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The Contribution of CI to the Strategic Decision Making Process:
Empirical Study of the European Pharmaceutical Industry

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Abstract

The practice of Competitive Intelligence (CI) is common in the US pharmaceutical industry but there is little evidence to suggest that the European industry has adopted CI to the same extent. This study reports on a specific sub-set of the overall CI activity, namely the contribution which CI makes to the strategic decision making (SDM) process. CI managers in the European pharmaceutical industry were selected and the results from 79 questionnaires and 14 in-depth interviews are provided.

Results indicate that the CI activities in respondent firms are reasonably well established and also that the pharmaceutical industry appears to appreciate both the benefits, and requirements of a modern day CI function. However, the industry is not taking full advantage of the CI effort at every stage of the SDM process. Conclusions are drawn which highlight areas for potential improvement. The article also identifies the managerial implications from the findings with suggestions for further research topics associated with this area.

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Introduction

The pharmaceutical sector is considered to be one of the most dynamic sectors of the world economies. The industry is highly dependant on innovative research and development (R&D) and as a result, the sector is inherently competitive. This is due, in part, to the huge costs of R&D in terms of time and money coupled with no guarantee of success. The risks are high, but the rewards can be great. The development of 'blockbuster' drugs could potentially generate sales of several billions of Euros over a prolonged period, especially if it is patented. Great accolade would also be inferred on the successful organisation in terms of driving medical science and innovation (Keynote, 2002). As a result of the immense pressure placed on firms in the pharmaceutical industry to maintain their position in a dynamic and fragmented market, there is an obvious requirement for them to keep abreast of their competitors in every way. The question which this study attempts to answer is: How do European pharmaceutical firms use the intelligence they obtain, in their decision making process?

Research Aims and Objectives

The main aim of this study was to investigate the practices of competitive intelligence (CI) managers in the European pharmaceutical industry, specifically in relation to the contribution which CI made to the strategic decision making (SDM) process, regardless of firm size.

It was also anticipated that the outcome would provide insight into how CI is used in this industry as well as identifying any issues or problems, which surround the current practice.

Therefore, the objectives were stated to be:

- To identify the reasons for practicing CI
- To identify the techniques used for analysing CI
- To identify the contribution of CI to each stage of SDM process in this industry sector

The findings enabled conclusions to be drawn, managerial implications to be set out and suggestions made for further research into this topic which would inform practitioners and academics on how CI managers conduct their work.

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The Global Pharmaceutical Industry

The pharmaceutical industry is big business. It is characterised by many different types of companies which develop, manufacture and sell different types of products. The one common thing within this sector though is that all participating firms invest huge sums of money in order to remain competitive.

A ranking of industrial sectors by aggregate R&D investment from the world's top 2000 companies (EU 2006) shows that in the top four, Pharmaceuticals & Biotechnology was second only to Technology & Hardware Equipment. Table 1 reveals a sharp drop in spend between the third and fourth ranked sectors.

Table 1 - Ranking of R&D Investment by Sector, 2005

Rank	Sector	R&D Investment 2005 € millions	Change from 2004 Sector	Share of Total
1	Technology hardware & equipment	70,384.35	7.2%	19.0%
2	Pharmaceuticals & Biotechnology	68,264.45	8.4%	18.4%
3	Automobiles & Parts	64,091.43	5.4%	17.3%
4	Electronic & Electrical Equipment	27,366.32	6.1%	7.4%

Source: Monitoring Industrial Research: 2006 Industrial R&D investment scorecard; Technical Report EUR 22348 EN, ISSN 1018-5593, Luxembourg: Office for Official Publications of the European Communities. October 2006 pp 28

It can be seen that the gap between number 3 and number 4 in terms of both actual Euros spent and percentage share of the total, is significant. From this, it is possible to conclude that the top 3 dominate the league table for R&D investment and as such, are critical industries, which thrive on innovation but are nevertheless, embroiled in competition. In pharmaceuticals especially, the stakes are high. The survival of a firm can depend on the development of a single, global blockbuster drug, yet the threat of controversy and regulatory issues only exacerbates what is a pressured environment. There is an expectation that R&D activity, and thus, expenditure, will result in an improved strategic focus for the firm, otherwise why do it?

