GOVERNING IMPURE PUBLIC GOODS IN THE GLOBAL KNOWLEDGE ECONOMY:
Intellectual Property Rights and Standards in the ICT Industry

Draft project proposal
(very rough first sketch of key propositions and possible research questions)

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Absolutely NOT for citation. But comments are welcome!

Introduction

The proposed project is part of the GGKE program. It explores the role of intellectual property rights (IPR) for standardization in the information and communications technology (ICT) industry. Specifically, the project examines how the emerging global knowledge economy increases the inherent tensions between IPR and standards, how this affects the performance of standard-setting bodies, and what this implies for the position and strategies of emerging economies like China and India.

A defining characteristic of the ICT industry is that innovation is fragmented (through modular design) and dispersed across boundaries (of firms, countries and sectors) through global innovation networks. As a result, innovation in this industry requires interoperability, i.e. ‘compatibility’ standards that enable independently designed products and components to work together within a technological system (e.g. a laptop, a handset or a switching system).

In this sense, standards are the lifeblood of innovation in the ICT industry. But that does not imply that standardization per se is good under all conditions. For instance, standards that fail to address critical societal concerns with regard to climate change, health or product safety, may actually give rise to wasteful and even destructive innovation. Standards may also effectively limit innovation and economic growth when they are used as a weapon to block competition (Lemley, 2002; Farrell and Weiser, 2003).

To understand how standards interact with competition, the proposed project studies the interface between IPR and standards. Increasingly, standards include technologies that are protected by IPR. This is especially the case for information and communication technologies, hence our focus on this industry. In theory, a neat distinction is possible between standards that are a ‘public good’ (free, collective good)

2 China and India are the most prominent nations in this group, but the list includes both large countries like Russia, Brazil, Argentina, Mexico, South Africa, Indonesia, Thailand, Vietnam and Egypt, and many smaller countries, like Korea, Taiwan, Malaysia, Singapore, Israel, the Gulf states, Poland, the Czech Republic, Hungary, and the Baltic states.
3 “Modular design” is a particular design methodology in which parameters and tasks are interdependent within units (modules) and independent across them (Baldwin and Clark, 2000).
4 As argued in a report prepared for the Department of Commerce Advisory Committee on Measuring Innovation in the 21st Century, “…(c)hange and innovation are not desirable ends in themselves; in fact, some innovation is evidently wasteful and even destructive.” (Perelman, 2007: p.1)
and IPR that are a ‘private good’ (for private exclusive use by IPR owners). But in reality, tensions are rising between IPR and standards - “...while technical standardization is meant to transform ideas into a public good, patent protection transforms them into a private good.” (EPO 07: 93)

In fact, IPR may be used as a strategic weapon to prohibit, delay or obstruct standardization processes (Blind et al, 2002). This is the case for instance when incumbent market leaders pursue so-called ‘platform leadership’ strategies through allegedly open but de facto proprietary standards. As a result, standards are becoming increasingly ‘impure public goods’ that are used by incumbent industry leaders to block competitors and to deter new entrants.

An important objective of the project is to explain why standards are ‘impure public goods’, i.e. why “not all parties have equal access to the standard and to the standardization process.” (Bekkers, 2001:p.222). We hypothesize that this reflects a defining characteristic of the emerging global knowledge economy (Ernst and Hart, 2008) – as innovation is central to competitive success, corporate strategies complement in-house R&D with global innovation networks, with the result that globalization now extends into markets for technology, knowledge workers and innovation finance.

A second related objective is to search for appropriate governance mechanisms for international open standardization that would allow reconciling ‘efficiency’ with fairness, equity and sensitivity to differences in economic development, institutions and capabilities. This requires that we study IPR strategies and policies of diverse stakeholders of standard-setting bodies. Our research will focus primarily on informal processes driven by consortia of companies that have gained in importance relative to formal standardization processes (Cargill, 2007; Blind and Gauch, 2005).

This note provides a very rough first sketch of key propositions and possible research questions that could help to address important policy concerns. The note is informed by a review of the existing literature on standards and intellectual property rights, but it does not yet provide this review. This will be the subject of later revised versions that will also develop key concepts and tools, as well as hypotheses and research methodology, drawing on the conceptual framework and analytical tools developed for the GGKE program.

The note consists of three parts. Part one provides a brief description of defining characteristics and drivers of the emerging global knowledge economy and introduces the concept of multiple global governance gaps. Part two describes how the proposed project seeks to study the global dimension of IPR and standardization in the ICT industry. I first review defining characteristics of

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5 Economists typically define ‘public goods’ by two qualities: non-rivalry in consumption (i.e. they are not depleted by an additional user) and non-excludability (i.e. it is generally difficult or impossible to exclude people from its benefits, even if they are unwilling to pay for them). (Baumol and Blinder, 1991: 617).

6 The overriding purpose of “platform leadership” strategies is to leverage the existing market power of industry leaders into the control of “systemic architectural innovations.” See Gawer and Cusumano (2002: p. 39). For example, Intel has attempted to extend its control over microprocessors by creating widely accepted architectural designs that increase the processing requirements of electronic systems and, hence, the market for Intel’s microprocessors (Gawer and Henderson, 2007).

7 As P.A. Samuelson (1969) observes, most of the real economy operates in the messy world of ‘impure public goods’, i.e. they are provided through some form of exclusion through clubs or consortia (Cornes and Sandler, 1986).
this industry that make it a good test case for this project. I then highlight the critical role played by compatibility standards and discuss the impact of modularity traps.

To study how diverse stakeholders shape the dynamics of ICT standardization, I suggest focusing on a small sample of carefully selected formal and informal standard-setting organizations. Specifically, I suggest that the proposed project explores how different licensing strategies affect the performance of these governance bodies, in terms of efficiency as well as fairness. In addition, I suggest studying the link between different types of innovation and IPR strategies of incumbent industry leaders.

Part three of the note then asks what all of this implies for emerging economies (especially China and India) that are potentially strong enough to challenge the existing rules of ICT standardization. I introduce a taxonomy of strategies pursued in these economies that distinguishes between ‘fast-follower’ strategies focused on the ‘global factory’ model and attempts to develop ‘upgrading through innovation’ strategies.

I suggest using this taxonomy to examine whether the global dynamics of IPR and standards creates very different opportunities and challenges for both types of ‘emerging economy’ strategies. In addition, I suggest exploring how different types of innovation, discussed in part two, might affect the position and IPR strategies of emerging economies in ICT standard-setting bodies.

The note concludes with generic policy suggestions on how to develop appropriate governance mechanisms for international open standardization in the ICT industry. While the focus will on the governance of the IPR-standards interface, issues for competition and innovation policies will also be addressed. Finally, an attempt will be made to highlight possible implications for developing countries that are way behind the technology frontier and that lack the leverage of the more developed emerging economies.

At this stage, the main purpose of this note is to get things started. The next step now is to collect comments and to jointly revise this draft, so that we can select and sharpen a handful of priority hypotheses and research questions in terms of their policy relevance, feasibility and impact. In short, please be generous with your time in providing comments and suggestions, even if you are not interested in contributing to this particular project. Beyond this project, your comments will help to develop the conceptual framework of the GGKE program!