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## Cashing In On Knowledge

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Patents, trademarks and trade secrets, once locked away and closely guarded, are among chemical companies' best-selling new products.

By Tim Stevens

It's not every day that you discover a disarmingly simple business strategy that unleashes a steady stream of profits, acts as a catalyst for innovation and makes use of old assets gathering dust in the store room, but leading chemical giants Bayer, Dow, DuPont, Eastman Chemical, and Procter & Gamble have done just that.

They've thrown off the old-economy notion that intellectual property is just a bunch of legal documents and research results to be locked away in company vaults. Instead, employing a new-economy approach to intellectual asset management, the companies have set up businesses to aggressively manage, market and sell their treasure trove of intangible assets—patents, trade secrets, chemical composition and product formulations, process technology, and even standard business practices.

"We now realize that R&D has a product called intellectual property," says Ralf Dujardin, manager of new business development at Bayer AG, Leerkusen, Germany. "It has a value, and we can sell it profitably."

At Bayer, profit margins on some sales of intellectual property average 78% after expenses, says Dujardin. Revenues from Wilmington, Del.-based DuPont & Co.'s Intellectual Asset Business (IAB), set up in 2000, hit \$450 million in 2001, compared with the paltry \$100 million generated in 1996 when the company's approach to selling and licensing intellectual property was purely opportunistic.

Enlightened intellectual asset management takes many forms. The most obvious is selling or licensing intellectual property assets that fall outside the company's core business, or in a geographic region where the company has no plans to compete. Some of the biggest revenues earned by chemical companies come from licensing process technology, such as sharing how to build and operate a complex plant. For others, the value comes from tax write-offs gained by donating patents found to have no future value for the company. Still others simply downsize their portfolios to reduce patent-maintenance costs.

The switch to viewing intangible assets as products is lucrative, but it doesn't come easily. "My greatest challenge was changing the culture of protecting technology, know how and intellectual property," says Randall Gray, director of Eastman Chemical's Global Technology Ventures (GTV). "Most people who worked at Eastman, and many who continue to work here believe that licensing is just giving away know-how and valuable company assets. They lose track of the fact that you get paid to do that."

The Eastman Chemical Co., Kingsport, Tenn., was spun off from the Eastman Kodak Co., Rochester, N.Y., in 1994, where the strategy was to never license or disclose any trade secrets, process technology or patents. "As we began to compete in the chemical industry, however, it became very clear that we had to find more ways to extract value from our intellectual assets," says Gray. In 1998 the company formed the GTV group and actively marketed its intellectual assets for sale. Gray and his group succeeded in changing the culture only after they brought real-world opportunities to business leaders. "We'd say, 'this company is willing to pay X dollars for this technology,' you decide if it's good for your business," recounts Gray. Since the summer of 1999, the GTV has closed over 20 deals, worth about \$50 million plus another \$100 million in net present value of future earnings.

"I think people miss how much value you can create in a function like this," says Gray. "In building large chemical plants, there are too many cases where you never really cover the cost of capital. In the intellectual-asset business, most of the dollars you make go straight to economic value added. You can create more value for shareholders in an asset-light strategy like this than you can in some of the old manufacturing businesses."

## Lucrative Licensing

Procter & Gamble Co., Cincinnati, takes a very aggressive position with its intellectual assets, offering some technologies to the outside world before they are introduced into its own products. Taking technologies out early "helps syndicate the risk of getting new technologies up and running," says Jeffrey Weedman, vice president, external business development and global licensing. In the past if P&G invented a new molecule for cleaning that required suppliers to build or add new facilities, P&G had to bear the full brunt of the cost, with volume guarantees based on take-or-pay contracts. "So we bore the entire risk of building a new plant, and too often we paid, we didn't take," says Weedman. "Now when we take a new molecule to a supplier, we ask, 'Who else can you sell this too?' If they find someone, all of a sudden our costs go way down."

Several years ago, P&G made a fundamental shift in its patent policy, making everything available for external licensing. According to Weedman, this strategy is based on a new concept of competitive advantage. "If you can generate more shareholder value dealing with a competitor, why shouldn't you? So we do," says Weedman.

In the past, business leadership at P&G often shrank from the extra effort required to work on intellectual-asset deals because revenues were tallied at the corporate level. When asked to win one for the Gipper, businesses would respond, "We've got enough work already, let the Gipper win one for himself," jokes Weedman. Now, revenues from intellectual asset deals are collected directly at the business level. Since making the change two-and-a-half years ago, P&G's global licensing group has grown from five to over 30 people, and the business of licensing is up from breakeven to a value contribution that would make it a top-10 brand at the company, according to Weedman.

"It's important that you measure value, not just revenues and royalties in these kinds of deals," stresses Weedman. For example, P&G negotiated a licensing deal with the supplier of a unique packaging technology P&G invented. Under the agreement, the supplier was allowed to sell the technology to other customers. As part of the deal, any volume sold to those customers was credited to P&G, reducing the cost per unit P&G paid, based on volume incentives. In addition, P&G no longer had to pay for mold changes for new designs. "At other companies, deals are measured by the cash they bring in," says Weedman, "and they end up leaving a lot behind."

