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Considerations for Successfully Investing in Commercial Intelligence and Knowledge Management

Fred P. Hoffman
Robert Morris University, USA

Recognizing the need to acquire, process, analyze, store, share, and protect information used to support decision-making and awareness of the business environment, Information Age companies may consider investing in business intelligence, competitive intelligence, and knowledge management. However, inadequate understanding of the capabilities and limitations of these distinct disciplines can lead to unrealistic expectations; consequently, many such investments yield disappointing results. This paper provides background information, and identifies key variables that corporate leadership should take into account when contemplating an investment in one or more of these disciplines.

Keywords: business intelligence, competitive intelligence, knowledge management

Introduction

The futurist Alvin Toffler (1980) famously described the transitions from Agricultural Age societies ('First Wave') to Industrial Age societies ('Second Wave'), and then to Information Age ('Third Wave') societies. Whereas the source of power in Agricultural Age societies was land ownership and in Industrial Age societies the means of production, in Information Age societies, the source of power is information itself.

Not all information is created equal, nor does all information have equal value. For that matter, not everything commonly referred to as information is even information at all. Ackoff (1989) proposed the DIKW hierarchy to distinguish between data, information, knowledge, and wisdom. In ascending order of value, *data* consists of observations that are devoid of meaning until organized and placed in context, creating *information; knowledge* results from combining information with experience; and *wisdom* results from insight (Rothberg & Erickson, 2017). As one popular aphorism states, 'Knowledge means knowing that a tomato is a fruit, and wisdom means knowing to not put tomatoes in a fruit salad.'

One commonly-used word not accounted for by Ackoff's DIKW hierarchy, and often used in both government and commercial circles, is *intelligence.* According to a declassified CIA document, intelligence is 'the product result-

ing from the collection, evaluation, analysis, integration, and interpretation of all available information' (Bimfort, 1958, p. 76) on a subject of interest to the recipient. One collects data and information, applies knowledge to determine its meaning and significance, and then on the basis of this intelligence determines how (or whether) to act in response. Hence the term *actionable* intelligence.

The good news for commercial firms in the Information Age is that, thanks to advances in technology, it is now possible to acquire more data and information, from more sources, faster, and in greater volume than ever before. Unfortunately, the bad news for commercial firms is that, thanks to advances in technology, it is now possible to acquire more data and information, from more sources, faster, and in greater volume than ever before. In order to derive actionable intelligence from this incoming flood, corporate leaders face the daunting prospect of wading through endless, deep, murky waters of data and information.

While intelligence is essential for making informed decisions, either in the government or commercial sector, resource-intensive intelligence activities must be both as efficient and targeted as possible. As Frederick the Great once said, 'He who defends everything, defends nothing.' Altering the Prussian leader's wording a bit gives his comment relevance for the current discussion: 'He who seeks to know everything, knows nothing.' The volume, variety and velocity of incoming information grows faster than our ability to acquire and process it. Resources (people, money, and time) are always limited, and data overload poses a serious challenge. Having more information can be more problematic than having less information; as Ackoff (1989) observed, management's most critical information need is not more relevant information, but *less irrelevant* information.

A Universal Challenge

In the business world, there are seemingly endless sources of data and information, and multiple disciplines for acquiring information useful for enabling leaders to make informed decisions. But how does one know where to apply resources to get the best return on investment for intelligence? In order to gain and maintain a competitive edge, Information Age firms must have awareness of their industry, their competitors, the business environment, market trends, their suppliers and customers, as well as their own capabilities. The means to obtain such awareness is through commercial intelligence activities and knowledge management.

