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Growing With CTI – Key to Business Success

KEYWORDS

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ABSTRACT *Competitive Technological Intelligence is becoming crucial for most of the business organization of today's fast paced technological innovations world. It is one of the most important Intellectual properties for business organization to have an edge in competition. This edge of technical intelligence can be anywhere ranging from products to services, customer acquisition to relationship management, marketing to branding, procurement to selling, product design to R&D and many others.*

In developing countries like India we have witnessed rapid growth in technology in recent times. Only in few years e-technologies have become integral part of every business which is very apparent in mushrooming e-selling (Online selling), e-learning, e-education and other e-servicing start up companies which are driving Indian industry at front seat. But it is becoming a challenge to compete in market with similar concepts/business models which starts with comparatively very less capital hence there is severe competitions in market/industry. So every company/organization wants to gain that competitive technology advancement which can differentiate them with an edge in growing competition. Also, technology changes in no time so organization/company has to be very proactive to cope with change.

My idea is to understand, how established organization and start-up organizations of academic institutions/e-selling companies are managing their Competitive Technical Intelligence? What is the importance of Technical Intelligence among other key resources to start/run a company? How to monitor Technical Environment, identify Technological Developments, assess the potential of new Technologies, and analyze their effect upon the Business, Customer and competitors?

Why Competitive Technical Intelligence (CTI)?

Having the right technology at the right time is becoming very important for business success. There is a need to manage their technical resources wisely for every company/business by accurate and timely intelligence on their technical environment. It is important for all industries and not only for science/technology based companies such as pharmaceuticals and IT-companies, and has an impact on all steps of the operation (from Research & Development through Manufacturing to Marketing & Sales).

Competitive Technical Intelligence distinguishes itself by the need to analyse and interpret scientific and technical information which requires a basic understanding of science & technology to be successfully implemented. The approach and thinking process required is different from most general competitive intelligence questions. The Technical Competitive Intelligence process is not simply a cycle of researching the literature, gathering information and communicating the findings. At first instance, the issue to be addressed in Technical Competitive Intelligence often appear to be very specific, but a broader knowledge of the technology is required to answer the real competitive intelligence questions.

It is become of at most important to design a process/system to keep track of CTI and to study trends in market/industry in nurturing and managing right CTI for continued competitive edge.

CTI Resources

Software can aid in extracting intelligence from database searches — for example, by retrieving research publication abstract records on "fuel cells" or patents assigned to "International Fuel Cells" (now a unit of United Technologies). Extracting knowledge to meet strategic intelligence needs is well and good, but companies want more! Table 1 presents a larger picture of competitive technical intelligence resources. These resources exploit technological content from publicly accessible and clients' confidential databases, and also extract information from business and general databases such as LexisNexis and Factiva. This kind of empirically derived knowledge from databases and the internet should be complemented by suitable tacit knowledge from individuals. For instance, first map the hot spots of fuel cell research and development (R&D) activity, then have technical experts refine and interpret the prospects . Additionally, tap business experts to explore the ramifications of enhanced technical capabilities .

Users of CTI information want answers to their questions rather than nicely defined puzzle pieces. That's a tall order, but there are practical ways to extend the information compilation to include the internet. We first draw upon search engines such as Google to augment our database derived results from the internet, then look at specific sites. For instance, our fuel cells search identifies an active research center at Georgia Tech. We would then look up their web site to check whether key researchers are still located there, see their most recent research efforts, and obtain contact information. But we need more. A typical searcher is looking for ONE result. Sometimes this is recovering a previously known source; other times it is discovering a new one (Battelle, 2005). For CTI purposes, we often want to capture an entire body of information. Taking the fuel cell illustration, we identified a set of active R&D center web sites. We then probed further by profiling what fuel cell types those active centers emphasize to spot trends as key centers shift toward emerging technologies, or to discern the range of applications. Here's how we developed this type of internet-derived intelligence

Innovation Strategies of Small Firms

A recent study completed for the Small Business Adminis-

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tration investigated the innovation strategies of long-lived, highly innovative small firms (Hicks et al., 2006). The focus was on learning the technology commercialization strategies used by small companies that patent heavily. The traditional modes of studying such topics are surveys or longitudinal studies. Surveying suffers from many flaws — limited extent of feasible queries (not too many questions), self-reporting biases, non response biases (how different are those who don't respond?), high cost, and so on. Longitudinal data — information on attributes from the same objects (firms, individuals, agencies, web sites, etc.) over a specified time period — are notoriously hard to come by. So, we mined the company web sites by building an "Innovative Firms Application Wizard" that uses Google's Application Programming Interface (API) search capabilities. Previous work identified a growing cadre of highly innovative small firms (Hicks, 2002). These firms have fewer than 500 employees, are independent and long-lived, are not bankrupt, and have at least 15 U.S. utility patents assigned to them in a five-year period. They are "serial innovators." We sought to gain insight into these innovative firms' technology commercialization strategies. Having a hefty number of patents, what did they do with them?