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Looking back at the beginning of the 20th Century, Doctors were barely able to treat the cause of diseases. At this time there were only four known drugs which were used to fight the symptoms of disease, namely Digitalis for heart complaints; Quinine for malaria, Mercury for the treatment of syphilis and Pecacuanha for dysentery (Taggart, 1997). It was not until the emergence of Lister and Pasteur, and their groundbreaking work on the causes and treatment of infection, that the foundations for the modern pharmaceutical industry, as we know it, were laid. Other milestones in the evolution of the industry include the development of Aspirin in 1899, and the development of penicillin and other antibiotics, which occurred as a consequence of the Second World War. By this time many of the current global leaders in the development of pharmaceuticals were well established including Bayer, Roche, Pfizer, Eli Lilly and Glaxo. In the following years the race for the development of new chemical entities, subsequently new drugs and the need for strategic clarity, intensified although it was undoubtedly helped along the way by an increase in the medical profession's overall understanding of the cause of disease. More recent developments in the industry include the evolution of Biotechnology. It was this development, which led to the many mergers and linkages, which now characterise the industry. As a result, the modern day pharmaceutical industry is highly fragmented. (Taggart, 1997).

Competitive Intelligence in the Pharmaceutical Industry

This sector, perhaps more than any other, should be aware of all its competitive forces and should have processes in place whereby information on competitors can be transcribed into meaningful intelligence. This, in turn, can be fed into the strategic or tactical decision making process. Despite the expectation that few can teach "pharma" anything about handling competition, there is evidence that the pharmaceutical industry has a long way to go to catch up with other industries such as software and manufacturing and that many pharmaceutical companies are perplexed when it comes to the collection of CI. (Breitstein, 2002).

Gilad and Smith (1998) argue that while the majority of executives in the pharmaceutical industry are happy with the way their company handles the gathering and communication of competitive data, the reality is that their efforts are wholly inadequate and that very few companies possess a serious competency in CI. The authors discovered that whilst pharmaceutical companies do have formalised CI functions and do engage in intensive collection and distribution of competitive data, too often this becomes a 'paper shifting process' with companies experimenting with many different approaches. The unmistakable conclusion from this study was that the executive decision makers were not getting the right information at the right time in order to make decisions. It was suggested that there is a certain mindset within large pharmaceutical circles that the more 'layers' of CI there were, the better the intelligence would be. A more

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simplified and direct model of CI would result in actionable intelligence being fed to senior management rather than being stored by middle management.

Fuld (2004) also points out the inadequacies of CI functions in many leading pharmaceutical companies and noted specifically, the frenzy surrounding the provision of AIDS drugs to Africa. Many of the major pharmaceutical companies also failed to appreciate the impact that biotechnology would have on their industry. The answer to this situation according to Fuld is for pharmaceutical companies to place more emphasis on early warning systems, to enable them to better anticipate issues as opposed to just reacting blindly to industry shocks. Astra Zeneca was cited as being one of the few pharmaceutical companies which had devised a fully integrated early warning system into their intelligence and strategic functions.

The pharmaceutical industry is not only a business discipline but also an extremely complex scientific discipline. McMillan (1999) states, "*In every high technology company, there exists a perpetual struggle between two very important components of the firm: the research scientists and the business managers.*" This is the case in the pharmaceutical and biotechnology industries. Persidis (1999) also highlights the knowledge gap between the scientist and the business managers and that this often leads to inadequate information exchange. He remarks "*Management and company scientists need to know about their own field and about related fields…ideally they need to have an overall awareness of the industry on as many dimensions as possible.*"

The difference between disciplines is exacerbated by the a differing amount of information gathered. According to Persidis, more than two-thirds of all the intelligence gathered in the industry is science related while one-third is business related. The study also concluded that the scientists do not really spend very much time keeping up with the business developments while the business managers spend about one-third of their time on analysing the scientific aspects. Carrying out CI activities in an environment where science and business are inextricably linked is even more difficult and therefore any intelligence system needs to take account of this.