Knowing how to best apply scarce resources to acquire, process, store, and share intelligence in the most productive manner is a problem shared by large and small firms alike. Larger firms may have sizeable resources invested in intelligence and knowledge management (KM) systems, and employ teams of specialized, dedicated practitioners. However, theirs is a

problem of scale, because the larger and more multi-faceted a company is, the greater its intelligence and KM needs will be. On the other end of the spectrum there are small and medium enterprises (SMEs), which have fewer available resources to invest in intelligence, probably lack well-trained, dedicated practitioners, and may not even understand what the various intelligence disciplines can do for them, individually or collectively. In the case of both large and small companies, a clear understanding of what these disciplines have to offer is essential.

The Triad of BI, CI, and KM

In the commercial world, *strategic intelligence* has been described as a triad consisting of business intelligence, competitive intelligence, and knowledge management (Liebowitz, 2006; Alnoukari & Hanano, 2017). Each of these three disciplines differ from each other in five key respects: (1) orientation; (2) data sources; (3) practitioner training, experience, and skill sets; (4) the role of IT; (5) techniques and tools. Despite these significant differences, the literature reveals considerable confusion as to what these disciplines are, what they do, and how they relate to and support one another.

Business Intelligence

Business intelligence (BI) refers to the ability of a business to use the data generated by that business to support decision-making. The term BI has been around already for six decades; it was coined by Luhn in 1958 'to describe the abstracting, encoding, and archiving of internal documents and their dissemination using "data-processing machines"' (Kimble & Milolidakis, 2015, p. 24). Since 1989, there has been increasing interest in BI in academic, business, and management circles (Sun, Sun, & Strang, 2016, p. 2). BI has been described as 'a framework that consists of a set of theories, methodologies, architectures, systems, and technologies that support business decision-making with valuable data, information, knowledge, and wisdom' (Sun et al., 2016, p. 4).

There are four types of BI systems (reporting, analysis, monitoring, and prediction), and each system serves a distinct purpose: Reporting systems inform management about *what* has happened, analysis systems provide insight as to *why* something has happened, monitoring systems keep management up-to-date *as* events occur, and prediction tools enable management to predict what *may* happen on the basis of trend analysis (Gauzelina & Bentza, 2017, p. 41). In other words, BI can be descriptive, predictive, or prescriptive. BI practitioners have educational backgrounds and experience in computer programming, mathematics, statistics, and data analytics. BI-related technology includes specialized software and databases optimized for BI, rather than for operational, purposes.

BI has evolved considerably over the past decade or so because of IT

developments that have exponentially increased the amount of data that could be gathered and stored, the steadily declining cost of data storage, and the development of BI 'tools for deep analytics, including data mining and prediction' (Rothberg & Erickson, 2017, p. 97). BI now encompasses software applications, IT infrastructure, tools, methodologies, and BI practitioners skilled in statistical analysis.

At first, BI was largely focused internally, upon data generated by the company itself. Common sources of information for BI include transaction data, inventory, accounts payable, order status, and customer data. However, thanks to the Internet, in recent years some of the focus of BI 'has shifted from internal to external data, such as that found in web platforms' (Kimble & Milolidakis, 2015, p. 26). Another boon to BI has been recent advances in technology that have 'allowed the capture and analysis of unstructured inputs (video, images and text)' (Rothberg & Erickson, 2017, p. 97). 'More recent developments – for example, context-aware applications that provide data about what users are doing, where they are located, whom they are with, and even, in the case of devices such as activity trackers, physiological data – have contributed to this trend' (Kimble & Milolidakis, 2015, p. 26).

Although BI has existed for decades, recent IT advances have brought about a BI sub-discipline known as *big data (BD) analytics.* 'Big Data refers to datasets whose size are beyond the ability of typical database software tools to capture, store, manage and analyze' (Nagar, Atriwal, Mehra, & Tayal, 2016, p. 3585). As for big data analytics, this has been described as 'the process of collecting, organizing, and analyzing big data to discover, visualize, and display patterns, knowledge, and intelligence as well as other information within the big data' (Sun et al., 2016, p. 2). The difference between BI and BD is not simply one of scale, but also granularity. Whereas traditional BI focuses on gathering and analyzing a firm's data to assess past performance and identify trends, BD 'excels in processing semi or unstructured data from various sources and exploring or predicting business questions humans might not consider' (Wu, Shi, & Yang, 2017, p. 2). 'While traditional BI presents historical information to users for analysis, real- time BI compares current business events with historical models to detect problems or opportunities automatically' (Langlois & Chauvel, 2015, p. 58).

