

# The economics in determining FRAND

Prof. Dr. Joachim Henkel

TUM School of Management

Technische Universität München

Panel “Standards and Patent Law”

European Patent Judges’ Forum

October 26<sup>th</sup>, 2012, Venice, Italy

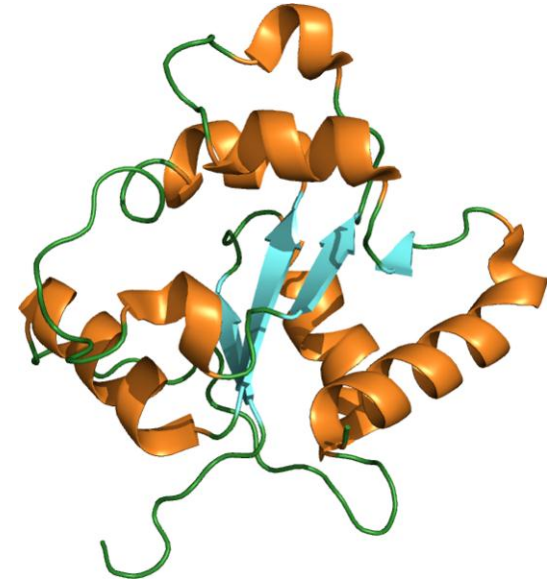
- Access for all interested firms to all technologies essential to the standard
- Fair returns to licensors for their R&D efforts

**1** Background

**2** Determining FRAND

**3** Conclusions

- Antibody-technology directed against Toll-like Receptor TLR 2
- Developed by TUM and Amgen
- Licensed to Opsona Therapeutics



	<u>TLR 2</u>	<u>FRAND in ICT</u>
Discrete technology	✓	✗
Ex-ante licensing	✓	(✗)
Licensee has a choice	(✓)	✗
Exclusive licensing	✓	✗
IPRs known	✓	✗
Mapping patent to technology clear	✓	✗

- Monopoly
  - after adoption of a standard, alternative solutions no longer sensible
- Lock-in
  - after investments into R&D and production, a manufacturer has lost flexibility in responding to royalty requests
- Complexity
  - huge number of essential IPRs, impossible to assess the value of each
- Lack of transparency
  - not all essential IPRs known or even declared; uncertainty about essentiality; not all holders of essential IPRs known
- Complementarities
  - Marginal contribution of a function to the product, and of an invention to a function, exceeds its fair share in value → exaggerated royalty demands (Cournot, 1838)

- Differing interests of parties

- Producing, “classic”
- Producing, newcomers
- Producing, design-oriented
- R&D focused, technology seller
- IP enforcing

NOKIA



IPCom

- Incentives to get as many patents as possible into the standard
  - Trivial patents
  - Patents on technologies that are not needed (Kretschmer et al. 2011)
  - Strategic patenting once scope of standard is known (Bekkers, West, 2008)
- No commitment to royalty rates, at best to “FRAND”

*“... RAND policies ... fail to clearly define a reasonable price.  
...IP holders may offer RAND pricing commitments with the belief that  
this commitment is so vague and ill-defined that it is in fact vacuous.”*

Rysman, Simcoe (2011: 1010)

**But: “If you can’t measure it, measure it anyway”**

(attributed to Lord Kelvin, Milton Friedman, Frank Knight, ...)

**1** Background

**2** Determining FRAND

**3** Conclusions



FRAND should take into account: (e.g., Treacy, Lawrance, 2008; Durie, Lemley, 2010)

- Comparable situations in the same or other industries
- Overall available profit
- Total resulting royalty burden for the standard
- Number of licensor's patents relative to total number of standard-essential patents
- Value of focal technology before standardization
- Licensor's R&D expenditures for focal technologies

FRAND for 20 UMTS-essential patents held by company X? Determine...

