Chapter 1
Innovative or Indefensible?
An Empirical Assessment of Patenting within Standard Setting

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ABSTRACT
Cooperative standard setting may be burdened by “over patenting”. Because standards may convey market power to firms whose patents are implicated, “strategic” patenting may enable opportunistic behaviors. Thus, particular concerns have been raised over patenting that takes place after the first versions of a standard are published, as these patents may be aimed at the acquisition of market power. This is a reasonable concern, but another possibility also may be likely: “ex post” patenting may be driven by genuine innovation. Which is more prevalent? To begin answering this question, the author empirically assesses the patenting that occurs within a standard setting organization. The author rejects the first stage hypothesis that all ex post patenting must be opportunistic and conclude instead that such patenting is likely a mixed bag of (incremental) innovative contributions along with some strategic ones. As a result, standard setting policy prescriptions should proceed with caution so that the good is not eliminated with the bad.

INTRODUCTION
Much has been written — especially in recent years — regarding the perceived problem of “over patenting” within cooperative standard setting. Because standards can convey market power to those firms whose patented technologies are included in the standard, the concern is that “strategic” patenting, driven not by innovation but by rent seeking, will enable firms to license their intellectual property (IP) opportunistically. Hence, theories of IP “anti-commons”, “patent
thickets”, and “royalty stacking” have been proposed in the academic literature, along with policy ideas aimed at reducing such problems (Shapiro, 2001; Mueller, 2001; Lemley & Shapiro, 2006). Much of the attention has focused on the sheer rise in patent numbers. With more and more patents being declared as potentially “essential” for the implementation of any given standard, what are the possible detrimental effects on the standardization process? How could the commercialization of the standard be affected? And what are the implications for overall innovation within standard setting contexts?

While several scholars have recognized a link between standards and innovation when considering the benefits of standardization, this story is traditionally one of research and development in anticipation of a new standard (e.g., Farrell & Saloner, 1985). That is, the chance to increase the end market size through cooperative standardization can provide enhanced incentives to innovate, meaning higher expenditures on R&D, which of course can be accompanied by patenting.

Increased patenting that takes place during standardization, however, and especially patenting that takes place after the first versions of a standard are published, tends to be viewed differently. Such “ex post” patenting is often seen as opportunistic and aimed at the unwarranted acquisition of market power. The logic behind this concern is that once a standard is defined, the key pioneering innovations have already taken place and thus any additional patenting is likely aimed at shifting rents and staking a larger (unjustified) claim of the standard’s IP licensing revenues.

Several scholars have raised concerns over such opportunistic patenting. For example, in their empirical analysis of the 3G mobile telecom standard UMTS (Universal Mobile Telecommunications System), Bekkers and West (2009) caution that attempts to create patents to read on that standard. One way such strategic patenting might be evidenced would be if the patents were filed well after the corresponding standardization effort had begun.

Likewise, Hunt, Simojoki, and Takalo (2007) posit that “… firms may anticipate the outcome of the standard-setting process and apply for patents that would be infringed by users conforming to the standard.” And Dewatripont and Legros (2007) use strategic patenting as motivation for their theoretical assessment of patent “padding” within a standard.

It seems safe to surmise that firms do engage in opportunistic patenting, particularly when the commercial stakes are high, as they often are. But another possibility exists in tandem: that at least some ex post patenting is driven by genuine innovation. This follows from the incremental nature of the standardization process. Once the path of a new standard is chosen, much work may still remain to define the precise implementation details. For example, at the time the technology for the UMTS mobile telecoms standard was selected, the document specifying a crucial component was only 30 pages long, but by the time the standard was ready for commercial implementation the page count had increased to over 13,000. This suggests considerable additional work was necessary to move from the theoretical concept of the chosen technology to the reality of putting that technology to work in the field. This interpretation is corroborated in an industry analyst report, which although focused on mobile telecom notes that the difficulties in moving from concept to implementation are felt in all industries involving complex products and cooperative standards: “Implementation IPR … actually makes up the vast majority of all IPR filed in any technical standard. … In many ways it is just as important … just as a window is of no use unless it can be effectively placed in the space that has been designed for it.”

A key form of standards-related strategic patenting is when a firm deduces the direction that a standardization effort is proceeding [in] and then
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