BI and BD have some commonalities, such as the use of data mining. However, the differences between BI and BD are more than definitional; though related, BI and BD call for different skill sets. BI practitioners require skills in relational database and data warehouse manipulation, and use standardized software and tools to manipulate and analyze structured data within a firm. By contrast, BD practitioners take unstructured data from multiple data sources and employ advanced programming techniques

to manipulate and analyze this data. They require skills in 'distributed programming and architecture design, have internet domain knowledge and excel in python and linux' (Wu et al., 2017, p. 4). Three Chinese researchers found that in China, at least, the demand for BD competencies is almost six times higher than for BI competencies (Wu et al., 2017, p. 1). This is consistent with a prediction contained in a 2011 McKinsey Global Institute report, stating that by 2018 the US 'will face a shortage of 140,000 to 190,000 people with deep analytical skills, as well as a shortfall of 1.5 million data-savvy managers with the know-how to analyze big data to make effective decisions' (Chen, Chiang, & Storey, 2012, p. 1165).

Another term that appears to encompass both BI and Big Data is business intelligence and analytics (BI&A), which 'is often referred to as the techniques, technologies, systems, practices, methodologies, and applications that analyze critical business data to help an enterprise better understand its business and market and make timely business decisions' (Chen et al., 2012, p. 1166).

Competitive Intelligence

Compared to BI, which has been around for more than half a century, *competitive intelligence* (CI) is a relative newcomer, tracing its roots as a profession to the late 1980s and early 1990s. Companies engage in CI 'to gather and analyze data, information, and knowledge with the ultimate objective of understanding and anticipating competitive strategies and actions' (Erickson & Rothberg, 2012, p. 37).

Whereas BI activities are focused on the company's *internal* environment and information, CI activities are focused on the environment and information *external* to a company (Alnoukari & Hanano, 2017, p. 9). Often mentioned during conversations about CI are such terms as market intelligence, marketing intelligence, and strategic intelligence. Although CI and these terms are sometimes (and inaccurately) used interchangeably, these activities, while different, 'are too close and overlapping to be separate disciplines' (Søilen, 2016, p. 28) What they all share, however, is an external orientation and common practitioner skills.

CI (which is legal) is not industrial espionage (which is illegal). CI practitioners follow the law and observe a professional code of ethics. According to the CI professional organization SCIP (Strategic and Competitive Intelligence Professionals), competitive intelligence is 'the legal and ethical collection and analysis of information regarding the capabilities, vulnerabilities, and intentions of business competitors' (see http://www.scip.org/?page=aboutscip). This is not to suggest that industrial espionage does not occur, because it certainly does. Precisely because of the industrial espionage threat, and in contrast to BI and KM, CI possesses both offensive and

defensive aspects: one of the roles performed by CI practitioners is helping a company identify vulnerabilities of its own sensitive information, and help protect that information by recommending policy changes and training employees to increase threat awareness.

CI practitioners assist corporate decision-makers through environmental scanning, competitive benchmarking, competitor analysis, and wargaming. CI practitioners engage in primary and secondary source research, conduct Internet searches, query paid subscription databases, and public records for such things as patent information, press releases, and news about merger and acquisition activity in the industry. In addition to accessing and exploiting publicly available information (PAI), more advanced CI practitioners will also develop 'a human network of sources' (Erickson & Rothberg, 2012, p. 30). Acquiring competitor information at trade shows is a traditional CI activity conducted by CI practitioners with the skills, methodologies, techniques, and experience necessary to acquire competitor data in such an environment. Not surprisingly, then, the skills and experience of CI practitioners correspond to activities they perform in the discipline; CI practitioners often have backgrounds in library science or human intelligence.

