

# Patent Publication Delays & Product Development Cycles:

## How Patent Data from 2010 Remains Relevant in 2012

In today's high-speed, global economy, the ability to acquire up-to-the-minute intelligence is often paramount to an organization's success. Early identification of risks and opportunities allows organizations to make smart, sustainable decisions, gaining an edge over their less well-informed competitors. Because such competitive analysis often depends exclusively on current trends, common wisdom now concludes that January's data will reach obsolescence in mid-June.

Although certainly pertinent to many areas of competitive intelligence, this common wisdom does not accurately describe the long-term value of patent filing data, especially in areas of emerging technology. Even when published eighteen months after their filing dates, emerging technology patents offer contemporary—if not predictive—intelligence on competitors' goals, including R&D priorities, product development efforts, and overall business objectives.

The reason for this is simple. New technologies usually require significant investments of time and capital, in order to become commercially viable. Even in the absence of major technical or financial issues, transforming a working prototype into a marketable product can take years. Funds must be raised or allocated, manufacturing facilities must be contracted or acquired, scale-up operations must be engineered and fine-tuned, and management teams must be assembled, to oversee various elements of the product development cycle.

All of these considerations undoubtedly exist, to some extent, for every new product, regardless of the novelty of the underlying technology. Drug development, for example, is renowned for the duration and difficulty of its product development process: it can take fifteen years to move a novel drug candidate from laboratory bench to the consumer market. Product development cycles in less-regulated areas, if not equally arduous, can still be lengthy. The Hershey Company, for example, reports on its website that new products are subject to "consideration and development by our company for many years."

Even in the absence of clinical trials, FDA regulation, and/or organizational issues, new product development is far from an overnight process. This is especially true in emerging technology areas, where the absence of prior art often inhibits rapid scale-up. Effective lab-bench processes are not necessarily transferable to commercial-scale operations, and engineering efficient scale-ups—especially in previously-uncharted areas, such as microbiology or thin-film electronics—can take years.

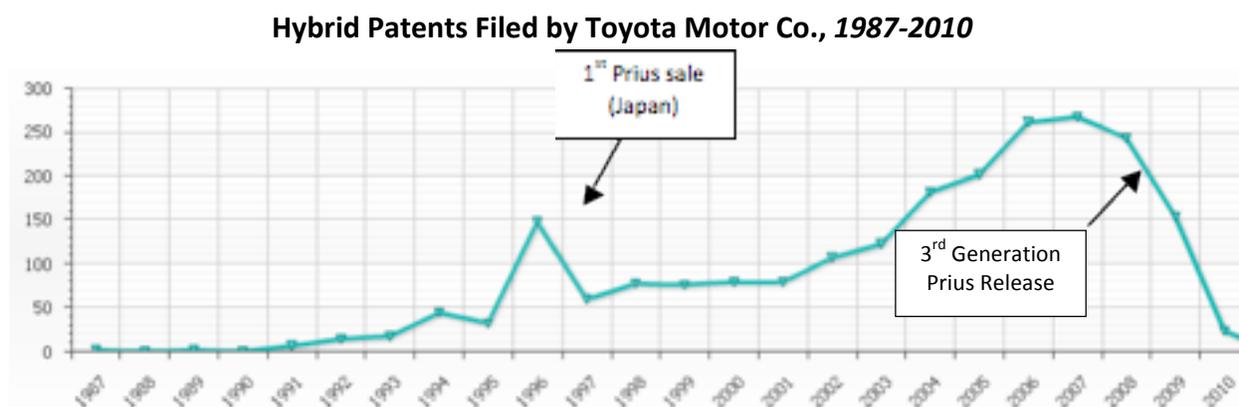
Although certainly frustrating to in-house development teams, the slow process of transforming a new technology into a useful commercial product is actually quite fortuitous for competitive intelligence practitioners. Records of patents filed in both the USPTO and in other patent offices, worldwide, are made publicly available with eighteen months of the patents' filing dates. These "old" records therefore provide a wealth of highly relevant competitive intelligence, as R&D spending from eighteen months ago [correlates predictively](#) with near-term developments, from new product releases to overall market trends.

In smaller companies—and especially in start-ups—product development tends to proceed at an slower pace than is typical for larger companies, and the period of time between idea generation (i.e. patent filing) and commercial viability is frequently measured in years.

The chart below provides a few examples of this phenomenon. (Note: Patent filing dates were located from public records; first sale/commercial release data were obtained from companies' websites.)

