



**CHEMICAL REACTION** BY STEVE HERMAN

# Virtual Technology

As empowering as online tools are, no one can afford to ignore them.

"Knowledge is the most democratic source of power."

—Alvin Toffler

Once upon a time, cosmetic R&D meant being in the lab with beakers and chemicals, hot plates and mixers, making and testing formulations.

Deeper research involved lunch with a raw material salesman. Resources were primarily the CTFA Dictionary and a few trade magazines. All that changed in the 1990s, and the rate of change keeps accelerating. Now, we don't deal solely with formulas and products, but rather, intellectual property. Young people absorb this march of technology like mother's milk, but those of us over 14 might need a quick refresher on how the manipulation of knowledge has recently evolved, and in the process revolutionized how research is conducted.

There are many ways to uncover technology, but the greatest tool by far is the Internet. Four prime methods are search engines such as *Google.com*, technology newsletters such as *The Scientist*, portals such as *TheCosmeticSite.com* and the U.S. Patent Office. The patent office site is extremely useful and, now, patent applications, as well as issued patents, can be viewed. While not typically enjoyable reading, patents are essential for establishing the

publicly disclosed baseline of commercially viable science.

## PATENT/ATTORNEY SEARCH

Many issued patents are not in actual use for a variety of reasons. A large company frequently has more patents than it can ever use, and it may be possible to license a technology from such a source. At the other extreme, an individual with a patent may have no financing or penetration into the retail market. The individual inventor usually would be happy to partner with anyone interested in promoting his brainchild, and a variety of business models can be constructed to meet the needs of both parties.

Finding new technology that has not yet reached the patent stage is where true innovation can be captured at its birth. Universities have become a prime source for technology available for commercialization. In the old model, universities tightly controlled the inventions of their faculty, but now schools are assisting their professors in establishing startup companies. Tapping into the financial rewards of research is a crucial component of contemporary academic economics, and it has totally revolutionized the think-

ing of university administrators toward cooperative ventures with industry.

Of course, filing patents is the oldest way of protecting intellectual property. The use of an attorney is often necessary, but the U.S. Patent Trade Office site provides how-to information, forms to download and filing instructions. The patent search options are a prime tool to uncovering prior art, a process that was infinitely harder before Internet databases were available. Using an attorney is necessary for an involved filing, but the resources available online from the patent office make it much easier for a do-it-yourself approach.

## RESEARCH PAPERS

Getting copies of original research papers is an important part of information gathering, and it has become much easier with Internet and e-mail. There are two basic approaches. The direct attack is to buy the papers from an online service such as PubMed. For those on a budget, sending a request to the author may often result in an agreeable reply and an attached PDF file of the paper. It is easy to get e-mail addresses from faculty listings, or the professor may

have an individual home page. Papers usually have multiple authors. If the prestigious professor doesn't answer your request, there may be a starving graduate student down the author list who is more approachable. The advantage, beyond economy, of approaching the authors directly is that it may open a dialogue on a mutual venture.

Besides the resources of Google-type search engines, public libraries (remember them?) have plunged into the new information technologies and often offer material not otherwise accessible. Allured Publishing Corp., owner of GCI® magazine, is one of many companies that has made its resources available. For example, all the "Chemical Reaction"

columns are available as abstracts, text with images, or PDF files in ProQuest, available through many libraries. The PDF format is designed to prevent the altering of files, and a free download of the reader is available from Adobe.

#### LEVEL PLAYING FIELD

Computers and the Internet have leveled the playing field in a variety of key areas. Making a presentation is now easy for everyone with PowerPoint, contacting a researcher at the far side of the world is free and easy with e-mail, finding patents is child's play, and researching any topic is painless with search engines. What had been difficult or impossible for an individual with no budget in 1990 is a few clicks

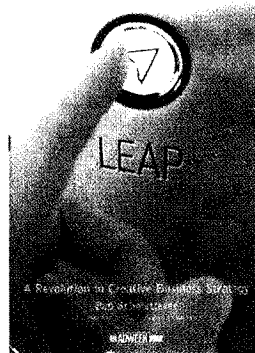
away in 2004. As empowering as these tools are, no one can afford to ignore them. And since the terrain is always changing, no one can afford to stop learning. The future belongs to individuals and companies who realize true value is in the skillful control of information. ■ GCI

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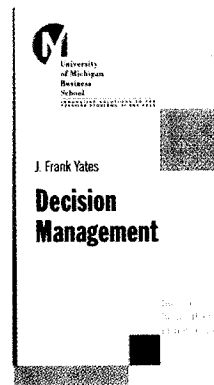
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