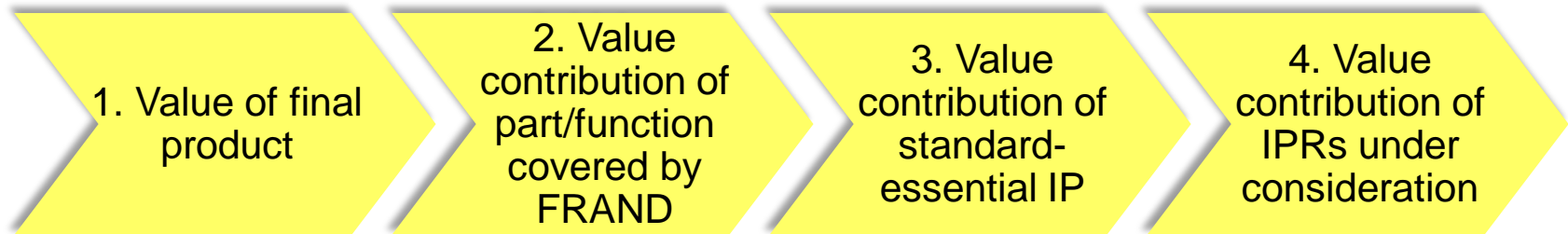
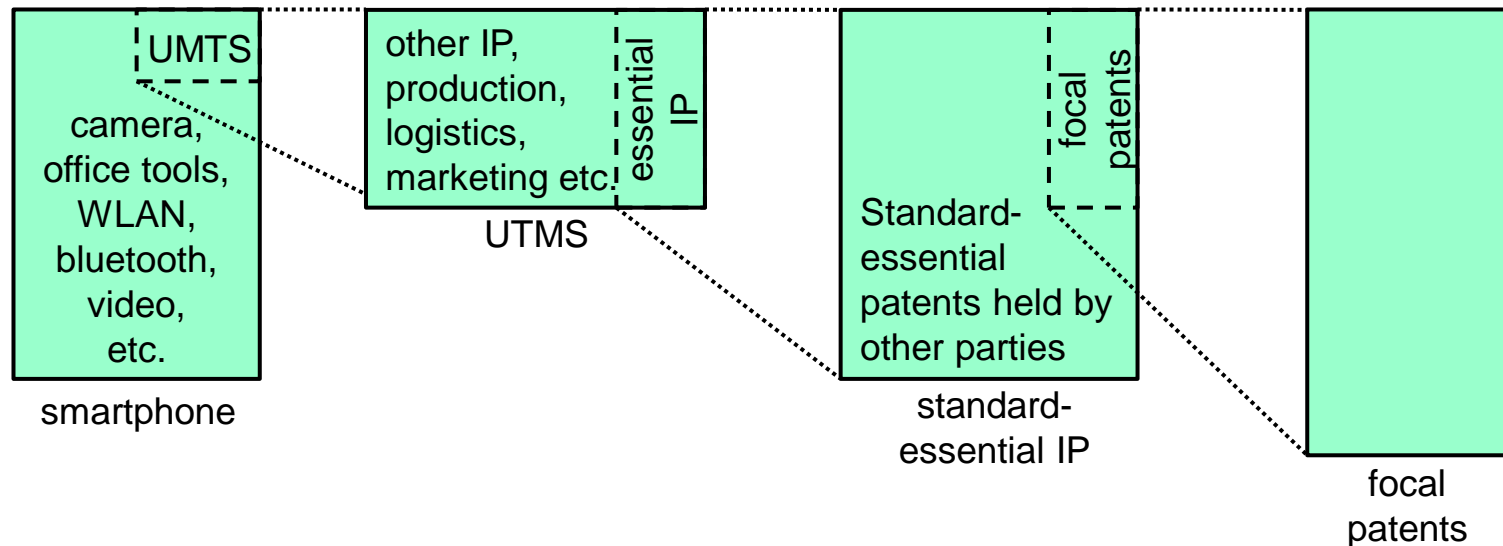
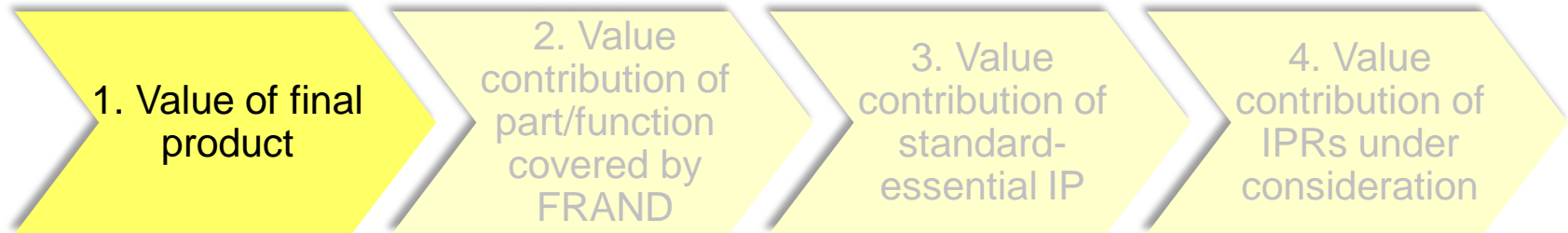
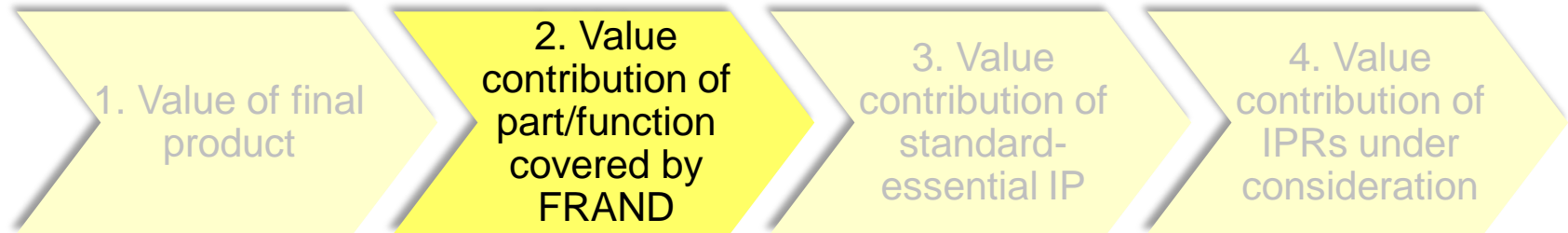


