

Survey User Innovation within Patent Law

Durance: 02.11.2-12-31.05.2013

Number of participants (opened questionnaires) 115

Number of questionnaires completed (all 4 parts or stopped in 4.part) 70*

* These answers were taken into account.

Study methods

Community selection

There were two basic criteria for choosing target groups (communities and individual innovators) for the survey:

- a) the community as a whole should have a "voluntary" character, i.e. it could not be grounded and/or supported by any company,
- b) the community and/or individual innovators should be active in the filed of high-tech innovations.

Such groups were three: *RepRap Community*, *Makazine Readers*, *JugendForscht*.

Data Collection

Prior to launching the survey, a pre-test was conducted

In the pre-test phase the questionnaire was distributed:

- a) via emails to my colleagues from Fraunhofer-Gesellschaft and
- b) via invitations posted on user group forums: RepRap and MAKE Magazine*.

* JugendForscht was added as a respondent group after the pre-test.

All respondents were asked to provide feedback on comprehensibility of the questionnaire. Consequently, several changes were included to improve the clarity of questions.

The questionnaire was distributed via invitations posted on community forums, facebook profiles, google groups.

It was opened for a relatively long period of time: Nov 2012- May 2013.

Initially the reminders were sent after the first two weeks; later at intervals of approx. one month.

Questionnaire

The questionnaire comprised of four parts, each beginning with an explanatory introduction. In the first part respondents were asked about the way they innovate: in community or individually.

The second part concerned their experience in commercialisation of innovations: whether done in cooperation with manufacturers or individually; which features determined the attractiveness of the innovation for the market.

The third part asked about obstacles and legal inconveniences they experience in the course of innovating.

The fourth part referred to the general characteristic of respondents' activities as user innovators: industry sector, the type of innovation, country, years of experience.

The questionnaire was anonymous.

The questionnaire comprised of binary type of questions and was designed to measure the frequencies of certain occurrences.

Data analysis

Part I Organisational form n=70

Table 1	Innovating within Community	52
	community innovator	18
	community assistance	31
	Other:	3
	1 <i>I'd probably call myself an Alpha-tester, where I help debug and refine ideas and projects that others have initiated.</i>	
	2 <i>I change things for my own needs</i>	
	3 <i>Some of both</i>	

Table 2	Innovating individually*	18
	private development and use	11
	developing individually and sharing with friends	3
	working with a small group of people	7

* multiple choice

Part II Commercialisation n=70

28 (40%) respondents confirmed having the experience in commercialisation of innovations.

This equally concerned improvements - 18 responses, and completely new products (new designs) - 20.

Predominantly, products were commercialised without the support of third parties (Table 3).

Table 3 *How commercialised?*

	In cooperation	Individually
Improvement	8	16
New design	8	14

The categories of products: improvements and new designs, did not differ significantly from each other.

The anticipated differences concerned the "pioneer character" of devices - new designs, and new functions added - improvement.

Other features were almost equally ascribed to the two categories (Table 4).

Table 4

Characteristic of commercialised products - attributes attractive for the market

Attributes	Improvement	New design
Better and more accurate solution	13	13
Pioneer concept	5	15
New functions added	14	4
Respos to neglected needs	11	8
Cost savings: in utilisation, manufacturing	14	14

Part III Obstacles and legal inconveniences n=70

32 (46%) respondents confirmed to experienced various obstacles in the innovating process.

The respondents indicated the legal matters as the main **obstacle in their undertakings** (23 responses).

The second most marked option was the **limited acces to sources and markets** (15).

Organisational barriers represented a further significant impediment (11).

Dominant standards and high switching costs as well as **technological complexity** locate at the bottom of the obstacle ranking (5 and 7 responses respectively).

This most likely due to the involvement of respondents in high-tech innovating on a daily basis.

The "other" answers (8) focused mainly on legal aspects: red tape, complex approval processes, other non-IP-related matters, costs of international IP coverage.

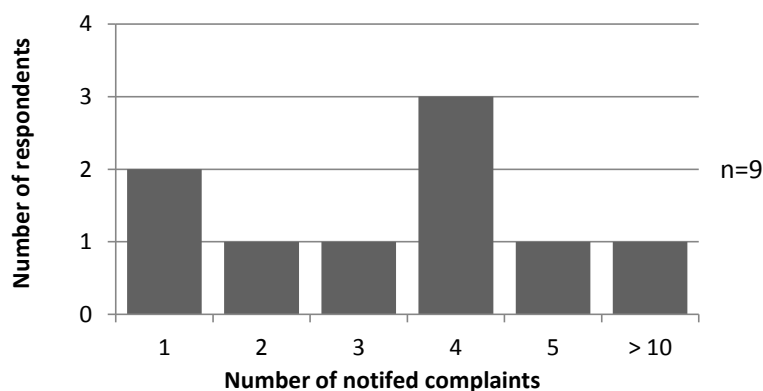
However, there were named more elementary issues like the lack of time and money.