- Do they create positional advantages based on this patent estate?
- Do they engage in strategic patenting to close off areas to competitors?
- Is technology licensing a core business activity of the firm?

Content Analysis of Web Sites

A content analysis of the firms' web sites helped answer the question of patent utilization. Scholars who review web site content analyses note serious issues (McMillan, 2000; Opoku, 2005). Web site designs vary and so do their communication objectives. Ellinger and others (2003) found that the mission statement or "about" section of a web site was almost universally present. Perry and Bodkin's (2000) examination of corporate web sites led them to conclude that the sites focused on institutional advertising. Sullivan (1999) concluded that image creation is the most important function of corporate web sites. These considerations suggested focusing on select pages or sections of web sites. The Google API enables such selectivity, but the content analysis mined the full web sites. This reflects the fact that small firm sites vary widely in style and depth. The firm sample began with 516 small businesses with 15 or more patents issued from 1998 to 2002. In 2006, 407 remained independent and solvent, and had viable web sites. The small firms represent many high-tech sectors such as biotechnology, medical equipment, and software. A substantial number were in highly innovative sectors such as semiconductors and pharmaceuticals. These firms can be called the "usual suspects." The data set also includes firms working in imaging and display, optical components, tissue engineering, plastics, material handling, batteries, consumer goods, and many other specialties. Overall, the sheer variety of firms is striking. We also built a control sample of a like number of firms named as direct competitors of the chosen serial innovators by Hoover's Company and Capsules Database. To investigate which business strategies such firms use to commercialize their innovations, we sought the frequency of keywords relevant to potential technology commercialization activities, as clusters of keywords could conceivably frame distinct technology commercialization strategies. First, a literature review developed a list of relevant terms, then we checked and revised them based on their prevalence and distribution over a sample of about 80 web sites. Web site scanning identified the functional activities important to the firm, such as research and development, licensing, production and sale of products, provision of a service, and so on. The cornerstone of this endeavor to get at internet content is an algorithm that used Google's SOAP (Simple Object Access Protocol) API. This allowed us to create software that automates targeted searches. We wrote an "Innovative Firms Application Wizard" to exercise this capability (the interface is shown in figure 1), which enabled us to search selected web sites for selected terms.

CTI :Past

The traditional CTI process has become known as the "Herring Model" of competitive intelligence after its most elegant articulator, Jan Herring. This is by now, quite familiar and consists of a five step process:

1. NEEDS ASSESSMENT— *What is it the decision makers need to know? What problem do they need to identify? What decisions do they need support for?*

2. PLANNING— *How are we going to go about finding the answers that will support these decisions? What sources are we going to use? Who can I talk to? Where do I go to find my basic secondary information that will give me leads of additional people to talk to so I can start my primary collection activity? How will the data I end up with be analyzed, and what is the time frame?*

3. COLLECTION— *Getting the information in; database searches, phone interviews, working the network and the net.*

4. ANALYSIS— *Organizing the data into something that's meaningful, and that will support the decision you've been asked to support. Looking at it forwards and backwards, and creating new insights and conclusions.*

5. PRESENTATION— *Communicating what you've found to the decision maker who's going to use that intelligence to make a decision, providing suggestions for action.*

CTI :Present

The Herring Model is good; it works, and there are numerous applications. But, we're working now in a "knowledge" culture.. How do we imbed that process into something that takes advantage of a knowledge culture? A new process has emerged, with the Herring cycle in the middle. The newer model represents years of experience and a lot of synthesis done by the SCIP board. It is the best reflection we have at this time of what we see going on in industry. The new model adds a number of key elements to the Herring model:

1. The concept of an intelligence integrator
2. The concept of an intelligence protector
3. The concept of a knowledge background to the activity

The intelligence integrators can be an individual or group that not only is developing the intelligence, but also using the intelligence and communicating it to the senior decision makers. It wasn't really clear before who these people were, but now they are beginning to emerge as a key element in the intelligence process: the ones who are going to string the nuggets together created by the core Herring process in the context of the corporate strategy to create a higher-value intelligence product. The intelligence protectors again can be an individual or group that is devel-