Another worrying issue is the leakage of information from CI active pharmaceutical firms. Lam (2004) stated that the big pharmaceutical companies are not defending their position well enough and reported that the American Society for Industrial Security had estimated that in 2001, the United States had lost proprietary information and intellectual property worth $59 billion.

Further research on this topic has indicated that it is not actually the R&D scientists or CI managers who inadvertently 'blab,' but its the third party people who they deal with on a daily basis. The pharmaceutical

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industry finds itself in a quandary in terms of communication. On the one hand the industry must talk to people like doctors and health organisations in order to improve the industry's reputation and create awareness. However, this leads to the leaking of information from a variety of sources.

The Benefits of CI to the Pharmaceutical Industry

Corporate intelligence systems are an integral decision support mechanism, which provide actionable intelligence, which in turn is used to reveal new developments, opportunities and threats (Persidis, 1999). DIGIMIND (2004), state that by introducing CI procedures, tailored to the requirements of the pharmaceutical sector, firms can significantly improve their reactivity to developments in their competitive environment, specifically:

- monitoring changes in competitor portfolios
- monitoring competitor R&D investments
- monitoring clinical trial and patent application
- monitoring mergers and acquisitions that could pose a threat
- monitoring the positioning of competitive drugs to include the sales policies adopted by medical representatives to major buyers
- identifying competitors sales structures and commercial priorities
- anticipating potential complaints and legal action when a drug is launched that could impact sales
- monitoring statutory developments in the health sector

Canongia *et al* (2004) also argue that CI, if implemented and used correctly in the pharmaceutical industry can also infer on the company a high degree of 'technological foresight.' This is an important factor as it ties in neatly with the concept of innovation and the pharmaceutical industry is driven by innovation.

There would seem to be a gap in the body of knowledge regarding the opinions and practices of CI in the pharmaceutical industry in general and in Europe in particular. While the literature does indicate that the industry recognises the need for CI, there is little explanation of exactly how that intelligence is used. Therefore, this study aimed to identify not the generalities of CI practice but the specific contribution which CI makes to the strategic decision making process in the European pharmaceutical industry.

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Sample Frame

When deciding on the unit of analysis and the sampling frame, the aim was to obtain the views of European pharmaceutical managers who carried out CI.

In order to achieve this, Society of Competitive Intelligence Professionals (SCIP) members in Europe provided access to individual with knowledge of CI, working in the pharmaceutical industry and across a range of company sizes. There was an underlying assumption that the respondents selected would at least be aware of CI and this was confirmed in the responses.

Despite the nature of the study and the argument that managers might have a negative response toward questions dealing with intelligence activities, a satisfying response rate of 32.4% usable returns (79 from 244) was achieved. Follow up face-to-face interviews and telephone interviews were held with 14 CI managers who had indicated their willingness to participate in further discussion.

Findings

Many pharmaceutical companies have recognised the importance of CI as being an essential tool in understanding the external business environment and in providing the intelligence needed for decision making. The following discussion highlights the managerial implications of the key findings regarding the use of CI among European managers in the pharmaceutical industry.

Reasons for Practicing CI

In order to understand the drivers behind their CI effort, respondents were asked to state the reasons why they thought CI was practiced in their firm. The results are shown in Table 2.

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Table 2 - Reasons for practicing CI (multiple responses permitted)

Element	%
Industry awareness	90.6%
Helps the strategic planning process	79.2%
Development of new products	76.6%
Development of new marketing strategies and tactics	73.6%
Development of new technologies	58.5%
Identification of new customer requirements	47.2%
Feedback on the implementation of strategies	43.4%
Supports tactical activities	41.5%

Even though organisations must be continually monitoring the competition's responses to their strategies and their territorial moves, these responses would indicate that while CI is being used there is little follow up on the activities. With regard to the development of technology, only 58.5% of respondents indicated that this was one of the main reasons why they carried out CI. This is surprising as technology plays a vital role in the industry in terms of company capabilities.