Experience with Patent Infringement

(Due to its importance for the hypothesis underlying the thesis, the most crucial part of the survey).

9 respondents confirmed being accused of patent infringement; with 7 who have experienced collisions with patent right holders more than once (Graph 1).

Graph 1



There was no significant discrepancy in **the way the complain was notified** the alleged infringer: formally (4), informally (5)

In a similar manner the complains concerned **improvement (5 answers) and new designs (4)**.

The claims were triggered by the following occurrences (in descending order):

1. commercialisation and market entry (4 answers)
2. making the innovation public (3)
3. patent infringement (2)
4. other: data gathering, re-doing similar design (2)

The majority of cases was in **the US (8 responses)**, which was anticipated due to:

- a) the awaited high user innovation activity in this country
- b) the patent policy and intensive business activity.

One case came from **the United Arab Emirates** and concerned the agriculture sector.

The patent right holder (in descending order):

1. big companies - 5 answers
2. individual innovators (3)
3. medium size companies (2).

Interesting is the fact that the individual innovators attempted to assert their rights since patent disputes can be very expensive and risky at the end of the day, what is of special interest for an individual.

However, there are various factors to be considered which this questionnaire does not provide (and was not intended to do so).

That information requires an in-depth case study.

Regarding the outcomes of disputes, neither cooperation nor license purchase was the **aftermath** of the complain.

Settlement and court proceeding in 4 cases (3 and 1 respectively)

Interesting are the "other" answers:

1. some cases remain pending, unresolved (3);
2. users had to quit the working on the invention: withdraw from the public access or change the research line (2).

Part IV Characteristics of respondents activities

n=55

Respondents had various technological backgrounds and were active in diverse industry **sectors**: from software to wood and paper (Graph 2).

Due to the character to target groups the prevalent sectors were hardware engineering, software, robotics - 67% (37).

As the response rate in the RepRap Community was very positive, the 3D printer was named 30 times (n=53) as the **innovation currently developed** or developed, and/or applied in other innovative undertakings. The answers were very detailed and eloquent - examples are provided in Table 5.

Remark: some of the names innovations appear to be extremely advanced where certain facilities are required. Hence, my assumption that they may concern the professional activity of respondents. On the other hand, it only proves the high level of technological know-how in

the phenomenon of User Innovation.

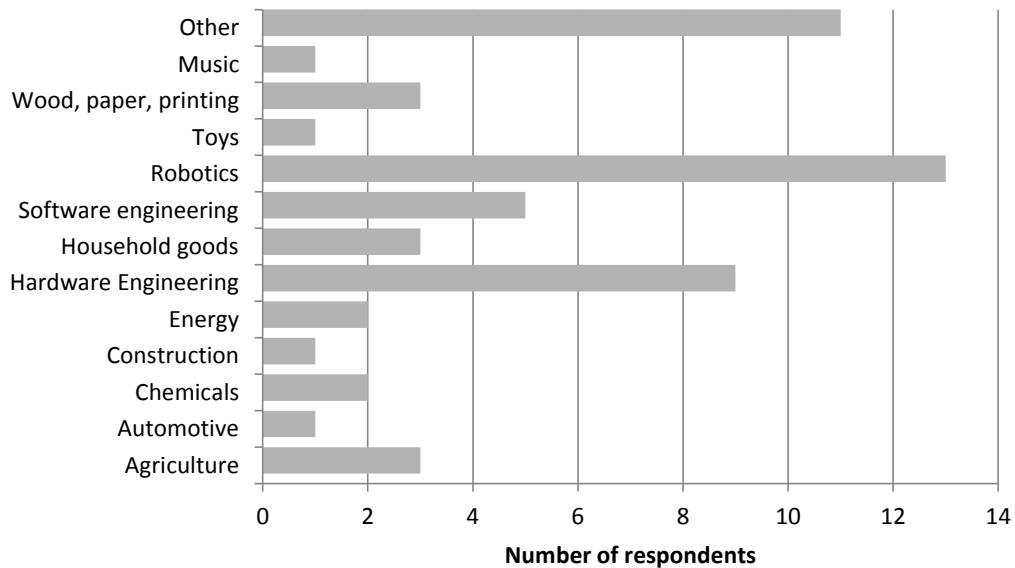
The company was **highly international**, with the prevalence of US respondents (Graph 3).

And also very **masculine**: 51 men, 2 women (n=53).

The majority of respondents has been active as user innovator for less than 3 year (36, 66%) (Graph 4).

This high rate of "**young**" user innovators could possibly have the impact on the experience with legal matters.