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oping intelligence, but recognize that others are trying to extract your knowledge from you, and to use it to develop their own knowledge. A whole new discipline is appearing growing out of both intelligence and security, the protection of not just internal intellectual capital, but internal knowledge capital as well. This new model also recognizes that the intelligence process sits within the knowledge context of the company, both internal (i.e., cultural) and external (i.e., intertribal). There is knowledge within your organization which you access through your network (the intelligence professionals most valuable asset), and knowledge outside your company which you access through your network also, but incorporates additional elements. These include knowledge creators—academics and other theoretical thinkers, who are creating the new paradigms you and your competitors will be following in 5–10 years; systems creators creating elegant systems, both electronic and conceptual, which can augment the core process; data creators creating new data models, again both electronic and conceptual, which can streamline the process. It's important to be mindful that even the most sophisticated systems, data, and frameworks are not the knowledge itself, or by inference, the intelligence. Knowledge is cultural, hence a knowledge, or intelligence, database can really never exist—much as many might like one to. Lastly, and most significantly for assessing value, this new model focuses the output stage on the decisions. That becomes the linchpin—not how many decisions you supported, but what was your contribution to the strategy that that decision supported?

CTI :Future

What does the future hold for evolution of the CTI process? As any good futurist would do, we need to broaden out our perspective here to make a viable, educated guess. There is a strong academic underpinning for many of the currently popular concepts of "knowledge management." This would imply that while many other so-called management paradigms (which have been "flavor of the year") have had their day and passed on, knowledge management in some form may become a more central aspect of continuing business. If that is the case, then a successfully evolved CTI process will not only take advantage of the knowledge architecture, but will become part of the core business process creating corporate knowledge across the entire spectrum of product, or service, development. It will also be involved in measuring the degree and direction in which that knowledge is developing not only internally, but externally as well.

Conclusion

There's no doubt that the need for well-informed business decisions, as well as for general awareness of developments in the business environment, will remain acute. The current state of management decision support gets more complicated as rapidly changing conditions often require swift reaction, information overload is commonplace, and additional issues arise regarding information quality . Under these conditions, a need for right information at the right time and in the right place remains essential, and the well-aimed and reasonable use of support technology can increase decision making quality and efficiency.

CI does use some quantitative methods in conducting its analysis, it does not do so to the degree that most quantitatively-oriented researchers do. To draw a somewhat imprecise line, market research focuses on competitors and the firm's own interface with its customers on an historic and real-time basis. CI focuses on a broader horizon, including potential competitors, the supply and distribution chains, and research and development. In addition, its perspective is most often forward-looking. To play off an advertising slogan, CI seeks answers to questions like ''Where do they want to go tomorrow?'' Finally, CI, because it is forward looking, is heavily qualitative in comparison with more market research and qualitative research .

References

1. Porter, A. L. (2005). "Tech mining," *Competitive Intelligence Magazine*, v8(1), pp30-36.
2. Porter, A. L., and Cunningham, S. W. (2005). *Tech mining: Exploiting new technologies for \ competitive advantage*. Wiley, New York.
3. Ashton, W.B. and Klavans, R.A. 1997. *Keeping abreast of science and technology: Technical Intelligence for business*. Columbus.
4. Ashton, B. and Archambeault, J. 2004. Competitive technical intelligence: an introductory workshop. Canada: Halifax.
5. Hefti, E. 2003. Technical analysis and skills set. *Competitive Intelligence Magazine* 6(6).
6. Kahaner, L. 1997. Competitive intelligence. *How to gather, analyse and use information to move your business to the top*. New York: Simon and Schuster.
7. Lackman, C.L., Saban, K. and Lanasa, J.M. 2000. Organising the competitive intelligence function: a benchmarking stuffy. *Competitive Intelligence Review* 11(1).
8. Miller, S. 2000. SCIP's competitive technical intelligence symposium. *Competitive Intelligence Magazine 3(4)*.
9. A. Palmer and B. Hartley, *The Business and Marketing Environment*, 3rd ed., London: McGraw-Hill, 2000.
10. Abreu PGF, de Castro JM (2010) Are we blinded by the ''traditional'' intelligence cycle? Competitive Intell 13(3):18–26
11. DeRosa M (2004) Data mining and data analysis for counterterrorism. Center for Strategic and International Studies, Washington March
12. Flynn R (1994) NutraSweet faces competition: the critical role of competitive intelligence. Competitive Intell Rev 5(4):4–7
13. Jaworski B, Wee LC (1993) Competitive intelligence: creating value for the organization—final report on SCIP sponsored research. The Society of Competitive Intelligence Professionals,Vienna