When asked what the reasons why companies undertake CI activities were, 3 participants from the semi-structured interviews indicated that they don't know why they undertake CI. These respondents went on to clarify that they only undertook CI because their senior managers told them to do so. The implication of this is that these managers are more likely to fail at carrying out CI duties due to a lack of the basic understanding of why such a process should be carried out at all. If they do not understand why they are doing CI, then they will certainly not be able to identify or derive the maximum benefit. Failure of this process means another bad experience which may lead to the view that CI is not a good investment as there is little tangible sign of significant value to the company. The problem is not that CI does not return value, it is that the managers who are attempting to deliver the value, are singularly ill-equipped to do so.

Therefore, companies who want to use CI to their advantage must ensure that their staff are fully aware of the reasons why CI is gathered and how it is used.

Senior managers also have a responsibility to communicate their intelligence needs to the CI group, so that their job of collection and analysis is effective and relevant.

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Techniques Used to Analyse CI

Respondents were asked to indicate the techniques they used to analyse CI and the results are given in Table 3.

Table 3 - Techniques used to analyse CI

Variables	1=Never %	2=Rarely %	3=Sometimes %	4=Often %	5=Very Often %	Mean	Standard Deviation
SWOT analysis	5.7	3.8	28.3	34.0	28.3	3.75	1.090
Key Success Factors	15.1	22.6	35.8	20.8	5.7	2.79	1.116
Competitor Profiling	15.1	9.4	22.6	35.8	17.0	3.30	1.295
Financial Analysis	26.4	7.5	30.2	9.4	26.4	3.02	1.525
Win/lose Analysis	56.6	24.5	18.9	0	0	1.62	.790
STEP Analysis	34.0	26.4	30.2	9.4	0	2.15	1.008
War gaming/ role	67.9	13.2	5.7	13.2	0	1.64	1.076
Other	0	0	0	0	0	0	0

SWOT analysis was the most commonly used tool, whereas key success factors, competitor profiling, and financial analysis was used sometimes. STEP analysis was rarely used whilst win/lose analysis or war gaming/role playing was not commonly used. These results were further supported by views obtained during the semi-structured interview phase. Interviewees explained that the main reason for only using SWOT analysis is due to their limited knowledge of other techniques. This is a very worrying issue because if analysts limit their use of techniques only to those they know, typically elementary in nature, they in turn limit the power of the intelligence obtained.

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It is prudent for the company to employ individuals who have sufficient knowledge in all aspects of analysis work. If gaps are identified in their knowledge or skill set then the firm should grasp that opportunity to provide developmental training. Not only will this enhance the usability of any CI product, but will ensure that the analytical tools used, are used properly, and are the right ones for the task in hand.

The Contribution of Competitive Intelligence to the Strategy Decision Making (SDM) Process in the European Pharmaceutical Industry

Strategy is described by Freedman (2001) as a framework within which decisions are made, reflecting the future of an organisation and the direction which it should take.

Feurer & Chaharbaghi (1995) discuss how the formulation of competitive strategies are developed using a structured process which requires a knowledge base of the internal and external environment together with an understanding of the potential impact of different strategies.

Another important factor in the formulation of strategy, also identified by Feurer and Chaharbaghi (1995) is to reflect the dynamics of change in the market or industry. The development of strategies can, and should, rest heavily on the current market situation. Without considering all potential influencing details both within and outside the organisation, important issues may be overlooked which could cause the failure of a strategy. Although there is an extensive body of literature on strategic planning and strategy formulation, there is still a lack of a suitable framework, which can provide the basis for integrating CI into the strategic decision making (SDM) process.

Before examining each of the four stages of the SDM process and its relationship with CI, it is important to address the overall view among European CI managers as to whether CI was a key component. The results are shown in Table 4.

Table 4 - Extent to which CI is a key component of the SDM process

Variables	Never %	Rarely %	Sometimes %	Often %	Very Often %	Mean	Standard Deviation
Is CI a key component of the SDM process?	0.0	8.8	34.4	44.9	11.9	3.60	.81

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The majority of respondents (79.3%) believed that CI is 'sometimes' or 'often' a key component of the SDM process while only 11.9% reported this as 'very often'. What is encouraging is that no one indicated that CI was 'never' a key component of the SDM process.

