Title: Patent Use Of Universities
Innovation Policy small grants
Topic: Academic technology transfer

Project proposal

By tradition universities serve the public interest by providing graduates to meet the needs of industry and business and by contributing to the progress of science by conducting research. Universities are regarded as key institutions in this 'knowledge economy'. With these objectives, universities are publishing their research results by making them available to the public. However, nowadays this is often viewed as being incompatible with industry's need to keep information confidential and protected by intellectual property (IP) rights, such as patents.

Surprisingly, there has been little systematic empirical analysis on how patents are actually used by universities. There are a few studies that have looked into the use of patents by enterprises showing that between 36% and 38% of patents are never used (Giuri et. al. 2007, Nagaoka and Walsh, 2009, Walsh et. al, 2016). A recent survey that was part of a study funded by the European Commission DG Research and Innovation showed that on average 49% of the patent portfolio of enterprises patent portfolio is intentionally not licensed out. For universities this share is 13.3% (Es-Sadki, 2018). Patents may remain unused amongst enterprises for strategic reasons such as to prevent the entry of competitors (Gilbert and Newbery, 1982) or to serve as bargaining power in cross-licensing negotiations or infringement suits until an agreement is reached (Shapiro, 2001, Hall and Ziedonis 2001; Heller and Eisenberg, 1998).

For universities it however unclear why certain patents are intentionally unused. The PatVal study showed that universities license a large fraction of their technologies and rarely use them internally (Giuri et. al, 2007). However the same study showed that 27.5% of patents from inventors employed at universities are unused. From the survey results it is however unclear if the inventor or organisation is willing to license the patent. Some research has been conducted investigating the role that universities play in the technology for market as owners of patents. For instance, Lemley (2008) documents complaints about university patents and provides some interesting examples of how in some instances industry sees universities as patent trolls. More recently Valdicia (2013) showed that universities are increasingly pressurised to increase and improve their linkages with industry. KTOs that are responsible for these activities are primarily interested in generating revenue, which has led to industry's regular complaint about universities being too aggressive negotiating patent licenses (Clarysse et al., 2007).

Another stream of literature dealt with the potential trade-off between publishing and patenting as the publication of a paper might, for example, limit the patentability of the same results and vice versa (Breschi et al. 2005, 2008). Empirical work has however frequently found the relationship between patenting and publishing to be complementary and positive (e.g., Breschi et al. 2005, 2008; Meyer 2006; Crespi et al. 2011). One explanation is non-exclusivity between publishing and patenting because most research can lead to both publications and patents (Agrawal and Henderson, 2002). Another explanation is that the prestige from publishing might serve as an indication of good research (Fabrizio and Di Minin 2008) that can lead to potential collaborations with industry and can stimulate both publishing and patenting (Fisch et. al. 2015). Other explanations are nicely summarised in (Breschi et al. 2005, 2008).

The results found in academic literature and in commissioned projects such as the PatVal study and the study for European Commission DG Research and Innovation are at odds with the traditional mission of universities. That is, contributing to the progress of science by conducting research and publishing research results by making them available to the public. Patents held by universities should in the same regard increase interaction with industry in order to generate social and private returns from publicly funded research.

Back in 2002 already the OECD in their ST&I Outlook 2002, devoted to patenting and licensing in universities and other public research institutes, concluded that: “To understand whether concerns about the scientific and economic impacts of strategic IP behaviour are valid, governments, researchers and other stakeholders need more information on the quantity and quality of IP actually under management at universities and other public research institutes” (OECD, 2002, p. 198). There have been several studies focussing on the quality of IP as for instance measured by licensing income, see for an overview Barjak and Es-Sadki (2015). There is however limited quantitative data available for assessing the potential impact on open research of strategic IP behaviour of universities.

This research objective is to collect information on the utilisation of patents owned by universities, with a particular focus on the intentional non-use of patent. The information will be collected through a survey of inventors at universities.

The objective is to obtain at least 100 responses from academic inventors that are either associated with university-invented patents or with university-owned patents. Given an expected response rate in line with the PatVal study of 33.4% (N=7556) (Giuri, 2007) and with a study by Crespi et. al. (2011) of 25.8% (N=157) the survey sample size needs to consist of 300 to 400 inventors.

Searching for inventors and surveying them

The most crucial part of this project is collecting contact details of inventors. A patent search on universities as applicants will provide the names of the inventors and their affiliation for a particular patent. Research assistants will perform desk-research on contact details of the inventors listed in the patents. The survey will be conducted over 4 to 5 months and include up to one mailed introductory letter, three email reminders, and up to three telephone follow-up calls, using trained callers. To reduce cost the survey will only be offered in English. Table 1 gives the allocation of days for each foreseen task and the budget for each task with a daily fee of 400 US dollars.