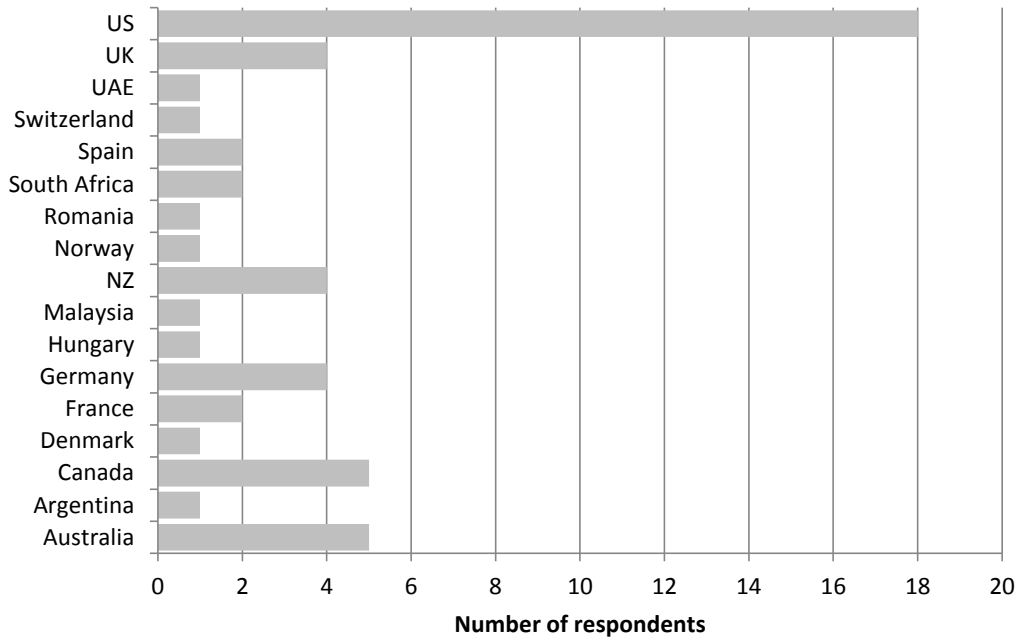
Graph 2 *Industry Sectors* n=55



<i>Other:</i>	
3D printing/RepRap	4
CNC Machines	1
Consumer electronics	1
Manufacturing equipment for small business	1
Mechanical and hardware engineering	1
Sollar Cell	1
Whatever I come up with	1
Wide range of fields, currently solar and transport	1

Graph 3 Country where respondents innovate

n=54



Graph 4 Years of experience in user innovation

n=54

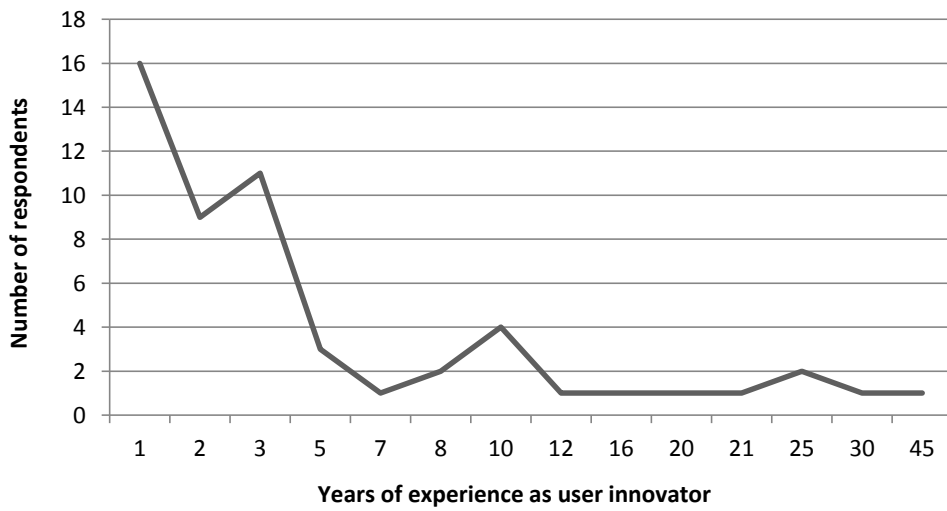


Table 5

Type of innovation developed or being developed

n=53

Examples:

Hobby CNC machines

Do-it-yourself

New antioxidants in order to avoid photobleaching of several dyes

Houses for the future: a automatic flower security with intelligent design

Music Technology

Improving existing design via modularization and standardization.

Robotics claws and gear drives. Toothbrushes and garden rakes. It is really

Tracked air-cushion vehicular mass transportation system - a replacement for air travel, relying on wing-in-ground-effect support of a magnetically-propelled contact-free vehicle. Others include alternative energy, rapid fabrication, robotics (underwater and airborne), etc.

My current innovations come from personal problems and finding solutions. Some examples are: I am a motorcycle courier and need a better box so I am designing one. I used my 3D printer to print out parts to a hydroponic garden I designed. I took our ottomans and put a drawer in them, then recovered in leather. I needed an electric buffer that didn't need mains power (I bought an aeroplane and there was no electricity at the airfield.) So I took an angle grinder and adapted it with a pulse width modulation circuit so it could run at the right speed.