The views of respondents on the extent to which CI contributed to the four stages of the SDM process are given in Table 5.

Table 5 - CI's contribution to the SDM process

Variables	Never %	Rarely %	Sometimes %	Often %	Very Often %	Mean	Standard Deviation
Setting Strategic Objectives	1.8	15.9	46.7	30.0	5.7	3.22	.84
Strategic Analysis	00.0	3.1	15.4	56.8	24.7	4.03	.72
Strategy Formulation	00.0	3.5	24.2	52.4	19.8	3.89	.76
Implementation & Control	5.7	20.7	39.2	30.0	4.4	3.07	.95

The majority of respondents reported that CI made a contribution to all four stages, but 17.7% felt that there was never, or rarely, a contribution from CI in setting strategic objectives. More concerning was that 26.4% could discern no contribution from CI at the implementation and control stage.

This could indicate that the strategic decision making of some firms is bereft of competitive intelligence at two key stages of the process, and just as important, this could detrimentally affect the value to be derived from the entire CI effort. Failure to obtain intelligence early and throughout the entire SDM process may result in companies obtaining intelligence at a late stage when it is impossible for them to make the necessary adjustments.

It would seem therefore, that the current relationship between CI and the SDM process is not fully integrated and more effort and commitment may be required in the form of guidelines as to how CI can be integrated effectively into the SDM process.

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In the following section, some guidelines are drawn as to how CI contributes to each stage of SDM process in respondent firms.

Stage One: Setting Strategic Objectives

This is a key stage in strategy formulation and implementation. Strategic objectives are what the company wants to achieve, concerning products and markets. They can be stated as a desired position at some designated point of time in the future (McDonald, 1996). The views of respondents on the CI contribution to setting strategic objectives in their firm are indicated in Table 6.

Table 6 - CI's contribution to setting strategic objectives (multiple responses permitted)

Element	%
Understanding competitors strategies and objectives	78.1%
Better understanding of the business environment	75.9%
Providing useful intelligence which helps to set achievable marketing objectives	60.4%
Providing information that can be a platform to develop marketing objectives	41.0%
Ensures that strategic objectives are developed within a reality perspective	38.0%
Helps managers to develop sensible and achievable strategic objectives	30.5%
Do not know	3.3%

Of concern from this data is that seven respondents and eight participants in the semi-structured interviews that they 'did not know' how CI contributed to the setting of strategic objectives. The implication is that these managers may be reluctant to use CI in this stage of the SDM process, to the firm's potential detriment.

It seems that the most common use of CI is in attempting to understand competitor's strategies and objectives and to better understand the business environment. This should lead to a greater knowledge of the factors which drive the firm's competitive environment and the setting of achievable objectives.

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Stage Two: Strategic Analysis

This is a structured approach to the collection and analysis of information and data. A strategic analyst would consider information on the business and economic climate, the market, the customers, competition, major competitors and the company's operating performance. An audit of the internal and external environment is an essential requirement to strategy formulation and implementation.

It is important to point out that any specific strategic analysis techniques or model has its own advantages and limitations. A single strategic analysis technique is sometimes problematic to adapt to certain circumstances, and will only highlight a small part of the strategic arena. Therefore there is no one tool, which on its own is adequate in dealing with the complexity of strategic analysis. This supports what was stated previously that CI managers must be fully aware of all the techniques available and how each one can be used in an efficient manner to maximise the benefit of strategic analysis.

Table 7 reports on the views of respondents on the contribution of CI to the strategic analysis stage.

Table 7 - CI's contribution to strategic analysis (multiple responses permitted)

Element	%
Helps in a better understanding of the business environment	73.0%
Provides intelligence on aspects of the competitive environment	66.1%
Helps to look at the big picture regarding business environment	60.9%
Helps managers to identify opportunities in the market and anticipate competitors' move	57.6%
Informs and supports marketing analysis	52.0%
Provides clear understanding of the market and adds value to the analysis	44.8%
Do not know	2.4%

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Within this data though, 5 respondents and 6 participants in the semi-structure interviews stated that they 'don't know' how CI contributes to strategic analysis. The implications here are that if companies are not using CI in the analysis stage, then they are more likely to fail in developing a successful strategy.

