

Competitive business intelligence gathering and analysis

Intelligence systems are providing an answer to the avalanche of information in science and business.

Biotechnology companies succeed or fail because of many reasons. Typically, the chances for success become greater with outstanding science and technology, a strong patent position, an effective and realistic business model, financial staying power, and nothing less than outstanding people at the scientific, management, and board levels. Focusing on the needs and habits of outstanding people, top-flight business and science managers are always very well informed about their field and their industry as a whole.

The ability to gather and analyze effectively business and corporate intelligence is a major advantage for all practitioners in high-tech industries, especially biotechnology, which is characterized by an avalanche of information that is both science and business related. What is needed is either a dedicated or a virtual business intelligence system that delivers intelligence digests to decision makers in a timely manner and in a format that enables them to make decisions pro-actively. There are some excellent and long-standing examples of such systems deployed in the manufacturing and service industries, which can be adapted for use by almost any biotechnology company. In fact, the information gathered for the articles in this compilation was collected, reviewed, analyzed, and reported by using a system very much like what will be described here.

Fundamentals

I use the term “competitive information” to mean data about competing companies as well as data that are not necessarily about our competitors, but that make *us* more aware and therefore more competitive. Examples include advance notice of regulatory policy or patenting changes nationally and internationally, the latest technical advances from non-competitors that may be relevant (e.g., advances in miniaturization from electronics companies that may lead to better “chips” for genomics).

Another fundamental concept is that of “intelligence,” which is different from “information.” By “intelligence,” I mean actionable information, that is, data turned into knowledge that in turn is actu-

ally used for something (the response to such knowledge may well be inaction, which is just as valid a response as action itself, depending on the circumstances). The US National Security Agency gives the following illuminating definition of “intelligence” in this context: it is “...knowledge and foreknowledge of the world...[that is] the prelude to...decision and action”¹. The term “foreknowledge” refers to the future and its evaluation relative to the present. The phrase “prelude to decision and action” focuses on the need to have some kind of system in place whose aim is to capture the value of the data gathered and its analysis that will lead to a business response. For high-tech industries in general and biotechnology in particular, the effective anticipation and pro-active response to future developments is a critical component of success, as necessary as important patents or a laboratory breakthrough.

Finally, a competitive business “intelligence system” is defined as “the organizational means to systematically collect, analyze, and disseminate information as intelligence to users who can act on it”². This definition makes a specific reference to those individuals in a company who decide to act based on the filtered and actionable information that is presented to them. It is critical to realize that simply gathering data for its own sake in a corporate environment is of very little use to anyone, unless it helps determine some kind of action or response, if necessary.

Examples

Intelligence systems as described previously are well known in areas other than biotech-

nology. According to a 1993 survey by the Conference Board³, 5% of US multinational firms and 9% of European multinational firms have complete competitive intelligence systems embedded in their operations. These companies are typically from the manufacturing or service sectors, where the presence of a competitive intelligence system is a necessity, given product life-cycles and the extraordinary competitive circumstances in which such companies find themselves.

The examples in Table 1 show that intelligence systems are supported typically by advanced information gathering and analysis technology. Second, these systems deliver specific types of information that are important strategically to each company in its own context, for example marketing or competitor-specific information. Third, all these systems have specific recipients for their products, and not everybody is the recipient of the output from such a system.

The specifics of the biopharmaceutical sector are somewhat different from the examples in Table 1. First, all major companies and even some of the smaller ones have some sort of in-house library service that gathers systematically or on-demand, stores, and presents basic clipping-service type abstracts and reports to whoever wishes them. This is not, however, an organized intelligence system as shown in Table 1. However, such companies often have so-called technology assessment functions and even dedicated offices. There may be one in Europe, one in the US, and one in Japan, each monitoring science and business developments and focusing attention on opportunities for licensing and collaborations, as well as providing basic competitor monitoring. As such, these company technology assessment offices can be thought of as opportunity identifiers, and not merely as threat alert services⁴, and a good business intelligence system should be able to do both.

One interesting aspect of such technology assessment offices or functions is that they often report on pre-defined triggers or “hot” events that have been identified as preambles to scenarios that require immediate responses. One example of a trigger event is the reporting of suc-

Table 1. Examples of business intelligence systems

Company	System characteristics
AT&T	Advanced internal integration Focused on customers and competitors Supports operations and strategic planning
Kodak	Advanced information management Focused on market and competition Supports marketing and strategic planning
Motorola	Company-wide integrated system Focused on competitors Supports CEO and senior management

Source: Herring, J. Presentation to the Snider Entrepreneurial Center, The Wharton School, The University of Pennsylvania (1996).