Currently, there is a surprising lack of consensus in the professional literature as to what CI is, and how CI compares and relates to BI. One reason is the lack of agreement, even among professionals, as to what exactly constitutes CI (Søilen, 2016, p. 24). Throughout their 1994 article 'The Ethics of Business Intelligence,' Schultz, Collins, and McCullouch consistently use the term *business intelligence* to describe activities currently associated with *competitive intelligence.* For example: 'The purpose of business intelligence is to help managers assess their competition, their vendors, their customers, and the business and technological environment' (Schultz et al., 1994, p. 306). Even more recent literature reflects continued confusion about CI and BI, and the relationship between them. Some authors wrongly refer to CI as a subset of BI. Zheng, Fader, and Padmanabhan (2012) refer to CI as 'an important area within business intelligence (BI)' (p. 698). Langlois and Chauvel (2015) describe CI 'as a special branch of the BI literature' (p. 51). Gauzelina and Bentza (2017) state that CI 'is part of business intelligence' (p. 43) and that BI 'can be used to gain competitive intelligence which is vital in shaping the strategy of a company,' and that a BI system 'leads to the accumulation of competitive intelligence' (Gauzelina & Bentza, 2017, p. 41).

Part of the reason for these differing definitions may be because BI and CI have some comparable processes and techniques, tools and products that appear similar to a layman, and because BI increasingly draws data from external sources. Like BI, CI 'has to do with collection, analysis and application of all kinds of inputs (data, information, knowledge and existing

intelligence) concerning competitors and related topics' (Rothberg & Erickson, 2017, p. 96). Terminology adds to the confusion: Although *mining* is a term frequently associated with BI, data mining, text mining, and web mining are also common CI techniques (Alnoukari & Hanano, 2017, p. 9). Data warehousing, which once drew historical or current data exclusively from internal databases, now draws from external open sources, as well (Sun et al., 2016, p. 2). Further adding to the confusion is the fact that both BI- and CI-derived data can be presented using comparable reporting tools and formats, such as SWOT analysis, balanced scorecards, dashboards, or through visualization software products. Automated systems and specialized software, commonly associated with BI, are now available for use by CI practitioners as well. One example is Cipher Systems' Knowledge360 software as a service (SaaS) offering, which automates CI searching and reporting, featuring also knowledge management functionality. An executive already familiar with seeing BI dashboards might assume that CI software is simply 'more of the same.' Nothing could be further from the truth. 'Current BI dashboards often fall short of providing CI capabilities, largely due to the fact that detailed information on competitors is hard to obtain' (Zheng, Fader, & Padmanabhan, 2012, p. 698).

As BI and CI have continued to mature as disciplines, with different orientations and data sources, and specialized tools, techniques, and practitioner backgrounds, there is growing recognition that these are distinct, parallel activities (Alnoukari & Hanano, 2017). BI demands specialized analytical skills, software, and access to reliable data. The good news, however, is that a company possessing these required components can look internally at its own data to conduct analysis and gain insight. CI becomes invaluable when the focus shifts from inside the company to outside.

Knowledge Management

Knowledge management (KM) focuses on categorizing, cataloguing (storing for future retrieval), internally sharing, as well as protecting a company's knowledge assets. Unlike BI and CI, which involve the *acquisition* of knowledge, KM is 'more about managing what is already in place' (Erickson & Rothberg, 2012, p. 37).

Just as it was important to point out that CI is not industrial espionage, it is equally important to note that there is a significant difference between data management and knowledge management systems. Examples of data management systems include ERP (enterprise resource planning), SCM (supply chain management), and CRM (customer relations management) systems. Such systems are used to manage operations and send raw data around the network. Such systems are not necessarily used to support strategic decision-making, and are not generally considered part of

KM, since they involve data and information, what Erickson and Rothberg (2012) refer to as 'pre-knowledge' (p. 30).

