

## Patent Pools and Cumulative Innovation

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The movement about open access to scientific knowledge has inspired many important discussions among policy makers. Under the backdrop of this movement is an increasing realization that the trajectory of innovation for modern technologies is cumulative as new innovations rely on taking advantage of what came before. Institutional theories have identified two essential requirements for cumulative innovation: disclosure and access. In 1962, Kenneth Arrow first recognized that the patent marketplace is an important venue where exchanges of innovative ideas occur. However, because of high transaction costs in patent licensing, access to patented knowledge is often impeded. Previous literatures have largely focused on modifications to patent law doctrines, such as patent scope or infringement remedy, to promote cumulative innovation. This article instead argues that a patent pool, a different type of institution for innovation, can spur cumulative innovation by facilitating access to patented knowledge. The article explains that a patent pool reduces transaction costs of patent licensing by aggregating related patents and centralizing licensing negotiations. Moreover, because creating a patent pool as a common knowledge space requires collaboration among patent owners, the success of a patent pool often depends on whether patent owners can overcome collaborative failures. The collective action theory, which identifies appropriation and provision as two essential issues for collaboration, provides the basic framework for the design of patent pools. This article will then offer three main design suggestions: (1) appropriation limitation is not necessary for the long-term sustainability of a patent pool; (2) in order to induce patent owners to join a patent pool, a patent pool should establish mechanisms that fairly allocate licensing revenue and reduce transaction costs of licensing; and (3) grant-back provisions are desirable to prevent a patent pool from becoming obsolescent.

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