Stage Three: Strategy Formulation

This stage concerns the future position of products and markets. Relevant strategic analysis methods include forecasting techniques and downside risk assessment (Fleisher & Bensoussan 2003). This is also the time at which the manager must decide on which strategy, or strategies, the firm will follow. Table 8 identifies the views of respondents on the contribution which CI makes to the strategy formulation stage.

Table 8 - CI's contribution to strategy formulation stage (multiple responses permitted)

Element	%
Up to date intelligence regarding business environment which helps managers to make their decisions	80.3%
Assesses and evaluates likely competitors reaction	66.8%
Provides intelligence and suggestion to the senior managers	61.1%
Predicts the future position of products and markets	57.6%
Focuses on what to achieve in the market and how to go about it	46.2%
Do not know	0.7%
Other	0.3%

One good result from this study was that nearly all respondents believed that CI contributed something to the strategy formulation stage. The implication of this is that CI is being used to help make better decisions in a large number of respondent's firms.

The end of this stage is the selection of either one strategy, or a combination of strategies. The choice will be built on competitive advantage and how it can be sustained. CI can provide relevant intelligence and recommendations to support this stage. Additional techniques can be employed to conduct interactive

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"what-if" analysis. CI can also obtain expert advice, recommendations and guidelines to the selection of strategy; and to guide managers in their deliberations.

Stage Four: Implementation & Control

The decision as to what strategy to follow is not the final stage of CI's contribution to the SDM process. Some managers can devise the best theoretical strategy, but if it cannot be implemented the strategy will fail. A planned and thorough implementation plan is vital to the ultimate success of any strategy. Table 9 indicates the respondent's views for their firms.

Table 9 - CI's contribution to implementation and control stage (multiple responses permitted)

Element	%
Indicators from CI are used as an early warning system to assess success or failure	61.3%
Provides information about competitors' reaction to the strategy	54.0%
Checking the validity of the strategy	43.4%
Provides feedback to enable adjustments to be made	34.1%
Provides feedback about the strategy performance in the market	33.0%
Do not know	11.9%
Other	9.0%

A comment from one CI manager from the semi-structured interviews is worth quoting: "*It is not just a case of saying 'this is our strategy, thank you very much'. CI's contribution to implementation and control should be an ongoing process which evolves continuously. Any strategy which just stands still will die.*"

For this stage of the SDM process, 7 respondents and 2 participants in the semi-structured interviews stated that they didn't know how CI contributed to strategy implementation and control. The implications of this are that too few CI managers are recognising this as a vital stage and therefore they will not be aware of

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the need to continuously monitor and adjust their strategies accordingly. The end result will be ineffective implementation of the strategy, which in turn will lead to ineffective performance.

Additionally, it is at this stage that competitors' reaction to the implementation of the strategy can be simulated. Indicators from CI can be used as an early warning system to identify any problems in the implementation and highlight areas where adjustments need to be made. Therefore CI helps to check and assess the validity of the strategy.

Conclusion

The research reported on here would suggest that CI is not only useful, but also crucial to the strategic decision making process. At each stage of the process, there exists a level that can only be successfully accomplished with CI. Tried and tested techniques and models can be utilised and their benefits reaped if CI is seen to be, and is, part and parcel of the operating philosophy of the organisation.

Less than 12% of respondents felt that CI was 'very often' a key component of the SDM process. When considering CI's contribution to the SDM process though, the majority of responses fell between 'rarely' and 'often'. Perhaps predictably, the strategic analysis stage, seemed to be the event where CI was more frequently used but that may well not be the perception of all decision makers within the firm. It could be a reflection of the tasks which the respondents undertake and their belief in their value.

In looking at the different stages of the SDM process, there is agreement among respondents on the value of CI at both the strategic analysis and strategy formulation stages. Less common are incidents of a strong CI input into the setting of strategic objectives and implementation & control.

