

Clifford M. Gross, Ph. D.

Expert Crowdsourcingsm innovations with university technology transfer

There are approximately 15,000 universities in 160 countries creating approximately 100,000 new technologies every year, the vast majority of which are never commercialized. We discuss various ways to harness these discoveries to enhance new product pipelines. Interestingly, roughly 3,300 of these institutions develop 80% of the peer reviewed, published university research.

Invention is an unpredictable business. The goal of every basic research program is to objectively answer questions aimed at uncovering or advancing knowledge and practice. Basic research has an obstinate way of taking longer and costing more than usually imagined for a good reason; most research projects, whether corporate or university based, do not work. Additionally, research timelines are notoriously long and often require large capital investments over prolonged periods. As a result, most companies have significantly reduced their in-house R&D funding and are seeking alternative strategies to cost-effective bolster new product pipelines.

Open innovation is a corporate strategy whose basic tenant is that R&D should not be limited to in-house capabilities but must be reimaged to include all of the external research that is conducted and available for acquisition. The principle factors driving open innovation are as follows:

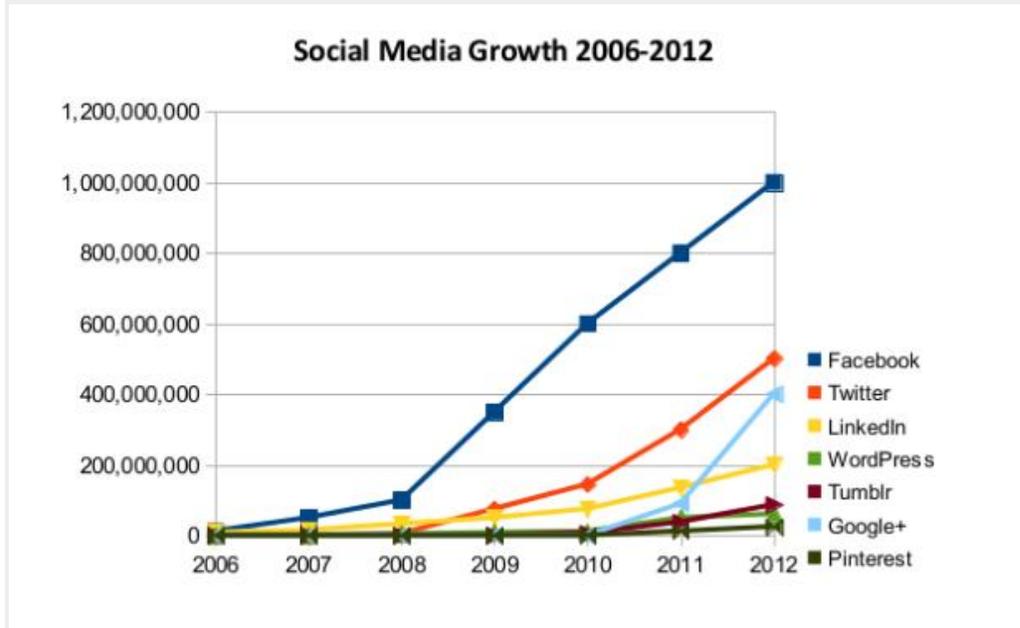
- The Speed of Innovation is Accelerating
- The World is Becoming Completely Interconnected (~900 million smartphones will be sold in 2013)¹
- Companies Can No Longer Control the Means of Innovation In-house
- ~40%² of Company Net Asset Value is Attributable to Intellectual Property
- Over time, competition tends to reduce a company's competitive advantage and its returns on invested capital

¹ Source: <http://bgr.com/2013/03/04/smartphone-shipment-projection-2013-359310/>

² Source: Kamil Idris, Intellectual Property: A power tool for economic growth, WIPO, Geneva 2003, p34

With the development of smart phones (over 1B in use worldwide and an estimated 900 M to be shipped in 2013) and the emergence of social networks, the world has become much more interconnected (Figure 1).

