Berlin

Prof. Dr. Christoph Weber
University Duisburg-Essen

Prof. Dr. Carl-Christian von Weizsäcker
Max-Planck-Institute for Research on Collective Goods Bonn

Prof. Dr. Bernhard Wieland
Technical University Dresden
## Telecommunications Industry Advisory Board

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Company/Position</th>
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<tbody>
<tr>
<td>Harald Stöber</td>
<td>(Chairman)</td>
<td>Chairman of the Executive Board of Arcor AG &amp; Co. KG</td>
</tr>
<tr>
<td>Dr. Peter Broß</td>
<td>Head of Corporate Strategy</td>
<td>Giesecke &amp; Devrient GmbH</td>
</tr>
<tr>
<td>Carl-Christoph Caselitz</td>
<td>Chief Market Operations Officer, Nokia Siemens Networks GmbH &amp; Co. KG</td>
<td></td>
</tr>
<tr>
<td>Thorsten Dirks</td>
<td>Chief Executive Officer, E-Plus Mobilfunk GmbH &amp; Co. KG</td>
<td></td>
</tr>
<tr>
<td>Charles Fränkl</td>
<td>CEO, United Mobile Liechtenstein AG</td>
<td></td>
</tr>
<tr>
<td>Peer Knauer</td>
<td>Chief Executive Officer, Versatel Holding GmbH</td>
<td></td>
</tr>
<tr>
<td>Dr. Carsten Kreklau</td>
<td>Member of the Management of Federation of German Industries (BDI)</td>
<td></td>
</tr>
<tr>
<td>René Obermann</td>
<td>Chairman of the Board of Deutsche Telekom AG</td>
<td></td>
</tr>
<tr>
<td>Harald Rösch</td>
<td>CEO, HanseNet Telekommunikation GmbH</td>
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<tr>
<td>Peter M. Wagner</td>
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<tr>
<td>Christof Wahl</td>
<td>Managing Partner, MCH Management Capital Holding AG</td>
<td></td>
</tr>
<tr>
<td>Helmut Wörner</td>
<td>President and CEO of Controlware GmbH</td>
<td></td>
</tr>
<tr>
<td>Alf Henryk Wulf</td>
<td>Member of the Board, Alcatel-Lucent GmbH</td>
<td></td>
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</table>
Focus: Regulation & Competition

- Support of National Regulatory Authorities in the review of electronic communications markets susceptible to ex ante regulation.

- Implementation of regulatory measures (Reference Offers, non-discrimination, cost accounting and accounting separation, price control).

- International benchmarking and best practice analysis for regulatory parameters, competition intensity and market performance.

- Calculation of the cost of universal service obligations and allocation of contributions to a national universal service fund.

- Design of auction mechanisms for frequencies and licenses.

- Support in reforming spectrum policy (spectrum trading, administrative frequency pricing, liberalisation of spectrum usage).

- Support of firms in merger procedures in the electronic communications sector.

- Extensive training and workshops in all topics mentioned above.
Focus: Market Structures & Business Strategies

- Analyses of market structure and development as well as business strategies.
- Analyses of market regulation and its effects on competition.
- Empirical demand estimation.
- International comparison, development of international benchmarks.
- Macroeconomic analyses for telecommunications and internet markets.
- (Migration strategies towards) “Next Generation Networks”.
- Forecast modelling.
Focus: Cost Modelling & Internet Economics (1)

- Development and implementation of analytical cost models. These can be used to calculate the long run incremental costs of post and telecommunication networks as a basis of regulatory decision making (price regulation and assessment of the proof of costs delivered by the operators).

- Consulting services on interconnection services.

- Consulting services on unbundled network access.

- Analyses of cost structures and telecommunication networks.

- Cost studies of network services.