While it is common for there to be a strong link between CI and marketing in terms of location and practice, there is evidence to suggest that there is also a strong link with science disciplines, especially R&D. This has huge implications for the industry as it suggests that CI in the pharmaceutical industry requires a high level of scientific knowledge as well as business knowledge. So, can a pharmaceutical organisation rely on CI practitioners with no science knowledge to obtain the best possible intelligence and can the business function totally rely on science trained specialists to use the appropriate business tools in the right context? What can be concluded from this is that CI in the pharmaceutical industry is essentially dependent on both science and business. However, there can be very few people who can claim to have mastered both disciplines. Therefore, senior management must be able to recognise gaps in the knowledge of their CI practitioners. Perhaps, the scientists would benefit from intensive business courses and the

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business people would benefit from science courses. The outcome would be well-trained CI practitioners who could maximise the level of intelligence, which can be obtained from any given situation.

A positive point is that all the respondents indicated that they recognise the benefits of CI to the SDM process. They all appreciated that CI can greatly contribute to their overall industry awareness, their development of new product and technologies. A large majority also indicated that they recognise the contribution CI has to strategic and tactical planning.

It can be concluded that the tools and techniques used by CI practitioners are mainstream with few venturing outside of the familiar ones taught on business courses. The more advanced techniques which might be expected from a science/technology driven community were not in evidence.

Other points, which were highlighted through the open questions and the Follow up Interviews, included the fact that there is awareness among smaller companies that the larger organisations have a major advantage in terms of their overall CI capability. While it is hard to ignore the fact that larger companies will undoubtedly have more resources, and perhaps expertise, this should encourage, not discourage smaller organisations to maximise their efforts with the resources they have. Otherwise they risk succumbing to surprise competitive moves.

The practice of CI in the European pharmaceutical industry is extremely diverse and challenging. Combined with this is the fact that the industry is continuing to evolve rapidly. Firms which pay particular attention to their CI capabilities and functions are acting wisely, as this may well be their only line of defence in an industry characterised by intense competition and high rewards. This is particularly relevant in the R&D function where a timely and appropriate response to CI is essential. Without that level of integration, the R&D function risk operating in a scientific vacuum.

Managerial Implications

The literature on CI and the pharmaceutical industry tends to be US in origin and has a corporate, rather than an academic perspective. While it could be argued that a corporate perspective is more valuable to CI practitioners the reality is that corporate material focuses on why, as opposed to how, CI is carried out . In the few examples of best practice organisations the only information which is generally given is that of the particular company's overall perception of CI and not their actual experiences of using it. The counter argument to this conclusion is that the industry prefers to keep its CI capabilities a secret from competitors.

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While this may be acceptable, it has implications on the development and evolution of CI in the industry. Surely, a more relaxed and open atmosphere would benefit all concerned? One solution would be for the R&D scientists to publish more of their work thereby adding to the body of knowledge. McMillan (1999) argues that there is a statistical relationship between how much a pharmaceutical company publishes in scientific journals and its level of patenting activity. Firms which took a "publishing" rather than a "secretive" stance towards their work tended to be more innovative and had staff that were highly motivated.

This research has suggested some pivotal factor which may be considered by senior management in all types of pharmaceutical organisation.

- Organisations would benefit from a clearly defined CI ethos. They should aim to generate a certain mindset among all staff in relation to the handling of information and to encourage the practice of CI by everyone in the organisation, regardless of their job function or level of responsibility. CI should be everybody's concern.
- Firms should communicate the current strategy and as a consequence, make visible the CI input which has and will continue to influence those decisions. This should be broken down into the four stages of the SDM process to reinforce the need for a continuous effort and the differing types of CI which are needed at different stages.
- CI capabilities should be matched to the organisation's size and requirements in order to maximise efforts. All CI efforts should be properly planned and be in line with the overall strategy.
- Staff training should be a part of a continuous development programme aimed specifically at the integration, capitalisation and integration of skills held within both the scientific and business functions.

Research Limitations

The lack of a typical CI manager profile hindered the exact identification of suitable respondents. Whilst the SCIP member directory might be considered an acceptable basis from which to draw a sample, this cannot be put forward as a statistically sound, or necessarily reliable method for the selection of respondents. Having said that, in the absence of insider industry knowledge, or a wealth of personal contacts within many different types of pharmaceutical firms, it is difficult to think of a credible alternative. Consequently, the questionnaire was sent to the marketing manager in each organisation as the most likely location for CI to be undertaken. This may have excluded some CI practitioners in the industry, working under different job titles.