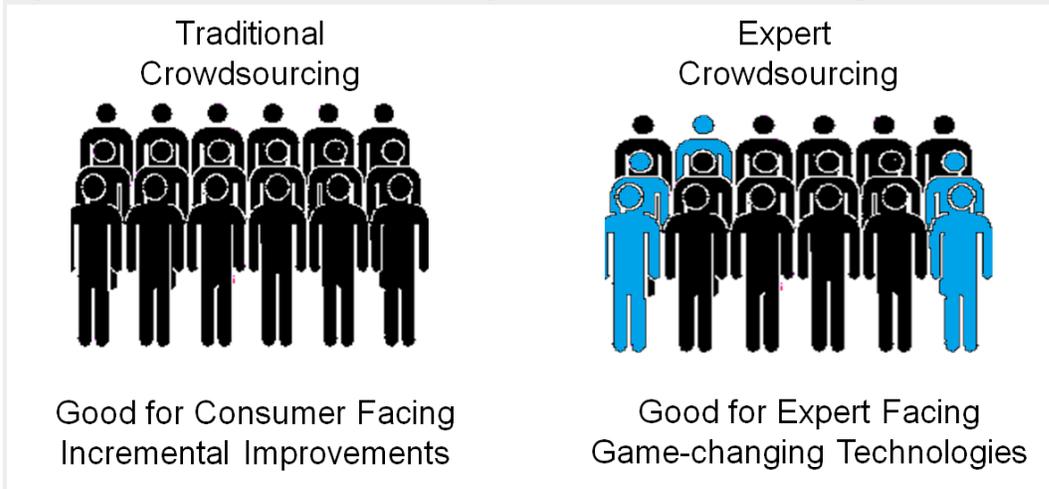
Figure 1: The Rapid Growth of Social Networks³



This has led to the development of expert networks on a scale never before seen and the coming of age of crowdsourcing. Crowdsourcing is a market-driven approach to pull solutions to defined problems, from the interconnected world beyond existing suppliers. In traditional crowdsourcing, a company can push-out a problem to a social network in hopes of getting back a practical solution. This actually works quite well for consumer facing incremental improvements. However, when game changing technological improvements are needed e.g., a smart auto navigation system, shock absorbers that recharge the batteries or an entirely new device or process, the crowd writ large normally does not have the expertise to solve the problem. In these cases Expert Crowdsourcingsm can be useful. Expert crowdsourcing seeks to aggregate existing new solutions from a crowd that consists of experts in a particular field. Universities and government research centers are target rich environments for both these experts and the technological leaps they produce (Figure 2).

