



## Patent market dynamics: In view of the business model of non-practicing entities



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### ARTICLE INFO

#### Article history:

Received 17 July 2015

Received in revised form

24 January 2017

Accepted 27 January 2017

#### Keywords:

Non-practicing entities

NPE

Patent troll

Patent market

Technology transfer

Knowledge integration

### ABSTRACT

The emergence of Non-Practicing Entities (“NPEs”) influences patent market dynamics. Based on a database of NPE activities from 1996 to 2010, this paper attempts to investigate these influences in view of NPEs’ heterogeneity. We found NPEs with prominent R&D involvements can integrate knowledge from the innovation and patent markets, and might therefore generate valuable patents and facilitate effective technology transfer. Hence, when compared with NPEs without any R&D involvement, R&D-performing NPEs appeared able to monetize their patents without resorting to excessive litigation. Thus, different NPEs could exert different influences and drive patent market dynamics in their own respective ways.

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### 1. Introduction

The emergence of Non-Practicing Entities (“NPEs”) has significant influences on patent market dynamics. While many view such influences in a negative light [1–5], others believe that NPEs, who are producing, acquiring, selling, licensing and enforcing patents, are not only enhancing the exploitation of patents, but also contributing to the formation of patent market at the same time [6–11].

A review of our NPE Database, which consisted of data on NPE activities from 1996 to 2010, revealed that, there was notable heterogeneity among NPEs in terms of their litigation practices and patent acquisition behavior, and their impact on the patent market might differ due to their diverse business models and strategies. We then investigated the heterogeneity of NPEs, and discovered that NPEs with significant R&D involvement appeared to be less litigious than other NPEs, but they still managed to generate considerable revenue. These observations suggest that R&D capabilities might have positive effects on the licensing activities of NPEs, and

we hypothesized that the alignment of innovation markets with patent markets (i.e. the linking of the steps of technology commercialization) equips NPEs with the expertise and skills to facilitate efficient technology transfer through patent transactions. These R&D-performing NPEs could operate effectively in licensing or assigning patents for profits. With this advantage, R&D-performing NPEs might be able to place less reliance on litigation for securing licensing deals, compared with other NPEs.

The differences in litigation practices also cause Practicing Entities (“PE”) (also known as an operating company) to react to NPEs in different ways. In response to NPEs without R&D capabilities that could be legally aggressive, patent alliances, such as Allied Security Trust (“AST”) and Rational Patent Exchange (“RPX”) have been formed by operating companies in order to manage the risk of patent disputes and to control damages due to patent infringements. In contrast, in response to NPEs with R&D capabilities, operating companies might be more likely to engage in licensing agreements, and even cooperate with these NPEs for strategic purposes.

In summary, the findings and discussions of this paper highlighted the heterogeneous nature of the NPE community, shed some light on the effects of R&D capabilities on the business strategies of NPEs, and showed the importance of knowledge integration for players in patent market.

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## 2. Literature review

### 2.1. Definition of patent market/technology market

Patents, which are regarded as “the oil of the 21st century”, have their own markets [12–15]. The “Antitrust Guidelines for the licensing of Intellectual Property” [16] jointly published by the US Department of Justice and the US Federal Trade Commission delineates a Three-Market framework consisting of: innovation markets (that “consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development”), technology markets (that “consist of the intellectual property (i.e., mostly patent) that is licensed (the “licensed technology”) and its close substitutes”), and goods markets. In this Three-Market framework, the technology market (also known as the patent market) bridges the innovation markets and goods markets, and thus exerts control over the flow of technology development from its embryonic stage (innovation) to commercialization stage (product and/or service) (Fig. 1).

Traditional players in the patent market consist predominantly of operating companies that trade patented technologies for manufacturing end-products [6,17]. However, due to the development of the patent system and advancement of technologies, the quantity of patents generated has increased exponentially, resulting in unprecedented flourishing of patent trading. Consequently, the evolution of the patent market has given rise to the emergence of various new market players, of which NPEs are the most prominent in recent decades.

### 2.2. Definition of NPEs

Distinct from the traditional players in the patent market, NPEs (or derogatively known as “patent trolls”) do “not practice their inventions in products or services”, but instead, “derive the majority of their income from the enforcement of patent rights” [17]. While a precise definition for NPEs is still a matter of debate and many alternative definitions had been proposed by scholars and practitioners in the field [6,9,10,18–22], we decided to adopt the above-mentioned definition of NPEs in this study for the following reasons: Firstly, this definition of NPEs captures two of the most frequently cited features of these entities: non-practicing of the patented inventions and enforcement-oriented (i.e., litigation) patent monetization. Further, unlike some definitions that have a negative undertone [1,2], this definition is descriptive and non-judgmental. Lastly, this definition has gained wide recognition among many practitioners, and has also been increasingly applied in many literature [17,23].