BUSINESS

successful phase II or III clinical trial results by biotech companies. This means that there is a very high probability that a product will follow, which is a good time for a marketing alliance from the perspective of a pharmaceutical company. Hence, foreknowledge or anticipation of successful phase II or III results is a key trigger event in the biopharmaceutical sector, and is a key deliverable by competitive intelligence systems in the field, together with patents issuing, major scientific announcements in the literature or at conferences, and even personnel changes.

As a further example, many of the top pharmaceutical companies participate in the so-called Pharmaceutical Documentation Ring (PDR), first established in 1958, and with a total of 29 members as of July 1999. This network was established in part to enable its members to exchange non-confidential information about information gathering and analysis methods. The PDR holds regular conferences where issues including archiving, data mining, document searching, etc. are discussed⁵.

A typical competitive intelligence digest

The end-product of a competitive business intelligence system is what is known as a competitive intelligence digest, which is a representation of the actionable information tailored to the requirements and needs of each company. The real nature of the information needs of biotech or companies from other sectors determines the exact structure of such a digest, and understanding the nature of these information needs is critical to the success of such an effort.

Ultimately, a biotechnology company requires two major types of information: one

is science-related and the other is business-related. It is important to note that in both cases the nature of the information is essentially the same. What is required is knowledge of one's own field, of related fields, and also of the broader contextual parameters that characterize the industry as a whole.

Therefore, a good intelligence digest would have to deliver actionable information in all three information areas: namely specific, broader, and contextual. It is also important to remember that if actionable information is based purely on information that is gathered from third-party public sources, one runs the risk of delivering actionable information that carries with it the same biases as the source, which is a very significant danger indeed⁶. The key to good competitive intelligence digests is that they stem from intelligence systems that begin with information that is publicly available, and use this as a basis to get further data directly from human sources. In other words, the intelligence system begins by gathering public data, and then this third-party data is integrated with information obtained directly from human sources. Finally, company-specific context is used to deliver this information in an actionable format, namely one that will enable decision-makers to act in an informed way. A typical working structure of a competitive intelligence digest is shown in Figure 1.

Biotechnology has many good examples of the usefulness of systems such as the one above. For example, it would be very difficult to be aware in a pro-active manner of developments in all the platform technologies of modern biotechnology, such as genomics, proteomics, combinatorial chemistry, or high-throughput screening. Combinatorial

chemistry alone has at least 180 participating companies⁷. Passive information gathering would be totally inadequate and would lead to essentially follower-type behavior.

Implementation

Establishing an effective business intelligence system is cheaper and easier than one might first think and need not be the purview of a few. First, it is not necessary to hire extra people for the task. In all companies, senior scientists and managers actually do the work that would be required to produce an intelligence digest. However, it is also true that these tasks are simply never integrated into a digest, and most companies do not have a person whose responsibility it is to perform this integration for the benefit of others.

Depending on the size of the company and its needs, an intelligence system can consist of anything from one to five or more people who already work for the company, with their associated costs, but nothing more. This would be an example of an essentially virtual intelligence system, since it does not have full-time employees. The system would require no more than two full days per month to deliver a monthly digest, which is a good frequency for this (anything more regular would probably be noise)⁸. Since a critical component of the process is the delivery of actionable information, this would be the responsibility of one or two senior individuals. The system here is one that any company can put into place.

Conclusions

In the biotechnology industry, leverage is everything: people, financial resources, technology, and patents are all leveraged for success. A key contributor to successful leverage efforts is a very simple one: typically, whoever knows more in advance and responds to that knowledge quickly wins. This is where competitive business intelligence systems come in. Since common household company names have had such systems in place for years, it seems reasonable that biotechnology companies should also have such systems, and indeed some do. With a virtual system akin to the one described here, the resources required to implement it are not significant, whereas the rewards are likely to be very important for the company.

Report number / Internal reference:		Date delivered:	
Category: clinical; science; business; patents		Period covered:	
Contributors:			
Events:	Relevance to company:	Interpretation: action options (threat; opportunity; reactive; pro-active)	
Relevance to prior actions:			
Current digest methodology (sources, interviews, etc.):			

Figure 1. The working structure of a typical intelligence digest
Source: Biovista (www.biovista.com)

1. US National Security Agency (<http://www.nsa.gov>).
2. Herring, J. Presentation to the Snider Entrepreneurial Center, The Wharton School, The University of Pennsylvania (1996).
3. <http://www.conference-board.org/>
4. Herring, J. P. (1993) *J. Business Strategy* 15, 36-38.
5. Dubosc, Y., Mullen, A. and Otto, C. *Drug News Perspect.* 11, 58-63 (1998).
6. Mullen, A. et al. *J. Inf. Sci.* 23, 9-23 (1998).
7. Biovista Combinatorics Industry Review & Company Database (2000).
8. Persidis, A. *Drug Discovery Today* 4, 204-208 (1999).