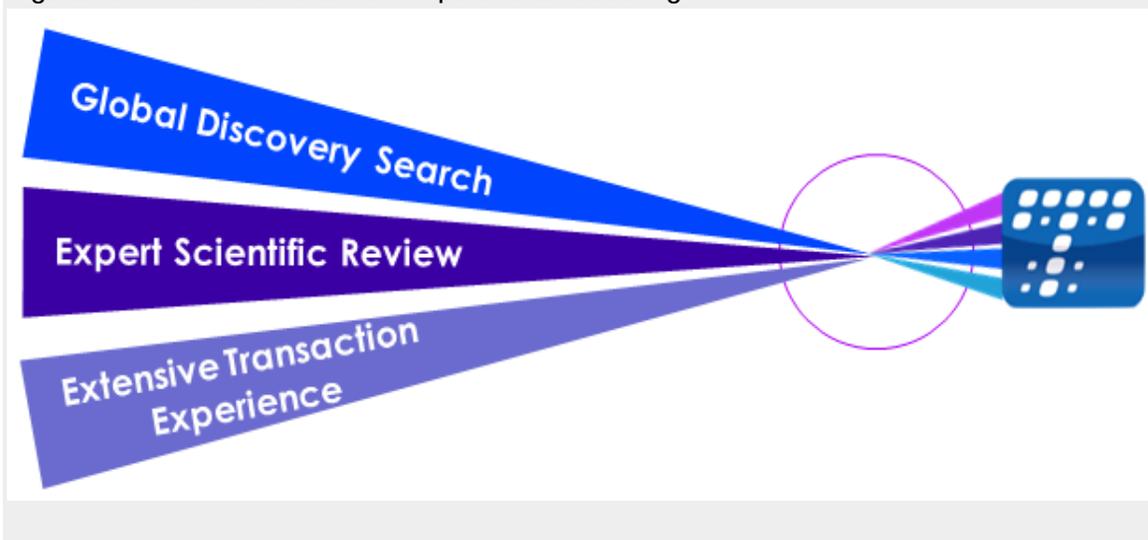
³ Source: <http://www.dstevenwhite.com>

Figure 2. Traditional Crowdsourcing vs. Expert Crowdsourcing



Creating a robust pipeline of new discovers is a good start, as it allows a company to keep their finger on the pulse of new discoveries in their space, but is often not sufficient to augment in-house R&D in a continuous manner. To achieve this it is necessary to inject two additional layers of expertise; objective external technology review and university-centric transaction experience. The first de-risks technology candidates for consideration and the second reduces the time and expense needed for the acquisition or license of new technologies. Expert Crowdsourcingsm is therefore an amalgam of social networking coupled with domain expertise and transaction experience (Figure 3).

Figure 3: The Elements of Expert Crowdsourcingsm



There are additional forces encouraging companies to both acquire and commercialize patented technologies. Nine countries have implemented Patent Box regulations to encourage innovation through the reduction of corporate taxes on profits that result from patented discoveries. The most recent of which is the U.K. Patent Box law⁴ introduced in April 2013. This forward looking law effectively reduces the U.K. corporate tax rate from 23 to 10% on profits earned from the global sales of patented products and services (with appropriate qualifications and tests). Similar laws have been passed in a number of EU Countries (Figure 4) as well as China, Switzerland and Brazil.

Figure 4. Patent Box Laws in the EU

Tax Factors	UK	Belgium	France	Luxembourg	Netherlands	Spain
Tax rate on qualifying profits.	10%	6.8%	15%	5.76%	5%	15%
IP that qualifies	Patents, supplementary protection certificates, regulatory data protection, and plant variety rights	Patents and supplementary patent certificates	Patents, extended patent certificates, patentable inventions, and industrial fabrication processes	Patents, trademarks, designs, domain names, models, and software copyrights	Patented IP or R&D IP	Patents, secret formulas, processes, plans, models, designs, and know-how
Income that qualifies	Net income from qualifying IP	Patent income less cost of acquired IP	Royalties net of cost of managing qualified IP	Royalties	Net income from qualified IP	Gross patent income
Acquired IP?	Yes, if IP is further developed.	Yes, if IP is further developed	Yes, subject to certain conditions	Yes, from non-directly associated companies	Yes, if IP is further developed	No
Limit to benefit?	No	Deduction limited to 100% of pretax income	No	No	No	Yes, six times the costs incurred to develop the IP
Includes embedded royalties?	Yes	Yes	No	Yes	Yes	No
Includes gain on sale of qualified IP?	Yes	No	Yes	Yes	Yes	No
Can R&D be performed abroad?	Yes	Yes, if qualifying R&D centre	Yes	Yes	Yes for patented IP; strict conditions for R&D IP	Yes, but must be self-developed by the licensor
Applicable to existing IP?	Yes	IP granted on first used on or after 1 January 2007	Yes	IP developed or acquired after 31 December 2007	Patented IP developed or acquired after 31 December 2006	Yes