Not only are there differences between data, information and knowledge; there are also different types of knowledge. 'At one extreme, there is tacit knowledge: individual, hard to define, hard to explain, and hard to codify or capture within the organization, particularly with digital means. At the other extreme is explicit knowledge, definable, explainable, subject to capture by the firm as it can be written down and/or stored in information technology systems' (Erickson & Rothberg, 2012, p. 36). Optimally, a company's KM system will be effectively used to capture both tacit and explicit knowledge.

By managing tacit and explicit knowledge, what KM does is manage *organizational intelligence,* which Liebowitz (2006) defines as 'the collective assemblage of value-added benefits derived from the organization's intangible assets (knowledge from employees, management, stakeholders, and customers)' (p. 7). Types of organizational intelligence, or capital, that a company can possess in its KM system is human capital (job-related knowledge), structural capital (organization-related knowledge), relational capital (knowledge-based on relationships with external parties, like partners, vendors, and clients), and competitive capital (knowledge derived from CI activities) (Erickson & Rothberg, 2012, p. 30).

One noteworthy aspect of KM is the importance of a company not only having KM technology and practitioners, but also a knowledge-sharing culture. Whereas BI and CI can be self-contained activities, KM, in order to be truly effective, requires a corporate culture of knowledge-sharing (Kulkarni, Robles-Flores, & Popovič, 2017, p. 519). This does not mean that everyone in an organization should have unfettered access to all information; rather, it means that different types of knowledge valuable to the company are systematically captured, stored, and made rapidly and easily accessible to those with a legitimate and authorized need for the information.

A Naval Metaphor

A metaphor may be helpful in illustrating the differences between BI, CI, and KM, the distinct contributions of each discipline, and their complementary nature.

Imagine a company CEO as the captain of a naval vessel. The navy has many different types of ships, each of which is designed, built, equipped, and manned to perform certain types of missions. However, while naval ships may differ considerably in terms of size, function, and capabilities, the captain of each and every ship in the navy must adequately understand his external operating environment: water depth, shipping lane activity, tides, currents, underwater obstacles, and weather are just a few of the broad external factors of which a naval ship captain must be aware. A naval

ship possesses a variety of systems and intelligence specialists who gather and provide that information to the captain, enabling the captain to make informed decisions. In the business world, competitive intelligence practitioners and systems provide the CEO and senior management with external, environmental awareness. On board a naval ship, a critical activity for providing the captain with environmental awareness is *force tracking,* or identifying and monitoring the presence, capabilities, actions, and intentions of friendly forces, civilian shipping, plus a wide range of potentially adversarial forces or threats. In very similar fashion, the CEO of a company must have environmental awareness of a range of external entities whose presence, capabilities, actions, and intentions could positively or negatively impact the company's business. Although this is commonly referred to within the competitive intelligence field as *competitor tracking,* the truth is that a company must have ongoing awareness not only of competitors, but also of such important other entities as supply chain vendors, partners, contractors, and actual and prospective customers.

The captain is informed that another vessel is rapidly approaching from the east. After consulting an onboard 'order of battle' database, an intelligence specialist confirms that the approaching vessel belongs to an adversary's navy. Because of his past, personal experience interacting with ships of that adversary's navy in these particular waters, a chief petty officer suggests to the captain that it might be prudent to change course.

The ship's captain considers the situation and realizes there are implications associated with changing course and increasing speed. Does the ship have enough onboard fuel to allow for increased speed and a course change, but without necessitating at-sea refueling? This is where the navy's analogs to business intelligence systems come into play. The captain can turn to those sailors operating onboard systems capable of reviewing systems data *internal to the ship* that address ship operating parameters, resource usage, and resource availability. In similar fashion, a company CEO can turn to BI analysts who leverage internal databases and data sources to make comparable assessments about capabilities, costs, resources, and implications of different scenarios.

