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Dear Commission,

The hearing is for "stakeholders" of an effective patent system. I am a stakeholder of the patent system, not because I own or desire to patents, but because I risk infringing patents. As a computational scientist, I write and run software programs all day. The overall aim is to use computational techniques as a method to understand the Soft Condensed Matter.

I hope the issues I raise below are not discarded as belonging to the "economic minority". I coauthored a response for the software patent directive hearing. This issues we raised then were discarded as belonging to the "economic minority" in the commissions analysis of the replies. Fortunately years later a majority in the EU parliament chose to stop the directive in part because it was biased in favour of the "economic majority", and against public interest and small and medium sized European enterprises. I hope that a serious and unbiased analysis of hearing replies will be attempted with this hearing.

As a scientist, I have worked at the National Lab Risø (Roskilde, Denmark), the Max Planck Institute for Polymer Research (Mainz, Germany), and at the Max Planck Institute for the Physics of Complex Systems (Dresden, Germany). I am an author or coauthor of a number of papers in the field of computational physics. This field is driven by innovations in the field of physics, software algorithms, and simulation methodologies. As computers are progressively becoming more powerful computational physics is becoming a indispensable complement to the classical domains of theory and experiment.

By writing software, I risk infringing software patents that has been granted or can be granted under the current practice of the European Patent Office (EPO). For this reason I have spend a significant amount of time studying the patent economics, and the current EPO practice of granting software patents. In 2005, I initiated Project Gauss (<http://gauss.ffii.org>) for documenting and monitoring EPOs practice of granting software patents and business method patents.

1.1 Do you agree that these are the basic features required of the patent system?

The basic feature of the patent system is the cause of excess innovation within a specific field. That is more innovation than would produced in the absence of patents. This is the rationale why society has a patent system in the first place. I emphasise a specific field, because it is wrong to assume that patents functions in the same way in all fields e.g. for agricultural products, pharmaceuticals, business methods, and software products. The central question is if patents cause excess innovation within a specific field, and hence where it is rational for society to allow patents to be granted.

The software patent directive failed to refer to any empirical research showing software patents actually cause excess innovation. Indeed, in this field the few existing studies suggest that software patents substitute for innovation rather than compliment innovation [1,2]. The directive was a good example of where the narrow goal to harmonize current practices takes precedence over much more relevant question to what extent that practice is rational from the point of view of society, i.e. that the practice produce an optimal degree of innovation accessible for society.

1.2 Are there other features that you consider important?

Understanding the economics of knowledge intensive products and the interplay between companies and innovators in a patent ecology is completely essential for making rational and informed policy decisions. The basic features listed in section 1 of the hearing material have not been positively proven in most fields where patents are currently granted. Rational policy decisions can not be made based on unproven assumptions.

Most, if not all, products in the knowledge economy are complex[4,5], i.e. the product is an aggregation of many ideas, ideas that can be patented by many different companies. Secondly, the typical mode of innovation is not revolutionary, ex nihil creation of completely new ideas, but rather cumulative, evolutionary improvements [6,7,8] of old ideas. Old ideas that can also be patented by many different companies.

A typical example of a complex product undergoing cumulative innovation would be a word processing application, which is to a very large extent an imitation of numerous earlier generations of word processing applications with a few new innovations.

In a typical situation like the one sketched above, patents create significant legal risks and raise transaction costs for innovators. Follow-on innovation where an innovator improves an existing product also incurs these risks. One way companies mitigate these patent induced risks is to build large patent portfolios.[5,9] The motivation here is not protection of ideas, but rather the defensive strategy to neutralise other patent portfolios through cross licensing. Portfolios can also be used strategically to create barriers (patent thickets) restricting market access for new innovators entering a market with large established competitors.

When a product is simultaneously covered by many overlapping rights, it can not be exploited optimally by society. This situation is known as the "tragedy of the anti-commons".[10] Currently within the field of computational physics there is a large number of algorithms, models, and methods available for researchers to apply, combine, and improve. This body of knowledge constitute an innovation common. Introducing patents in a common has the effect of privatising it, this risks making research and innovation impossible. Such effects have already been seen within the field of biomedical research.

Hence a central feature of the patent system is make empirical economical studies to what extent patents cause or inhibit innovation in the knowledge economy! New innovative products and improvements of existing products is in the public interest, fortifying existing monopolies, hindering the creation of Open Standards for information interchange, and creating barriers for SME innovators is not in the public interest.

1.3 How can the Community better take into account the broader public interest in developing its policy on patents?

The economic considerations presented in the previous answer illustrates that a systemic macroeconomic approach is required for starting to make rational policy decisions. More or cheaper patents, increased legality or faster dispute resolution does not necessarily produce any excess innovation. The section 1 of the questionnaire largely expresses the very narrow view of isolated patents is assumed affect an isolated company. This is an example of tunnel vision where the bigger picture has been lost. The commission will not be able to take public interest into account before the bigger picture of patent portfolios, innovators and complex products has been studied and understood.

A step in the right direction would be to instigate a European Patent Observatory. The Bakels-Hugenholtz report [11] on the software patent directive commissioned by the EU parliament suggested to make such an observatory. It would be an independent economic research institution, that can monitor the effect of the patent ecology on European innovation, and provide empirical feedback to ensure a (for the society) optimal patent practice in specific fields. In the absence of such a monitoring-feedback-control loop the patent system is out of control, since relying on jurisprudence produced by EPOs caselaw will not automatically lead to a patent practice, that is characterized by an optimal level of innovation production with minimal costs for the innovators.

With best regards,

Carsten Svaneborg, Ph.D.

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