



seit 1558

**Seminar**  
**Economics of Innovation**  
Summer term 2012

- **Deadline for enrolment:** February 3<sup>rd</sup> 2012.
- **Requirements:** at least one course from the curriculum of the chair
- **Number of participants:** 15
- **Term paper submission:** April 20<sup>th</sup> 2012.
- **Paper presentation:** May - June 2012.
- **Grade:** paper (40 %), presentation (30 %), paper discussion (20%), open discussion (10 %).
- **Credits:** 6 ECTS Credits.
- **Language:** English for master students. English or German for Diplom students.
- **Enrolment in the course:** per email by [olga.gaessner@uni-jena.de](mailto:olga.gaessner@uni-jena.de) before February 3<sup>rd</sup> 2012. Please specify name, student number, courses taken (see requirements), and 3 favorite topics.

**Topics**

1. The codification of knowledge
2. From data, to information, to knowledge: What do we understand?
3. Innovation as competence to solve problems
4. The technological frontier of society: on the footsteps of technical change
5. The economic foundations of the patent system
6. Economic effects of the TRIPS agreement
7. Compulsory Licensing
8. Strategic patenting
9. On the patenting of software
10. Gene patents
11. Academic patenting
12. Academic inventors' decision to engage in entrepreneurship
13. Developments toward the 'entrepreneurial university'
14. University technology transfer organizations (TTOs): Meaning and efficiency
15. Academic spin-off companies as an instrument of technology transfer

# Literature / Einstiegsliteratur

## Knowledge and Information / Wissen und Information

### 1. The codification of knowledge

#### Die Kodifizierung von Wissen

Cohendet, P. & Steinmueller, W. E. (2000), The codification of knowledge: A conceptual and empirical exploration, *Industrial and Corporate Change*, 9, 2, 195-210

Cowan, R., David, P. & Foray, D. (2000), The explicit economics of knowledge codification and tacitness, *Industrial and Corporate Change*, 9, 2, 211-254

Johnson, B., Lorenz, E. & Lundvall, B.-A. (2002), Why all this fuss about codified and tacit knowledge?, *Industrial and Corporate Change*, 11, 2, 245-262

### 2. From data, to information, to knowledge: What do we understand?

#### Von Daten, zu Informationen, zu Wissen: Was können wir verstehen?

Akoff, Russel L. (1989), From Data to Wisdom, *Journal of Applied Systems Analysis*, 16(1), 3-9.

Boisot, M. & Canals, A. (2004). Data, information and knowledge: have we got it right, *Journal of Evolutionary Economics*, 14(1), 43–67.

Landauer, C. (1998), Syntax is more than you think, *Proceedings of the 1998 IEEE International Symposium on Intelligent Control (ISIC) held jointly with IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA) Intelligent Systems and Semiotics (ISAS)*, 801 -806, doi:10.1109/ISIC.1998.713821

Landauer, C. (1998), Data, information, knowledge, understanding: computing up the meaning hierarchy, *IEEE International Conference on Systems, Man, and Cybernetics*, 1998, 3, 2255-2260. doi:10.1109/ICSMC.1998.724991

Landauer, R. (1999) Information is a physical entity. *Physica A*, 263(5), 63–67.

Loasby, B. J. (2011). Time, knowledge and evolutionary dynamics: why connections matter. *Journal of Evolutionary Economics*, 11, 393–412.

### 3. Innovation as competence to solve problems

#### Innovationen als Kompetenz zur Problemlösung

Consoli, D. & Ramlogan, R. (2007). Out of sight: problem sequences and epistemic boundaries of medical know-how on glaucoma. *Journal of Evolutionary Economics*, 18(1), 31–56. doi:10.1007/s00191-007-0074-4

Metcalfe, J. S., James, A. & Mina, A. (2005). Emergent innovation systems and the delivery of clinical services: The case of intra-ocular lenses. *Research Policy*, 34(9), 1283–1304. doi:10.1016/j.respol.2005.01.015

Ramlogan, R., Mina, A., Tampubolon, G. & Metcalfe, J. S. (2007). Networks of knowledge: The distributed nature of medical innovation. *Scientometrics*, 70(2), 459–489. doi:10.1007/s11192-007-0212-7

### 4. The technological frontier of society: on the footsteps of technical change

#### Die technologische Frontier der Gesellschaft: Auf den Spuren des technischen Wandels

Fleming, L. (2012). Recombinant uncertainty in technological search. *Management Science*, 47, 117–132.