Soon after the course change has safely put his ship outside the path of the approaching vessel, the captain makes a notation in his logbook to reflect what has recently occurred, what decisions he made, and why he made them. These are all examples of knowledge management in action: drawing upon tacit knowledge based on personal experience, and effectively transferring that knowledge to someone who needs it. Rapidly accessing previously-stored knowledge (contained in the order of battle database) and leveraging it to support informed decision-making. Documenting new knowledge and storing it for later use.

Unrealistic Expectations

Inaccurate or unrealistic expectations about BI, CI, or KM can have costly, and disappointing, consequences. In the case of investments in BI, for example, most companies fail to achieve the desired results. As Olszak (2016) noted, 'the case of BI successes described in the literature are still rare' (p. 112); fully 60–70% of BI applications fail 'due to the technology, organizational, cultural, and infrastructure issues' (p. 105). A 2017 article reporting the results of research conducted in 10 French small- or medium-sized enterprises stated that, while there was overwhelming acknowledgement of the value of implementing BI systems, barriers to their introduction included not only funding constraints, but also the lack of employees possessing the mathematical and IT skills necessary to employ BI tools and maintain databases (Gauzelina & Bentza, 2017, p. 47). Erickson and Rothberg (2012) argue against the notion that investing heavily in KM or CI is 'necessarily the optimal;' what they discovered through their research was that 'knowing what your key knowledge assets were like, where they were, and how they could best be employed (or not) given industry circumstances was better' (p. 1).

Strategy Drives Intelligence Needs

Regardless of a company's size, its intelligence requirements, activities, and priorities should be determined by its business strategy. A company's strategy articulates where the company intends to go, and how it intends to get there. These two aspects of the company's strategy drive identification of the kinds of information that will be needed to achieve these identified strategic objectives. Once a strategy is developed, Key Intelligence Needs (KIN) can be identified and prioritized, and the discussion can then turn to how data and information responding to those prioritized KIN should best be acquired, processed, stored, and shared.

The relationship between strategy and intelligence is a symbiotic one: While strategy determines and prioritizes intelligence requirements, incoming intelligence information may cause management to modify or change its strategy. A company's intelligence requirements can be either standing (permanent) or *ad hoc* (time sensitive and short-term). An unexpected development could create an *ad hoc* intelligence need that takes temporary priority over all other standing requirements. While strategy drives intelligence, intelligence may result in changes in strategy. The process, by necessity, is iterative. As then-US Defense Secretary Donald Rumsfeld said, 'There are things we know that we know. There are known unknowns. That is to say there are things that we now know we don't know. But there are also unknown unknowns. There are things we do not know we don't know' (Rumsfeld, 2002). The acquisition of intelligence in support of a strategy

may result in modification of the strategy, or in some cases, of strategic goals.

Industry Role in Determining Intelligence Investments

A company's long-term strategic plan should serve as the starting point for deliberations over where (and why) to invest in BI, CI, and/or KM capabilities. Another major consideration is the industry in which the company operates, or intends to operate in the future. Erickson and Rothberg (2012) examined the extent to which firms in different industries leveraged KM and CI. The authors found that the extent to which companies made use of KM and CI tended to be industry-specific; in some industries (such as pharmaceutical and software), companies tended to make extensive use of both KM and CI, while in others (such as commercial banking) they made extensive use of one but not the other, and in yet other industries (such as air transportation), little use was made of either KM or CI (Erickson & Rothberg, 2012).