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Despite achieving an acceptable response rate of 32.4% (79 usable returns from 244)and a pleasing number of follow-up interviews with 14 CI managers, the sample frame could not be considered as extensive or exhaustive. This impacts on the validity of the research as a whole and as such, this research should be viewed for what it is and nothing more. As interesting as the findings are, the drawing of wide ranging or specific recommendations, without further triangulation and/or investigation, would be unwise.

Implications for Future Research

As this study evolved, concerns were raised which would be worthy of future research. The following points were highlighted as being important factors in the industry, and it would be worthwhile for these to be researched further:

- The SDM process in the pharmaceutical industry can be extremely long and laborious. The speed with which CI can reach decision makers has to be investigated and the dangers of delay identified

- The ability for the role of CI in the SDM process and its component stages to be mapped and as a consequence, the intelligence needs identified and anticipated

- The contribution of CI to each of the stages needs to be assessed and measured (not necessarily quantified), otherwise it is impossible to know if there is any return on the effort expended.

- Investigation into the physiology of effective CI managers in a high technology /innovation driven industry such as pharmaceuticals.

The answers to these questions would greatly assist firms in the achievement of long term benefits from their CI effort.

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Ahmad is the Chair of Marketing at Abu Dhabi University. He holds a BSc from Beirut Arab University, Lebanon, and an MSc Strategic Marketing with Distinction from Leicester Business School, De Montfort University. Ahmad was awarded a Doctor of Philosophy degree by the University for his thesis on "The Role of CI in the Formulation of Marketing Strategy", the first successful Doctoral study in the UK to focus on CI. He is also the author of a comparative study of CI practice between US and UK firms. More recently, Ahmad was successful in the highly competitive Chartered Institute of Marketing Research Award Scheme, which secured funding to carry out further studies into various aspects of CI, principally strategic implementation and management. Ahmad is now developing his ideas, paradigms and operational frameworks to assist Managers wishing to incorporate CI into their strategic planning process. He has provided consultancy and training services for several UK, US and UAE based firms. Drawing on his

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industrial experience as a Marketing Manager in an international context, Ahmad is able to illustrate the practicalities of implementing CI and strategic plans.

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Having concentrated on the sciences for her first degree, Emma was awarded a Masters Degree in Business Administration with Distinction by De Montfort University in 2004. Her thesis on CI in the UK pharmaceutical industry provided the opportunity for her to apply the newly found general business awareness with her existing scientific knowledge. This resulted in an some interesting insights on the need for better business education in general and CI in particular among the broad scientific community working in pharmaceuticals. On graduation, Emma travelled to the Middle East and is now employed as Marketing/Business Intelligence Officer at Abu Dhabi University, United Arab Emirates.

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Sheila is a Principal Lecturer at Leicester Business School, De Montfort University where she leads the Competitive Intelligence-Marketing Interface Teaching and Research Initiative (CIMITRI). She holds an MBA from the University of Warwick, the Professional Diploma in Management from the Open University and was one of the first Chartered Institute of Marketing (CIM) members to be awarded Chartered Marketer status. Sheila has authored or co-authored articles published in Marketing Intelligence & Planning, European Journal of Marketing, R & D Management, Journal of Marketing and Comportamento Organizacional e Gestao, Strategic Change and the Journal of Competitive Intelligence & Management. Numerous research projects have been undertaken under her supervision. She has worked on educational, business development and CI projects in UK, Turkey, Germany, Italy, Portugal, Belgium, France, South Africa, Syria, Egypt, United Arab Emirates and the USA. In 2006 she was appointed Co-Editor of the Journal of Competitive Intelligence & Management, having previously been Regional Editor (Europe), a reviewer and Board member for JCIM. She also reviews papers for other academic Journals.

Key Terms

Competitive Analysis, Competitive Intelligence, Decision Making, Empirical Study, Management, Pharmaceutical Industry – Europe, Professionalism, Strategic Analysis.