In addition, we wish to make a few observations in relation to this definition of NPEs. First of all, NPEs, as defined above, could in principle refer to any patent holding entity that monetizes and enforces patents without directly engaging in actual product manufacturing, and could therefore include both profit-driven and

non-profit organizations. In fact, whether the fundamental purpose of patent monetization is profit-driven or not should not be relevant in the definition of NPEs. Bessen et al. [17] stated that “In principle, NPEs can perform the socially valuable function of facilitating markets for technology. Some inventors lack the resources and expertise needed to successfully license their technologies or, if necessary, enforce their patents.” Thus, this NPE definition could very well encompass innocent inventors whose patented technologies have been unfairly adopted, as well as non-profit universities and research institutes (e.g., Wisconsin Alumni Research Foundation (“WARF”), Commonwealth Scientific and Industrial Research Organization (“CSIRO”), Science & Technology Corporation, University of New Mexico (“STC”), Semiconductor Energy Laboratory (“SEL”).

Secondly, this definition of NPEs does not specify the source of NPE’s patents: NPEs could either acquire patents from others (e.g., Intellectual Venture and Acacia) or perform R&D to generate their own patents (e.g., Tessera and Interdigital). Thirdly, although by this definition, NPEs do not practice their inventions in products or services, some NPEs could still generate prototypes and/or products, often in a smaller scale, to facilitate their patent transactions and monetization. Thus, as long as the main purpose of producing the product is to facilitate patent transaction, these entities still fall within the definition of NPEs.

### 2.3. The impact of NPEs on the patent market

The activities of NPEs primarily include patent generation (by self-generation or acquisition from others) and patent monetization (such as licensing or litigation). The controversies of NPEs’ activities are often due to their alleged aggregation of legally meritless patents (e.g. overly broad patents, invalid patents, software patents, business method patents) and excessive use of litigation for patent monetization (e.g. damage, settlement and litigation-facilitated licensing agreements). Due to these alleged controversial activities that are not commonly observed in traditional patent market players, many view NPEs as a destructive force that abuses the patent system and erodes the foundation of the innovation economy [17,20]. However, others argue that NPEs’ activities actually facilitate the trade and exploitation of patents [24,25], and therefore could contribute to the dynamics of the patent market in a positive or neutral manner [7,8,11,15,17].

Despite the controversies/debates caused by NPEs and the slew of administrative measures and judicial decisions put in place to curtail their activities [26–28], NPEs have nevertheless continued to make headlines, and rapidly accelerated to be a notable market player, creating either benefits or problems, depending on the view one takes [10,29]. Whether one likes it or not, NPEs appeared to be here to stay. It is therefore critical to further comprehend the business nature of NPEs, and to continue to assess their growing impacts on patent market dynamics.

Many studies on NPEs viewed them as a homogenous community and focused on assessing their collective behavior and accumulative influences [3–6,8,17]. Although insightful, such studies might have overlooked the heterogeneity in NPEs, and consequently might arrive at conclusions that are over-generalized.

As elaborated in session 2.3, the NPE definition could cover a diverse array of entities that differ in various aspects, such as their origins, sizes/scales, organizational structures, and revenue generation models [10,21,30–32]. This is especially so from the perspective of the Three-Market framework (Fig. 1). NPEs may differ substantively on their market penetration statuses: while some NPEs operate only in the patent market, other NPEs participate in activities (such as R&D, prototyping, small-scale manufacturing) that span across multiple market segments in the Three-Market. Such NPE heterogeneity from the perspective of

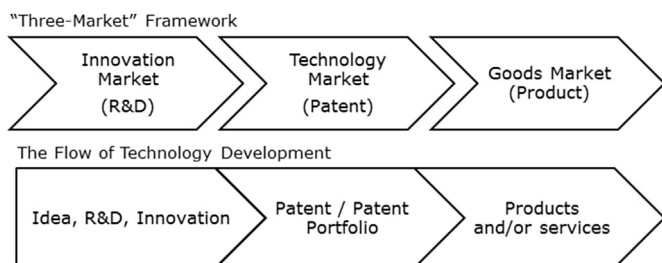


Fig. 1. The “three-market” framework.

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