Bayer also started offering early-stage technology, which is covered by patents but not yet in commercial development, in March 2000, and now reaps several hundred million dollars in licensing income per year. Because Bayer is made up of some 350 companies worldwide, the company established an internal release system to ensure none of the businesses could use the technologies before they were offered externally. "Each business now has a patent review team that first determines if a patent is supporting an existing business or has some other strategic purpose," says Bayer's Dujardin.

Only technologies considered attractive, with market potential are offered to the outside world. "We don't want to sell junk," says Dujardin. Once a technology is selected, Bayer prepares a "technomercial" on it, which includes a data sheet and commercial information for marketing purposes. "The hard facts are the patent rights, but the soft facts -- research reports, potential customer lists, process information -- are much more important."

Technologies are offered directly to other chemical companies where potential customers are well known, and/or placed on Internet-based intellectual property marketplaces for wider audiences (see "Online Know-How," below). Occasionally Bayer approaches venture capitalists offering both technologies and entrepreneurs from the company to pursue the business opportunities. After 18 months, Dujardin's group has 10 direct deals in negotiation, with three deals already completed. Twenty-six technology packages are online at the intellectual property e-marketplace yet2.com (each package contains three to five patents plus supporting information), and one company has been spun off, with three more in process. Each success is worth \$1 million to \$10 million, according to Dujardin, at a profit margin averaging 78% after expenses.

## More Than Products

Product technology is not the only intellectual asset generating dollars for chemical companies. DuPont, for instance, has turned safety know-how and best practices into its multi-million dollar Safety Resources business. By helping companies improve their safety records, Safety Resources earns part of the cost savings realized by their client in areas such as medical and insurance costs, claim-administration fees, quality costs, equipment damage and overtime expenses. Clients adopting the Safety Resources program typically reduce their injuries and associated costs by 50%, according to Robert D. Hirsch, global managing director of DuPont's IAB (known externally as the DuPont Technology Bank). DuPont estimates that safety costs in the U.S. alone are over \$200 billion.

DuPont also has had success selling process technology and plant engineering in emerging economies including China and India. "They have strong ties to raw materials like gas and oil, and want to move down the value chain, beyond just refining, to make polymers and intermediates," says Hirsch. To be successful at selling process technology, companies must demonstrate their know-how, with a full-scale operation that works technically and commercially.

For one of the largest chemical companies in the world, Dow Chemical Co. gains relatively little from sale of intellectual property, just \$60 million in 2000, because its intellectual asset management strategy emphasizes strategic patenting and keeping its intellectual-property estate lean and mean. "We are now thinking more strategically about intellectual property before the fact," says Gross.

In 1992 Dow, Midland, Mich., divvied up its corporately held estate of over 20,000 patents and asked individual businesses to take responsibility for those associated with their products. More than 25% of the patents were deemed of no business value by the multi-functional Intellectual Asset Management (IAM) teams established to manage the intellectual property. The company downsized its estate by about 10,000 patents, saving \$40 million over five years in patent-maintenance fees alone. Additional millions were gained in tax advantages via donations, according to Richard Gross, corporate vice president, R&D.

Over 100 IAM teams now operate at Dow, supported by a corporate, Global Intellectual Asset Tech Center that provides best practices, intellectual-asset management models, patent and technology mapping tools, and valuations services across the teams.

The role of the IAMs is to create intellectual property strategy to support business strategy. The teams survey the internal and competitive intellectual-property landscapes, then decide which technologies need protection, which to hold as trade secrets, and what technology gaps to fill. "We use the intellectual-asset strategy to actually drive what we do in the R&D laboratories." Because of this strategic approach, Dow doesn't have a lot of excess technology to sell.

Eastman Chemical is another of the major chemical companies whose intellectual asset strategy involves pruning its patent portfolio by donating intellectual assets to universities. Its biggest donation was a gift of fiber-technology patents to Clemson University, Clemson, S.C., independently valued at \$38 million. We got 30%-40% of that in tax benefit," says Gray. "The IRS is very supportive of this sort of activity, because it encourages the transfer of intellectual capital to the academic world. Many universities also will spinoff small companies based on these technologies."

Finally, another benefit of implementing intellectual asset management strategies is that they foster innovation. Some companies, like DuPont, are even creating new technologies specifically for licensing.

"I like to think we are opening up the R&D value chain," says Bayer's Dujardin. "A prevailing amount of work will be focused on our core business, but its not a shame if 20% of the technology you create is useful to other companies. The most important thing for scientists is creativity and problem solving. If they are always bouncing into the wall, where it's written that here ends the core business, and they are not allowed to look over the fence, I think that is a very efficient way to kill creativity."

P&G's Weedman agrees, "It's like the strategy of generals of old, invading new lands. "To ensure the troops were focused on moving forward, they would burn their ships after they landed. In the same way, if the organization knows that this year's technology is going to be available to our competitors next year, it forces more rapid decision making."



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