Fleming, L. & Sorenson, O. (2004). Science as a map in technological search. *Strategic Management Journal*, 25(89), 909–928. doi:10.1002/smj.384

Sorenson, O. & Fleming, L. (2004). Science and the diffusion of knowledge. *Research Policy*, 33(10), 1615–1634. doi:10.1016/j.respol.2004.09.008

Sternitzke, C. (2009). Patents and publications as sources of novel and inventive knowledge. *Scientometrics*, 79(3), 551–561. doi:10.1007/s11192-007-2041-0

Stuart, T. E. & Podolny, J. M. (1996). Local search and the evolution of technological capabilities. *Strategic Management Journal*, 17, 21–38.

## Intellectual Property / Patentschutz

### 5. The economic foundations of the patent system

#### Die ökonomische Begründung des Patentwesens

Blind, K., Edler, J., Frietsch, R. & Schmoch, U. (2006), Motives to patent: Empirical evidence from Germany, *Research Policy*, 35, 5, 655-672

Cohen, W.M., Nelson, R.R. & Walsh, J.P., (2000), Protecting their Intellectual Assets: Appropriability Conditions and why U.S. Manufacturing Firms Patent (or not), NBER Working Paper No. W7552.

Dosi, G., Marengo, L. & Pasquali, C. (2006), How much should society fuel the greed of innovators?: On the relations between appropriability, opportunities and rates of innovation, *Research Policy*, 35, 8, 1110-1121

Jaffe, A. B. (2000), The U.S. patent system in transition: policy innovation and the innovation process, *Research Policy*, 29, 4-5, 531-557

Ordoover, J. A. (1991), A patent system for both diffusion and exclusion, *Journal of Economic Perspectives*, 5, 1, 43-60

### 6. Economic effects of the TRIPS agreement

#### Ökonomische Effekte des TRIPS Abkommens

Gallini, N. T. (2002), The Economics of Patents: Lessons from Recent U.S. Patent Reform, *Journal of Economic Perspectives*, 16, 2, 131-154

Park, W. G. (2008), International patent protection: 1960-2005, *Research Policy*, 37, 4, 761-766

Scherer, F. M. & Watal, J. (2002), Post-TRIPS Options for Access to Patented Medicines in Developing Nations, *Journal of International Economic Law*, 5, 4, 913-939

### 7. Compulsory Licensing

#### Zwangslizensierung

Cornides, J. (2007), European Union Adopts Regulation on Compulsory Licensing of Pharmaceutical Products for Export, *The Journal of World Intellectual Property*, 10, 1, 70-77

Feldman, J. (2009), Compulsory Licenses: The Dangers Behind the Current Practice, *Journal of International Business and Law*, 8, 1, 137-168

Moser, P., Voena, A. (2009), Compulsory Licensing - Evidence from the Trading with the Enemy Act, NBER Working Paper No. 15598

Yosick, J. A. (2001), Compulsory Patent Licensing for Efficient Use of Inventions, *University of Illinois Law Review*, 2001, 5, 1275-1304

### 8. Strategic patenting

#### Strategische Aspekte der Patentierung

Joshi, A. M. & Nerkar, A. (2011), When do strategic alliances inhibit innovation by firms? Evidence from patent pools in the global optical disc industry, *Strategic Management Journal*, 32, 11, 1139-1160

Macdonald, S. (2004): When means become ends: considering the impact of patent strategy on innovation, *Information Economics and Policy*, 16, 1, 135-158

Shapiro, C. (2001), Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting, in: Jaffe, A., Lerner, J. & Stern, S. (eds.) *Innovation Policy and the Economy*, MIT Press

### 9. On the patenting of software

#### Software Patente

Bessen, J. & Hunt, R. M. (2007), An Empirical Look at Software Patents, *Journal of Economics & Management Strategy*, 16, 1, 157-189

Encaoua, D., Guellec, D. & Martínez, C. (2006), Patent systems for encouraging innovation: Lessons from economic analysis, *Research Policy*, 35, 9, 1423-1440

von Hippel, E. & von Krogh, G. (2003), Open Source Software and the "Private-Collective" Innovation Model: Issues for Organization Science, *Organization Science*, 14, 2, 209-223