Company	Product / Technology	Earliest Patent Filed (Date)	First Sale / Commercial Release
Tocado International	Tidal Energy Harvesting Device	9/1/2008	7/21/2011
Nitro-Turbodyne, Inc.	Cold Turbine	09/30/09	6/2012 (projected)
Amyris	Renewable Squalene	05/23/05	02/28/10
Amyris	Renewable Diesel Fuel	05/25/07	4/29/2011 (commercial-scale plant declared "complete and operational")
Solazyme	Renewable Jet Fuel	06/02/08	7/19/2010 (1,500 gallons delivered to USN for testing)
Calera	Concrete	5/23/2008	Not yet
Alta Devices, Inc.	Thin-Film Solar Cells	05/29/09	Not yet

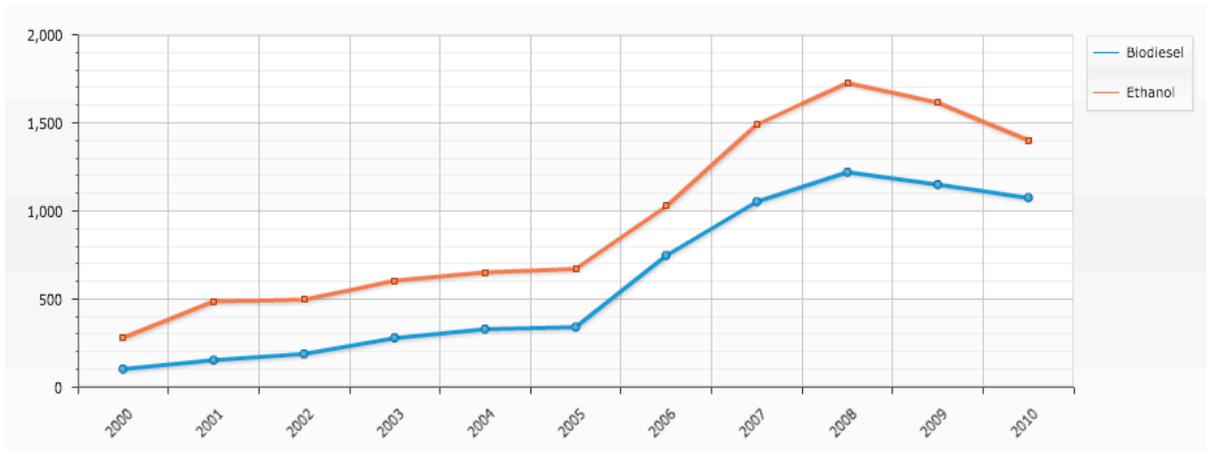
The predictive power of patent data is similarly apparent from the graph shown below. Although Toyota filed relatively few hybrid-related patents in the early 1990s, the steady increase in patent filings from 1990-1994 would have indicated, to the data-savvy professional of late 1995, that Toyota had a novel hybrid product in its pipeline. Similarly, the spike in hybrid-related patents filed in 1996 (which would have been at least somewhat apparent by mid-1997) foreshadowed the December 1997 release of the Prius to the Japanese consumer market.



While the Toyota Prius graph focuses on a single product, from a single company, patent filing data is equally useful in examining industry- or market-wide trends. Certain software solutions offer the ability to filter patent filing data by selected parameters (e.g. patent owner, top inventor, etc.), thereby restricting the scope of such investigations by a set of predetermined parameters. A unique software solution, the CleanTech PatentEdge™, offers pre-sorted data sets in over 150 cleantech categories, allowing researchers and competitive intelligence practitioners to quickly access vital intelligence in their respective areas of practice.

Taken directly from the CleanTech PatentEdge, the data shown below clearly illustrate the correlation between crude oil prices and innovation in the biofuels space. Because patent filing in a technology area tends to reflect the valuation of that technology, these data suggest that biofuels were believed to be commercially viable only during the “peak-oil” mini-crisis of 2005-2008. Examining patent filing data in 2009 or early 2010 would have suggested that the heyday of biofuels had ended—at least for a while—although “common wisdom” might have taken more time to reach a similar conclusion.

## Biofuels: Annual Patent Filings, 2000-2010



If the aim of competitive intelligence is to ascertain competitors' activities before they become obvious, patent filing data is essential to any CI practitioner's toolkit—especially in emerging technology areas. Patent filing data is similarly invaluable to investors and corporate development professionals, particularly those who wish to remain abreast of emerging market trends. Because product development is a non-instantaneous process, patent filing data is simply a step ahead of press releases, quarterly reports, and marketing campaigns—and therefore provides a fundamental read on the pulse of progress in new technology areas.