Budget estimate

Table 1 Allocation of resources and budget in US dollars

	Total days	Budget in US Dollars
LITERATURE REVIEW		
Review of literature on the use of patents	3	1,200
SURVEY OF INVENTORS		-
Selection of sample	12	4,800
Design of the questionnaire (incl. cognitive testing of questions)	7	2,800
Survey implementation	14	5,600
Reporting the findings	14	5,600
Total	**50**	**20,000**

Applicant:
Nordine Es-Sadki
Researcher
UNU-MERIT – Maastricht University
Boschstraat 24
6211 AX Maastricht
The Netherlands
T +31(0)43 3884460
n.es-sadki@maastrichtuniversity.nl

CV IS ENCLOSED

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Nordine Es-Sadki

PERSONAL INFORMATION

Boschstraat 24, Maastricht, 6211 AX , The Netherlands

+31 43 3884460 :+31 6 43574082

n.es-sadki@maastrichtuniversity.nl

Sex Male | Date of birth 04/01/1984 | Nationality Dutch

ROLE IN THE TEAM Researcher

PROFILE

Nordine Es-Sadki joined UNU-MERIT as a researcher in January 2011. He obtained his bachelor degree in economics from Maastricht University in 2009. In 2010 he obtained his master degree in economics from the Erasmus University in Rotterdam with distinction. His research interests include, the measurement of Science, Technology & Innovation (STI), knowledge flows from public research to firms, questionnaire design and methodology. He has been working on the European Innovation Scoreboard project since 2011. Part of this work includes the analysis of STI indicators and drafting reports based on that analysis.

WORK EXPERIENCE

01/2011 - present

Researcher

Maastricht Economic Research institute on Innovation and Technology (MERIT), Maastricht University

- Commissioned research, currently including the following projects:
  - Community Innovation Survey 2018, commissioned by the European Commission, DG Eurostat
  - European Innovation Scoreboards 2018-2019, commissioned by the European Commission, DG Internal Market, Industry, Entrepreneurship and SMEs
  - Study on technology transfer agreements, commissioned by the European Commission, DG RTD 2017-2018

Business or sector University research institute

2010 – present

Economics teacher (lyceum)

Porta Mosana College Maastricht, PO Box 4050 NL-6228 XW Maastricht , Netherlands

- Teaching economics

Business or sector Government

EDUCATION AND TRAINING

2009-2010

Msc. (cum laude) Economics

Replace with EQF (or other) level if relevant

Erasmus University Rotterdam

- Master degree ISCED 5A

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2007-2009 **Bsc Economics**

Replace with EQF (or other) level if relevant

Maastricht University

- Bachelor degree ISCED 5

PERSONAL SKILLS

Mother tongue(s): Dutch

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2l
French	B2	B2	B2	B2	B1
Arabic	B2	B1	B2	B2	B1

Replace with name of language certificate. Enter level if known.

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills: Good communication skills both through his teaching experience and through his involvement in a number of EU projects

Organisational / managerial skills:

Job-related skills:

Computer skills: Good command of EXCEL, WORD, SPSS, STATA

Driving licence: Replace with driving licence category/-ies. Example:
- B

ANNEXES

Publications

Es-Sadki, N., (2010) "The Effects of Exchange Rate Volatility on Dumping. The case of India." Master thesis, supervisor prof. dr. Viaene, J.M.A., Erasmus University Rotterdam, 2010.

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- 2013-2014: European Innovation Scoreboard 2013-2014, commissioned by the European Commission, DG Enterprise and Industry (in collaboration with Ideas2Evidence, Technopolis Group and ZSI)
- 2013-2014: Regional Innovation Monitor Plus 2013 – 2014, commissioned by the European Commission, DG Enterprise and Industry (in collaboration with Technopolis Group and Fraunhofer ISI).
- 2014-2015: Knowledge Transfer Survey, 2014-2015, commissioned by the Norwegian Ministry of Education and Research, under sub-contract for DAMVAD Norway (in collaboration with DAMVAD and NIFU).

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- 2017-2018: European Innovation Scoreboard 2017-2018, commissioned by the European Commission, DG Enterprise and Industry (in collaboration with Deloitte, SPI, NESTA and EFIS)
- 2017-2018:European Observatory for Clusters and Industrial Change 2017-2018, commissioned by the European Commission, DG Enterprise and Industry (in collaboration with Deloitte, SPI, VVA, CSIL, VTT, Strasbourg Conseil and Fraunhofer ISI)

Conference presentations

- 2012: UTEN Portugal Annual Conference. PRELIMINARY Results of the 2011 Survey of European knowledge transfer offices (KTOs). Lisbon, 17 December 2012
- 2014: Academic use of CIS data. UNU-MERIT conference Innovation & Governance in Development: 26-28 Nov. 2014 Maastricht, Netherlands
- 2015: The impact of the regional environment on the knowledge transfer outcomes of public research organisations: preliminary results for Europe. Presented at the FinKT conference Knowledge transfer and entrepreneurship 16-17 April 2015 Rimini, Italy.
- 2017: The benefits of knowledge transfer of public research organisations – a different perspective to measure success of TTOs. UNU-MERIT Conference 28-29 June 2017.
- 2018: ASTP PROTON conference. Options for Technology Transfer Policy in EU Context. Title presentation: Measuring technology transfer differently. 24-25 May 2018, Liege, Belgium.

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