Illustration:





- Challenges:
  - Value of various allegedly infringing products may differ strongly
  - What if product is sold in a bundle (e.g., phone plus contract?)
  
- Approach:
  - Market prices
  - If needed, weighted averages
  - Prices on intermediate markets
  - Consider cost data if available
  - Consumer value assessment difficult, screens out competition

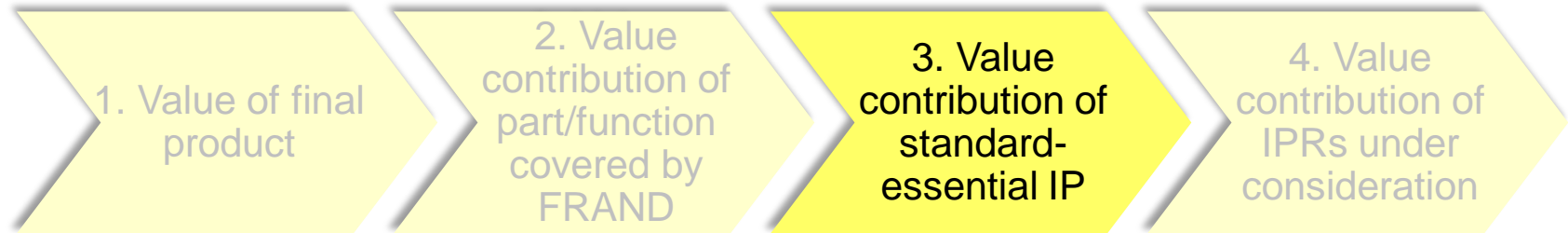


## ■ Challenges:

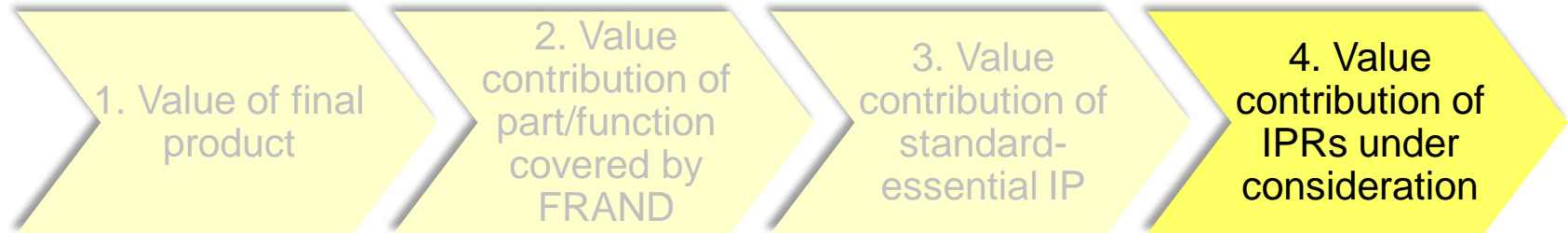
- The focal part/function is only one of many in the product
  - In a laptop, 251 standards! (Biddle et al., 2010)
- Complementarities between numerous parts/functions
  - calculating value contribution as *marginal* contribution not sensible
- Value share (in %) varies strongly with other features of the product (e.g., smartphone vs. simple phone)

## ■ Approach:

- Compare prices of products with varying sets of parts/functions
- If the focal part/function is sold separately, consider market prices
- Use rules accepted in the industry
- In simple cases, “Shapley value” (~ average marginal contribution)  
Layne-Farrar et al. (2007)



- Challenges: Numerous other contributions
  - non-standard-essential IP; knowledge that is not IP-protected
  - production, marketing, logistics, sales, business risk, etc.
  