The pharmaceutical industry is one that Erickson and Rothberg (2012) identify as having a very high need for both offensive and defensive CI because industry competitors are both numerous and dangerous. Companies patent to protect their intellectual property, and the pharmaceutical industry is one of the two most prolific industries in terms of patent generation, second only to the medical device industry (Grigoriou & Rothaermel, 2017). One common CI technique for pharmaceutical companies to maintain awareness of competitor activities, direction, and progress is by monitoring patents. Other techniques commonly employed by pharmaceutical firms to source new knowledge is through internal knowledge development, exploitation of human capital, strategic alliances with external entities, the acquisition of other firms, or some combination of these methods (Grigoriou & Rothaermel, 2017). Given these sources of knowledge, pharmaceutical companies would conceivably benefit from KM. However, a 2017 study revealed that only half of the pharmaceutical companies surveyed employed KM systems at all, and those that did tended to be the larger firms in the industry (Rathore, Garcia-Aponte, Golabgir, Vallejo-Diaz, & Herwig, 2017).

Even in such highly-competitive industries where the need for CI and KM is great, smaller firms appear to invest proportionately less than their larger counterparts. This is also true for BI systems (Gauzelina & Bentza, 2017). As with CI and KM, a company's decision to invest in BI should also be based, in part, on the industry in which the company exists. 'To the extent that analytics can be thought of as an innovative IT technology, research suggests that industry competitiveness might influence the investment decision' (Liberatore, Pollack-Johnson, & Clain, 2017, p. 366). Granted, larger

companies have more resources to invest in the highly-skilled, specialized staff and technologies needed to conduct BI. While it is true that larger enterprises have more resources to devote to more elaborate BI capabilities, the larger a firm is, the more complex and diverse its BI needs become. Smaller firms should assess their needs and employ a level of BI, CI, and KM suitable for their needs and appropriate for their budget. For example, a relatively low-cost BI system that smaller firms could employ would be 'spreadsheets for simple data' used for client information management, or to aid in more efficient budgeting (Gauzelina & Bentza, 2017, p. 43).

Not every industry makes extensive use of BI, CI, and/or KM. Understanding how these are employed in one's own industry is an essential step towards making sound intelligence investment decisions. 'Industries exist in which top firms have high levels of knowledge assets or IC and others where levels are very low and knowledge is apparently not necessary for competitive success. Similarly, industries exist in which CI activity is rife and firms ignore it at their own peril, while in other industries, it is absent, so firms generally need pay offensive or defensive CI no mind' (Erickson & Rothberg, 2012, p. 104).

Getting the Mix Right

The differences between the terms BI and CI are more than simply semantic; understanding the differences between BI and CI, and the capabilities of each, is important for resource-constrained companies seeking to maximize their investments. BI and CI involve different skill sets, methodologies, technologies and tools, and access to data and individuals.

Company leadership should conduct a needs assessment to determine whether, and how, to employ BI, CI, and KM. Questions to be addressed include the following:

1. Given our industry and corporate strategy, what are our critical information needs?
2. Where does that needed information reside?
   - Externally (CI)?
   - Internally (BI)?
3. What information do we have internal to the company that could be better exploited (BI)?
4. How are we capturing, storing, and sharing knowledge in the company (KM)?
5. What information do I possess that might be sought by competitors (CI awareness)?

Conclusions

Prior to investing in BI, CI, and/or KM, corporate leadership should assess how and why each of these disciplines are commonly employed in their industry. Leadership should conduct an internal needs assessment, based on the company's strategic objectives and strategic plan, to ensure that investments in intelligence capabilities map to prioritized information requirements. In order to maximize the prospect of a favorable return on investment in these capabilities, leadership must have a clear understanding of the capabilities and limitations of BI, CI, and KM, as well as realistic expectations as to what each can be reasonably expected to deliver. Prior to investing in BI, CI, and KM, corporate leaders should also take into account the associated human resources, technology, and financial implications of those investment decisions.

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Fred P. Hoffman is the Research Director at Cipher Systems, LLC, an Annapolis, Maryland-based competitive intelligence firm and an Associate Professor of Military Science at The Johns Hopkins University in Baltimore, Maryland. He is also a doctoral candidate in Information Systems and Communications at Robert Morris University in Pittsburgh, Pennsylvania. *fphst122@mail.rmu.edu*