- Costs of NGN and NGA.
| Analytical Cost Model for the Subscriber Access Network |
| Analytical Cost Model for the Core Network |
| Analytical Cost Model for Mobile Networks |
| Analytical Cost Model for the Broadband Network |
| Analytical Cost Model for Colocation Services |
| Analytical Cost Model for the NGN Backbone |
Focus: Cost Modelling & Internet Economics (3)

WIK Analytical Cost Model for the Subscriber Access Network

- **Structural parameters**
  - Network structure & hierarchy
  - Dimensioning of network elements
  - Investment calculation for network elements
  - Network element quantities
  - Markup overhead & common costs

- **Investment prices**
  - Investment price factors

- **Cost of capital factors**
  - Costs of capital
  - Operating costs

- **Operating costs factors**

- **Model input**
  - Model output

- **Output**
  - LRIC+ of service(s)
Focus: NGN & Internet Economics

- Network interconnection (including PSTN, NGN and Internet; Europe and the U.S.).
- Regulation in a converged or NGN environment (including VoIP).
- International comparative analysis of markets and of legal and regulatory institutions (especially Europe and the U.S.).
- Security, trust and privacy for electronic communications networks.
- Spectrum management policy.
- Cable networks: market analysis, evolution to triple play.
- Data network design; capacity planning and performance analysis; and operations and management.
- Network neutrality.
Focus: Communications & Innovation

- Analyses with respect to the diffusion and adaptation of new applications and services of the telecommunication and media industry.
- Benchmarking and country studies.
- Forecasts focusing on telecommunication network infrastructure as well as the development of the demand for services.
- Technology assessment with respect to the implications of the information society.
- Analyses of the market structure and market potential especially focusing on IT security, e-commerce, m-commerce.
- Innovation and evaluation research.
- Empirical social surveys and opinion polls in the telecommunication sector.
- IPTV and broadband developments.
Focus: Energy Markets & Energy Regulation

- Regulation of national and international energy markets.
- Application of benchmarking and analytical cost models.
- Current issues in the context of third party access to energy networks (e.g. unbundling, balancing conditions).
- Investment strategies in regulated industries.
- Options for the measurement of quality and security of supply in energy markets.
- Markets for primary energy.
- ICT in energy markets.
Main areas of research and consulting in water and sewerage

- Analysis of competition concepts for water markets.
- Theory and practice in price and quality regulation for water markets.
- Accounting separation and cost modelling.
- Tariff modelling for water companies.
- Efficiency and productivity analysis.
- International benchmarking for water markets.
Main areas of research and consulting in transport

- Regulatory and competition policy analyses of the transport sector.
- Regulation of rail network access.
- Analysis of transport infrastructure costs and calculation of rail infrastructure charges.
- Vertical integration and competition in railway markets.
- Market analyses of the transport sector with a focus on railway markets.
Focus: Postal Services & Logistics (1)

Regulation and competition policy in the postal sector

- Universal service regulation.
- Accounting separation and cross subsidies.
- Cost modelling in letter markets.
- Mechanisms for price regulation.
- Downstream network access (worksharing).
- Quality of service targets and monitoring.
Focus: Postal Services & Logistics (2)

Market analysis

- International benchmarking for postal and logistics markets.
- Development of demand for postal services.
- Estimations of market size and market potential.

International postal policy

- Postal policy in the European Union.
- Reform of the Universal Postal Union (UPU).
- Review of postal legislation and sector strategies.
Some recent and typical projects (1)

Regulation & Competition


• Regulatory Authority of Turkey (Telekomünikasyon Kurumu): Design of Regulations of Market Entry and Licensing (2004).
Some recent and typical projects (2)

Market Structures & Business Strategies


• Study for the European Commission on the impacts of IST-RTD on key strategic objectives related to growth and jobs, in cooperation with RAND Europe (2007—2008).

• Study for the National Communications Authority Hungary (NCAH) about the regulation of Next Generation Networks (NGN) (2007).

• Study for the German network operator HanseNet on Possibilities and Prerequisites of a FTTx Strategy in Germany (2007).