- Approach:
  - Estimates based on (case-specific or industry-typical) cost data
  - Assessment by industry experts
  - Accepted rules in the industry



- Challenges:
  - Essential IP not fully known (blanket disclosures)
  - Declarations of “essential” IP not verified
  - Patents differ strongly in their value (technical, substitutability, legal)
  - Patents interact in a non-trivial way (complementarities)
  
- Approach:
  - Third-party studies regarding the standard’s essential IP
  - Numeric proportionality (not suitable as ex-ante rule, though)
  - Possibly weighting with citations as quality measure
  - Include simple, observable characteristics (e.g., invention used / not used)
  - Use information from patent pools if available

**1** Background

**2** Determining FRAND

**3** Conclusions

---

- Numerous challenges in economics-based determination of FRAND
- A unique, perfect solution cannot be achieved (and does not exist)
- Pragmatic approach needed
- Plausible and economically sound methods available
  - Use ranges rather than point values
- Given that views of “FRAND” easily differ by a factor of 100, even range estimates up to a factor of 5 are helpful

**Thank you**



- Bekkers, R., West, J. (2008) IPR Standardization Policies and Strategic Patenting in UMTS. DRUID conference paper. <http://www2.druid.dk/conferences/viewpaper.php?id=3722&cf=29>.
- Biddle, B., White, A., Woods, S. (2010) How Many Standards in a Laptop? (And Other Empirical Questions), Proceedings of the 2010 ITU-T Kaleidoscope Academic Conference. Available at SSRN: <http://ssrn.com/abstract=1619440>.
- Cournot, A. A. (1838) Recherches sur les principes mathématiques de la théorie des richesses.
- Durie, D.J., Lemley, M.A: (2010) A Structured Approach to Calculating Reasonable Royalties, 14 Lewis & Clark Law Review 627, 628.
- Kretschmer, T., Claussen, J., Henkel, J., Zischka, H. (2011) Patente in der IKT – Herausforderungen auch für den Wirtschaftsstandort Deutschland. Abschlussbericht zum Workshop am 21.6.2011 beim Bundesministerium für Wirtschaft und Technologie.  
[https://www.tim.wi.tum.de/fileadmin/w00bcy/www/Documents/Patente\\_in\\_der\\_IKT\\_-\\_Abschlussbericht\\_BWMI-Workshop\\_2011-06-21.pdf](https://www.tim.wi.tum.de/fileadmin/w00bcy/www/Documents/Patente_in_der_IKT_-_Abschlussbericht_BWMI-Workshop_2011-06-21.pdf).
- Layne-Farrar, A., Padilla, A. J., Schmalensee, R. (2007) Pricing Patents for Licensing in Standard Setting Organisations: Making Sense of FRAND Commitments. CEPR Discussion Papers 6025.
- Rysman, M. Simcoe, T. (2008) Patents and the Performance of Voluntary Standard-Setting Organizations. Management Science 54(11), 1920-1934.
- Rysman, M., Simcoe, T. (2011) A NAASTy alternative to RAND pricing commitments. Telecommunications Policy, 35(11): 1010–1017.
- Treacy, P., Lawrance, S. (2008) FRANDly fire: are industry standards doing more harm than good? Journal of Intellectual Property Law & Practice, 3(1), 22–29.

Mr. Jobs gathered his senior managers. While Apple had long been adept at filing patents, when it came to the new iPhone, “we’re going to patent it all,” he declared, according to a former executive who, like other former employees, requested anonymity because of confidentiality agreements.

“His attitude was that if someone at Apple can dream it up, then we should apply for a patent, because even if we never build it, it’s a defensive tool,” said Nancy R. Heinen, Apple’s general counsel until 2006.

Soon, Apple’s engineers were asked to participate in monthly “invention disclosure sessions.” One day, a group of software engineers met with three patent lawyers, according to a former Apple patent lawyer who was at the meeting.

The first engineer discussed a piece of software that studied users’ preferences as they browsed the Web.

“That’s a patent,” a lawyer said, scribbling notes.

Another engineer described a slight modification to a popular application.

“That’s a patent,” the lawyer said.

Another engineer mentioned that his team had streamlined some software.

“That’s another one,” the lawyer said.

“Even if we knew it wouldn’t get approved, we would file the application anyway,” the former Apple lawyer said in an interview. “If nothing else, it prevents another company from trying to patent the idea.”

Source: “The patent, used as a sword” NYT October 7th, 2012