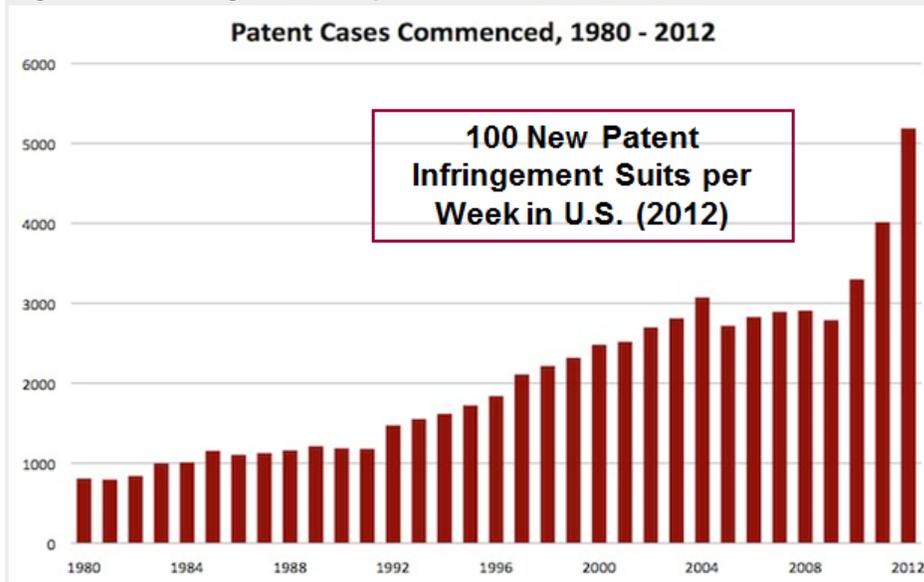
Collectively, these Patent Box laws have made location of the ownership of intellectual property a strategic consideration.

Another important factor that has inspired a number of companies to enhance their IP can best be summarized by Warren Buffet “In business, I look for economic castles protected by unbreachable moats.” This relates to having

⁴ <http://www.hmrc.gov.uk/ct/forms-rates/claims/patent-box.htm>

products and services with unique, protectable features to enhance customer adoption, margins and market-share, as well as protecting those margins from the ever increasing amount of patent litigation (Figure 5).

Figure 5. The growth of patent lawsuits in the U.S.⁵



Innovation has become inextricably interwoven with corporate performance. Forward looking companies need to view R&D as an external, global function whose tributaries span the world of research institutions. To achieve this requires a systematic network that continuously captures and reviews innovations for relevancy and fit. Some can be bolted on to existing product platforms while others require significant development to reach their full potential. Long-term, both are necessary to keep and win customers.

Reference:

Clifford M. Gross, Too Good To Fail: Creating Marketplace Value from the World's Brightest Minds, Springer International Publishing, Switzerland 2013.

For additional information on Expert Crowdsourcingsm contact:

Tekcapital Ltd. (www.tekcapital.com)
Oxford Centre for Innovation
New Road, Oxford, OX1 1BY United Kingdom
cgross@tekcapital.com Tel +1 813-393-0756

⁵ Source: <http://www.ipwatchdog.com/2013/04/15/aia-the-major-cause-for-rise-in-patent-litigation/id=39118/>

Bio of Clifford M. Gross, Ph. D.

Clifford is the CEO of [Tekcapital Ltd.](#) a leading Expert Crowdsourcingsm company based in Oxford, U.K.

Previously he founded two public companies where he served as CEO and Chairman. He also served as President and CEO of Innovacorp, an early-stage venture capital fund in Nova Scotia, Canada. Previously, he was Acting Director of the graduate program in Biomechanics and Ergonomics at New York University, Chairman of the Nelson Rockefeller Department of Biomechanics at the New York Institute of Technology and Research Professor at the University of South Florida.

Clifford has recently authored [Too Good to Fail](#). He is also author/co-author of three prior books, *The Right Fit*, *The New Idea Factory* and *Technology Transfer for Entrepreneurs*, and is a named inventor on 19 issued patents from his research.

He serves on the board of directors of the Technology Transfer Society and the State University of New York at Empire State College. He received his Ph.D. from New York University and an M.B.A. from the University of Oxford.