• Studies for a German carrier on the development of the market volume for wholesale services until 2010 (2004–2006).
Some recent and typical projects (3)

Cost Modelling & Internet Economics

- Regulatory Authority of Switzerland (BAKOM)
  - ULL bottom-up model, 2005

- Group of German operators
  - Price Margin Squeeze and consistency for DSL, IP-Bitstream and LLU products, 2008

- Australian Competition and Consumer Commission (ACCC)/Australia
  - Mobile network cost model for Australia, 2006

- Telefónica/Germany
  - Efficient cost for leased lines in Germany, based on a LRIC bottom up cost model, in comparison with the regulated rates, 2008

- Fastweb/Italy
  - Analysis and improvement of the AGCOM (Italian regulatory authority) cost model for termination rates in NGN in Italy, 2008
Some recent and typical projects (4)

NGN & Internet Economics

• Study for the European Commission on “Optimising the Use of the Radio Spectrum by the Public Sector in the European Union” (ongoing).

• Study for the European Commission on "The Future of IP Interconnection" (2007/08).

• Study for the Deutscher Kabelverband on "Cable Internet in Germany" (2006).
Some recent and typical projects (5)

Communications & Innovation

• Evaluation, scientific monitoring and output transfer „SimoBIT - Secure mobile IT applications for adding value in small and medium sized companies and administration”. SimoBIT is a R&D-Competition conducted by BMWi (Federal Ministry of Economics and Technology) (2008–2011).

Cooperation and Network Partners (1)
Cooperation and Network Partners (2)

- Baker & McKenzie
- Gibson, Dunn & Crutcher
- Micus
- Center for European Integration Studies

Business and law
Cooperation and Network Partners (3)

- Rand Europe
- Boston University
- Fraunhofer Gesellschaft
- Universidad di Cantabria
- University of Warwick
- TNO
Our Clients (1)

- International Organisations
- Governments
- Companies
- Industry Associations
- Regulatory Authorities
“In regulated Industries there is a lot of incumbent‘s economics and a lot of new entrants‘ economics. WIK stands for public interest economics.“

Prof. Eli Noam
Director of Columbia Institute for Tele-Information, New York
Our Clients (3)

International Organisations

European Commission

World Bank

ITU
Our Clients (4)

Governments

- Switzerland
- France
- Lithuania
- Russia
- Germany
- Romania
Our Clients (5)

Industry Associations

- BITKOM
- VATM
- ECTA
- Cable Europe
- Deutscher Kabelverband
- BREKO
Our Clients (6)

- Greece
- Hungary
- Romania
- USA
- France
- Switzerland
- Italy
- Portugal
- Bangladesh
- Ireland
- UK
- Syria
- Turkey
- Peru
- Azerbaijan
- Australia
- Morocco
- Slovenia

Regulatory Authorities
Our Clients (7)

- Hutchison
- Swiss Post
- Motorola
- Alcatel
- Vodafone
- Telefonica
- Tele2
- Vattenfall
- Siemens
- Deutsche Telekom
- Liberty Media
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Our Worldwide Footprint
## WIK & WIK-Consult Turnover

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<tr>
<td><strong>Turnover (€)</strong></td>
<td>2.927.450</td>
<td>3.077.150</td>
<td>3.742.150</td>
<td>3.855.478</td>
<td>4.069.970</td>
<td>4.363.940</td>
<td>4.245.436</td>
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<td><strong>Growth rate</strong></td>
<td>22,0 %</td>
<td>5,1 %</td>
<td>21,6 %</td>
<td>3,0 %</td>
<td>5,6 %</td>
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<td><strong>Employees</strong></td>
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Conferences 2006 - 2008

- Conference “Network Neutrality - Implications for Europe”, Bonn, December 3 – 4, 2007
- Conference "Improving the Regulatory Framework for Electronic Communications: Challenges for the Next Decade", Breslau, October 18 – 20, 2006
- Bill and Keep Workshop, Bonn, April 4 – 5, 2006
- Conference "NGN and Emerging Markets – Investment, Infrastructure and Innovation“, Königswinter, December 5, 2005
Publications

- **WIK Newsletter**
  - Brief reports and up-to-date information on current projects

- **Proceedings**
  - Papers featuring reports on conferences and workshops

- **WIK Discussion Papers**
  - Essays and presentations as well as intermediate and final reports on research projects

- **WIK Studies**
  - Final reports on studies