### 10. Gene patents

#### Patente auf Leben

Heller, M. A. & Eisenberg, R. S. (1998), Can Patents Deter Innovation? The Anticommons in Biomedical Research, *Science*, 280, 5364, 698-701

- Encaoua, D., Guellec, D. & Martínez, C. (2006), Patent systems for encouraging innovation: Lessons from economic analysis, *Research Policy*, 35, 9, 1423-1440
- Eisenberg, R. S. (2006), Patents and data-sharing in public science, *Industrial and Corporate Change*, 15, 6, 1013-1031
- Van Overwalle, G. (2010), Turning Patent Swords into Shares, *Science*, 330, 6011, 1630-1631

## 11. Academic patenting

### Patentierung im Hochschulbereich

- Geuna, A. & Nesta, L. J. (2006), University patenting and its effects on academic research: The emerging European evidence, *Research Policy Property and the pursuit of knowledge: IPR issues affecting scientific research*, 35, 6, 790-807
- Geuna, A. & Rossi, F. (2010), Changes to university IPR regulations in Europe and the impact on academic patenting, *University of Turin*, 201015
- Mowery, D. C., Nelson, R. R., Sampat, B. N. & Ziedonis, A. A. (2001), The growth of patenting and licensing by U.S. universities: An assessment of the effects of the Bayh-Dole act of 1980, *Research Policy*, 30, 99-119
- Murray, F. & Stern, S. (2007), Do formal intellectual property rights hinder the free flow of scientific knowledge?: An empirical test of the anti-commons hypothesis, *Journal of Economic Behavior & Organization*, 63, 4, 648-687

## **Technology Transfer / Technologietransfer**

## 12. Academic inventors' decision to engage in entrepreneurship

### Gründungsentscheidungen akademischer Erfinder

- Goethner, M., Obschonka, M., Silbereisen, R.K. & Cantner, U. (in press). Scientists' transition to academic entrepreneurship: Economic and psychological determinants. *Journal of Economic Psychology*.
- Lacetera, N. (2009). Academic entrepreneurship. *Managerial and Decision Economics*, 30(7), 443-464.

## 13. Developments toward the 'entrepreneurial university'

### Entwicklungen in Richtung einer "Entrepreneurial University"

- Clark, B. R. (1998). *Creating entrepreneurial universities – Organizational pathways of transformation*. New York, NY: IAU Press.
- Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal of Technology and Globalization*, 1(1), 64-77.
- Rothaermel, F. T., Agung, S. D. & Jiang, L. (2007). University entrepreneurship: A taxonomy of the literature. *Industrial and Corporate Change*, 16(4), 691-791.

## 14. University technology transfer organizations (TTOs): Meaning and efficiency

### Technologietransfer-Organisationen: Bedeutung und Effizienz

- Link, A.N. & Siegel, D.S. (2005). Generating science-based growth: An econometric analysis of the impact of organizational incentives on university-industry technology transfer. *The European Journal of Finance*, 11(3), 169-181.
- Markman, G.D., Phan, P.H., Balkin, D.B. & Gianiodis, P.T. (2005). Entrepreneurship and university-based technology transfer. *Journal of Business Venturing*, 20, 241-263.
- Siegel, D.S., Veugelers, R. & Wright, M. (2007). Technology transfer offices and commercialization of university intellectual property: Performance and policy implications. *Oxford Review of Economic Policy*, 23(4), 640-660.

## 15. Academic spin-off companies as an instrument of technology transfer

### Akademische Spin-offs als Instrument des Technologietransfers

- Clarysse, B., Wright, M., Lockett, A., Mustar, P. & Knockaert, M. (2007). Academic spin-offs, formal technology transfer and capital raising. *Industrial and Corporate Change*, 16(4), 609-640.
- Knockaert, M., Ucbasaran, D., Wright, M. & Clarysse, B. (2011). The relationship between knowledge transfer, top management team composition, and performance: The case of science-based entrepreneurial firms. *Entrepreneurship: Theory & Practice*, 35(4), 777-803.
- Shane, S. A. (2004). *Academic entrepreneurship: University spinoffs and wealth creation*. Cheltenham, UK: Edward Elgar Publishing.